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Complete Planter's Guide

GARDEN MAGAZINE

March 1920

Price 25 Cts.

VOL. XXXI, No. 1

(*Magnolia rustica, reproduced from Flora & Sylva*)

Doubleday, Page & Co.
Garden City, N. Y.

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Root System of Oft-Transplanted Tree

Root System of Once-Transplanted Tree

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The illustration at the left shows a young tree which has been transplanted *many times*. As a result, the roots are compact and close to the tree. Such a tree will transplant well. It is more certain to live and will grow faster.

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THE GARDEN MAGAZINE
MARCH, 1920

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Title page and contents to Volume XXX now ready and will be sent gratis on application

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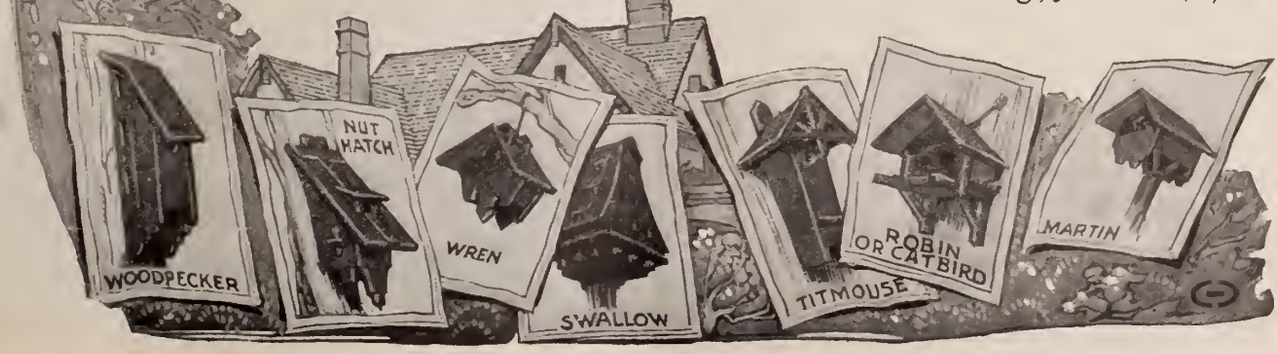

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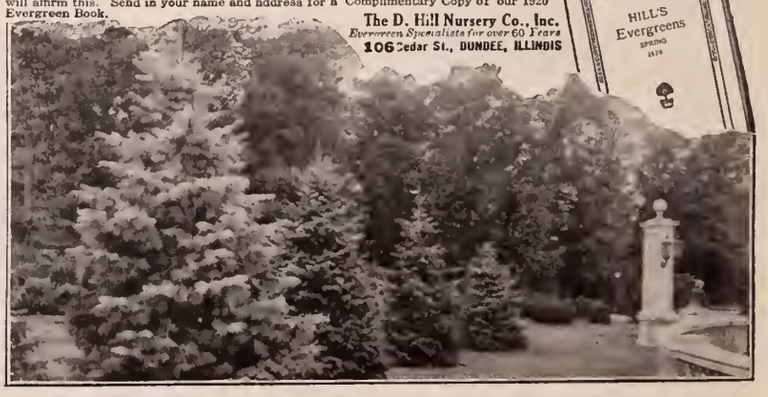

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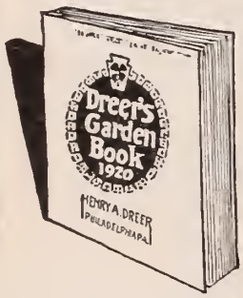

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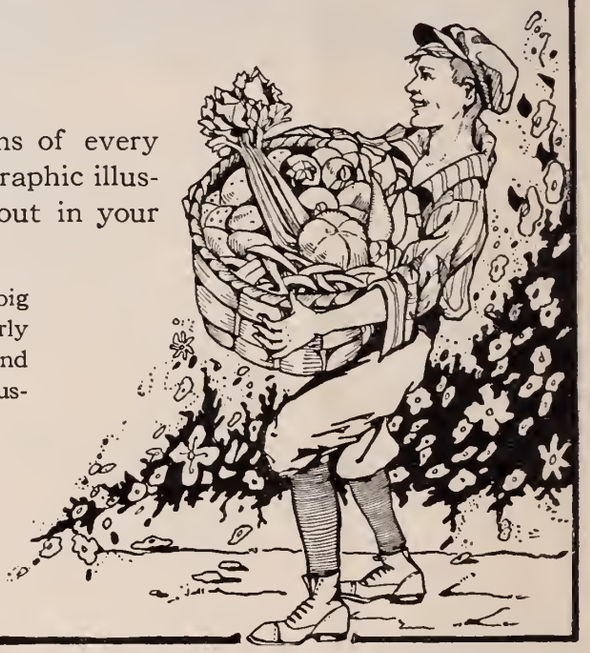

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B. HAMMOND TRACY

INCORPORATED

Box 27 WENHAM, MASSACHUSETTS

For the *Real* Profits—

IT'S the vegetables sold long before out-door gardens materialize that bring the *real profits*—a greenhouse makes gardening really *worth-while*.

And you can materially *increase* the usual returns by gardening with CALLAHAN SECTIONAL GREENHOUSES. The free catalogue tells how they take the cost out of greenhouse construction. *Write for it TO-DAY.*

Get Your Greenhouse *Now*

Remember—Callahan Sectional Greenhouses *cost less*—are easily and quickly erected—are completely finished in sections in our factory—are made in desirable sizes and can be enlarged. Remember—They are designed and built right—*permanent greenhouses.*

Duo-Glazed Sash for Hotbeds

Callahan Duo-Glazed Sash Co.

1347 Fourth St. **Dayton, O.**

CALLAHAN SECTIONAL & CUT-TO-FIT GREENHOUSES

ANDORRA

to complete the setting of house and garden

Trees and shrubs, distinctive in quality and large size which will produce an immediate effect

ANDORRA NURSERIES
Chestnut Hill, Pa.

$5.00 and "Torches of Beauty"

My 1920 offerings of gladioli are exquisite, including old friends and the choicest obtainable novelties.

For $5.00 I will send prepaid either 12, 18 or 25 bulbs (be sure to mention which number you desire). My selection will include a half dozen high-class varieties that would total at least $6.00 in my catalogue.

Artistic booklet for the asking.

W. L. CRISSEY, *"Gladiolus Farm"*
Boring **Oregon**

Water Lilies Ask No Favors

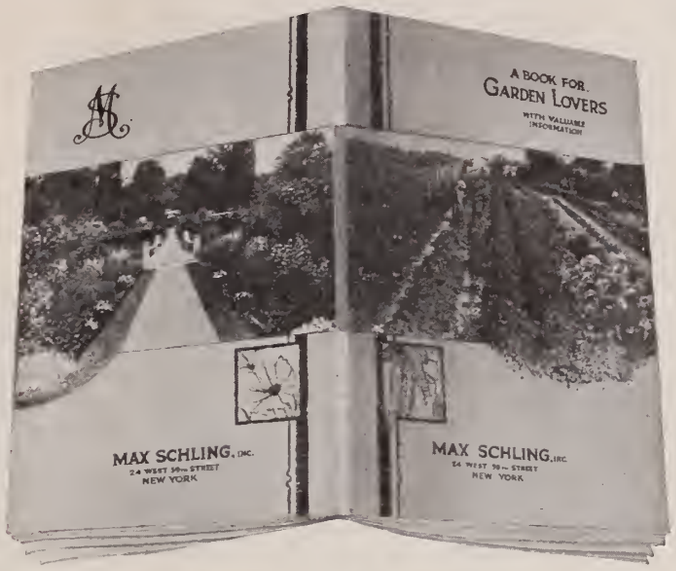
Just because a pond is where they're usually seen, people think a pond is essential.

Nonsense!

You can get excellent specimens in a tub; some of them will bloom in a bucket; none of them require much attention.

Our Lily catalogue will be sent *free* on request; you can have the most exquisite garden prizes in a small space if you wish. Send to-day for our booklet.

INDEPENDENCE NURSERIES
Box M **Independence, Ohio**



FREE ON REQUEST

TO GARDEN OWNERS!

"A BOOK for Garden Lovers"—not a series of indiscriminate "puffs" and eulogies of everything we want to sell—but a sincere, practical, dependable guide to dependable seeds of supreme quality—for distinctive gardens of quality! The result of a life-long experience, careful study and observation in the growing and testing of plants and seeds. It answers your instinctive questions and tells you just what you want to know. Crammed full of valuable pointers that will save you from needless mistakes, and help you achieve a glad success in your flower and vegetable gardening. You'll have much to be proud of, and nothing to apologize for, if you take this Book as your guide and counselor. Features also many novelties of unique merit. Send for your free copy NOW—lest you forget!

A Perpetual Spinach

An Exclusive Novelty

AMONG our many attractive novelties is a *Perpetual Spinach*, developed exclusively by ourselves and not obtainable elsewhere. A real Spinach that you can cut and recut, and it will come and come again. Not a Swiss Chard but a big-leaved, quick-growing, Summer and Fall Spinach, which takes the place of all other varieties.

A 2-oz. package, which will cost you only $1.00 if you remit soon, is enough to supply the table with this delicious Spinach for a whole Summer.

Our Offer of 3 Wonderful Novelties

advertised in the last issue of *The Garden Magazine*, still holds good, but you are urged to send in your dollar bill at once—in return for which you will receive a 50c. pkt. of the *Blue Lace Flower*, a 75c. pkt. of the *Lilliput Poppy* (as many as 120 flowers on one plant!), and a 50c. pkt. of our *New Hybrid Double Poppy*, as big as a peony.

Take advantage of these two *Dollar Offers* before another sun sets. And don't forget to ask for your free copy of *"A Book for Garden Lovers." Write us this minute!*

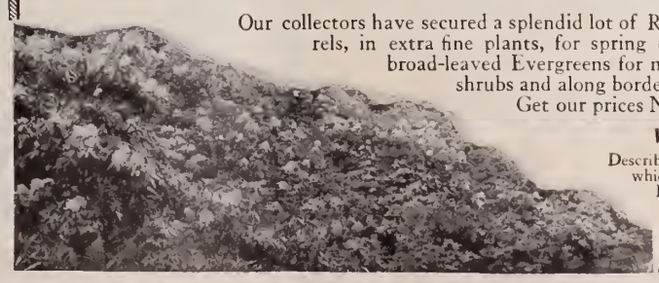
Schling's Seeds

MAX SCHLING, Seedsman, Inc., 24 West 59th St., New York

Native Rhododendrons and Kalmias

in Car Lots, at Reasonable Prices

Our collectors have secured a splendid lot of Rhododendron maximum and Mt. Laurels, in extra fine plants, for spring delivery. These are the ideal hardy broad-leaved Evergreens for massing or grouping under trees, large shrubs and along borders. **Fruit trees and Rose bushes.** Get our prices NOW.



Write for Free Catalogue

Describes our general line of fruits and ornamentals which will be found complete in every respect. Please ask for your copy to-day.

The Morris Nursery Company
1123 Broadway New York City, N. Y.

TWO Generations have played under this Purple Beech.

THE advantages of the Purple Beech as a shade tree deserve to be better known—and acted upon. The Purple Beech is able to resist the adverse conditions of city and "near-city" or suburban life. It is remarkable for its fast growth and for its "length of days." As an investment, therefore, in the great need and virtue of country life—Shade—the planting of a Purple Beech will bring you an extraordinary and quick return. Not only your own (and your neighbor's) children but the playmates of succeeding generations will be grateful to the hands that plant a Purple Beech to-day.

Moons' Nurseries were among the first to introduce the Purple Beech commercially to America, in the '60's. And we are prepared now to do our share in popularizing it and urging our tree-lovers and shade-lovers to plant it more freely. We offer the famous Rivers strain of Purple Beech, which has the most enduring purple shade of foliage and the bark of elephantine color—the favorite bark of lovers who delight to carve hearts and initials on sympathetic trees. Our stock runs from 4 ft. to 16 ft. in height, at prices ranging from $3.50 to $25.00 each.

We will suggest appropriate planting spots for these trees if you will describe your grounds when you send in your order If your home is not too far away from New York or Philadelphia, one of our traveling representatives will call upon you, if you like (without cost or obligation to you), look over your grounds, and offer friendly counsel not only concerning shade trees but upon other details of the landscape-planting and beautifying of your home surroundings. Let us hear from you *soon*—before the rush of Spring planting sets in.

Moons' Nurseries
THE WM. H. MOON CO.
MORRISVILLE *PENNSYLVANIA*
which is 1 mile from Trenton, N. J.

PLACE ORDERS NOW
for the
NEW ROCHESTER PEACH TREES

The most wonderful, most delicious peach obtainable—yellow and red freestone—stone very small. For eating and canning it cannot be surpassed.

The new Rochester Peach has an exquisite, delicate, distinctive flavor. Its flesh is of the richest yellow, highly flavored and luscious through and through.

The new Rochester Peach is a strong, upright grower, with a well-developed top. It comes into ripening the middle of August and bears the first year Stands shipment as well as an Elberta. Hardier even than Elberta or Crawford. *Has stood 16 degrees below zero and produced a full crop!*

Nursery stock will be harder to obtain later in the season and higher in price. The best varieties may be impossible to get at all. Order this wonderful new Rochester Peach now while the supply lasts.

WRITE for circular, illustrated in color, describing this remarkable peach, Bearing-age fruit trees, Blueberries, Ever-bearing Raspberries and other nursery stock.

J. G. MAYO & COMPANY
World's Best Trees & Plants for the Home Grounds
603 Ellwanger & Barry Building
ROCHESTER, N. Y.

The No. 306
"Complete Gardener"

Does all the hard work of gardening and makes it healthful, pleasant and profitable.

As a Seeder:
It plants the most difficult seed such as tomatoes, beets, lettuce, etc., to the very last thimbleful.
It sows any quantity wanted in *drills*.
It puts any desired number of seeds in *hills* 4, 6, 8, 12 or 24 inches apart.
It makes furrow, plants seed, covers it, packs soil and marks next row at one operation.

As a Wheel Hoe:
It works either astride the row as a two-wheel tool or down the middle with one wheel.
It hoes, weeds, furrows, covers, builds up ridges, cultivates, pulverizes—does practically any cultivating operation you want.

Write to-day for booklet, "Modern Gardening."

Bateman M'f'g Company
Makers of good implements since 1836
Box 35C, Grenloch, N. J.

IRON AGE
GARDEN TOOLS

"The Dessert Berry of the Nation"

The Erskine Park Everbearing Red Raspberry

was discovered on the Westinghouse Estate (Erskine Park) at Lee, Mass., by Mr. Edward Norman. This magnificent estate is in the midst of the beautiful Berkshire Hills, with a temperature in winter of 30 or 40 degrees below zero, so that the hardiness of this berry is unquestioned. The estate is surrounded by the summer homes of many wealthy people, and much to the surprise of his neighbor gardeners and not without a deal of personal satisfaction, Mr. Norman furnished large, luscious raspberries throughout the fall for various dinner parties.

These berries are commented on by all who have seen and tasted them as the most delicious and best raspberry they ever have eaten. Mr. Baker of Hoosick Falls, N. Y., writes us as follows:

"In the season of 1916, Mr. George M. Darrow of the United States Department of Agriculture was traveling from the Atlantic to the Pacific, visiting fruit growers to obtain information on berries for bulletins published by the Department of Agriculture. Mr. Darrow had visited this estate before, and was most favorably impressed that this berry was far ahead of the St. Regis and Ranere, and when it became known it would replace these varieties. The plant is by far the strongest growing raspberry I have ever seen. It branches like a tree, and it also has the largest and most roots of any variety with which I am acquainted. It is perfectly hardy and the berries are very large."

Conceive the joy and satisfaction of having such berries on your table all through the autumn, the source of wonder to your neighbors, that you can pick the finest raspberries until the snow flies. On November the 20th we cut a large branch of the Erskine Park with *blossoms, green berries* and *ripe fruit* upon it.

Strong Field-Grown Bearing Plants, For Fall Planting

Send for our Free illustrated 1920 Catalogue which describes the "WORLD'S BEST" trees and plants for your garden.

GLEN BROTHERS, INC.
Glenwood Nursery
1914 Main St. Rochester, N. Y.

Ready For Outdoor Garden

and Weeks Earlier

Begin to harden off your plants *now* under Sunlight Double-Glass Sash and you will have them ready for the outdoor bed two to three weeks before your earliest neighbor.

SUNLIGHT DOUBLE-GLASS SASH

consisting of two layers of glass, $\frac{5}{8}$ inch apart—form a transparent blanket over the bed letting in *all the light all the time.* No covering is needed,—hence no mat or shutter nuisance, no worry, no trouble. The cold is excluded, the heat retained, even in the most severe weather—SUNLIGHT DOUBLE-GLASS SASH mean a successful garden and strong, healthy, and hardy plants.

Sunlight Greenhouse

These inexpensive Sunlight Greenhouses are made of cypress and glass, are operated at little expense, come ready to put up and are easily erected.

Write for Free Illustrated Catalogue of Sunlight Sash and Greenhouses. You will find it interesting.

Sunlight Double-Glass Sash Company
Division of
Alfred Struck Co., Incorporated
Established 1869
927 E. Broadway Louisville, Ky.

SUNLIGHT Double Glass Sash for Hot-beds and Cold-frames

We Will Teach You Gardening Fundamentals

Add to your success and pleasure by mastering the fundamentals of gardening. Avail yourself of the HOME STUDY COURSE IN GARDENING, published in the Gardeners' Chronicle, under the direction of Mr. Arthur Smith, widely known as an authority on all phases of horticulture. It will help you to grow more delicious vegetables, more luscious fruits and more beautiful flowers.

This HOME STUDY COURSE

teaches you not only what to do but also "the why and the wherefore" of each gardening operation. It gives you a deeper understanding of plant life and of its needs than you have ever had before. A lesson on a seasonable subject relating to the home garden appears regularly each month in the columns of the Gardeners' Chronicle. No home gardener can afford to miss these practical, helpful lessons.

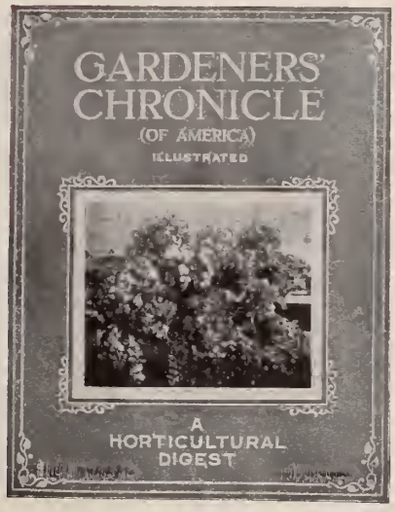
GARDENERS' CHRONICLE

A publication which will be of inestimable help and benefit to you in your garden work.

Its pages are devoted exclusively to gardening. Its notes on the growing of flowers, fruits and vegetables are both precise and practical. They do not leave the reader in doubt on methods of procedure.

The special articles each month are from the pens of the foremost gardeners and horticulturists in America. Its digests are from the leading horticultural periodicals of both America and the European countries.

The Gardeners' Chronicle provides a fund of helpful knowledge for all interested in gardening, and is creating among its readers a real gardening spirit, by interpreting the true and lasting joys and benefits of gardening. It aims to perpetuate the nation-wide interest that has been aroused in American home gardens.



12 LESSONS $2

Send your check or money order for $2 and receive 12 complete issues of the Gardeners' Chronicle. Each issue includes a complete lesson on Home Gardening, besides a wealth of other horticultural information. Send to-day. You'll especially need the lessons this Spring.

GARDENERS' CHRONICLE
286 Fifth Avenue
New York

SCISSORS HERE

GARDENERS' CHRONICLE, 286 Fifth Ave., N. Y.

Enclosed find $2 for which please send me the **Gardeners' Chronicle** one full year (12 months), each issue to contain a lesson on Home Gardening.

*Name*_____

*Street*_____

*Post Office*_____ *State*_____
G. M.

Hardy Native Plants, Ferns and Azaleas

Osmunda Claytoniana

Our Collection of Native Ferns Is The Best In America

Announcement for 1920

My 1920 catalogue with many illustrations of hardy native plants, ferns and azaleas, is now ready, and I should be pleased to send you a copy if you are interested in such plants.

For 40 years I have been growing ferns, wild flowers, orchids, azaleas, and many other hardy native plants that are of great value in the rock garden. It has taken many years of painstaking labor, and a great deal of expense to be able to offer this collection. I am especially proud of my collections of ferns and azaleas.

My stocks not only include these rare plants, but they are sufficiently large to enable me to take care of large as well as small orders.

I also have choice stocks of native rhododendrons, laurels, evergreen shrubs and perennials of all sorts.

EDWARD GILLETT
3 Main St. Southwick, Mass.

A Garden Full of Gladioli for $1.50

The Gladiolus is one of the most satisfactory flowers grown and there is no reason why every family cannot enjoy this grand flower—it is as easy to grow as the potato.

Bloom from July to frost if you plant a few bulbs each month from April to July.

For **One Dollar and Fifty Cents** we will send **50 Bulbs** of our **Grand Prize** Mixture, which covers every conceivable shade in the Gladiolus kingdom.

Each year we sell thousands of these bulbs and receive numerous testimonials as to their merits.

Order Your Bulbs Now, so as to have them to plant when you begin making your garden.

Simple cultural directions with every package

Mail this advertisement with Check, Money Order, Cash or Stamps, or present at our store and secure this splendid collection, sent prepaid to any point in the U. S. east of the Mississippi. **For points West and Canada add 25c—($1.75.)**

Our 1920 Spring Seed Annual sent on request

Stumpp & Walter Co. 30-32 Barclay St., New York City

PEXTO PRUNING SHEARS

Make Things Grow by Right Pruning

The big oranges, the rich rosy apples the kiddies like so well, the American Beauty rose—all are the products of experts. Growers and florists who know *exactly how*, as well as the kind of pruning shears to use—use *Pexto*.

The kind they use is rone too good for you. You want your trees, shrubs, and hedges to grow and thrive.

And Pexto Pruning Shears will help you get these good results. You can identify the Pexto Dealer by Pexto Tool Displays—displays of specially selected kinds.

A Practical Pruning Guide

The Little Pruning Book by F. F. Rockwell, a widely known writer with practical pruning experience, tells how, when, and where to prune for the most vigorous and healthy growth. Sent prepaid for 50 cents (48 pages).

THE PECK, STOW & WILCOX COMPANY
Southington, Conn. Cleveland, Ohio
Address correspondence to 2003 W. Third St., Cleveland, O.

100% American for 100 Years
FOUNDED IN 1819

An Attractive Arrangement of Harrison Evergreens

Evergreens Make Your Home Say "Welcome!"

Evergreens snuggling cheerily about the house seem to say: "Come right in."

Every Harrison Evergreen has room for strong individual development. It develops a vigorous compact root system in the rich Maryland loam. It is dug carefully so as to retain a ball of earth about the roots and wrapped with burlap—all without extra charge. There are Harrison Evergreens for every place and every purpose.

We can also supply you with everything needed for the home grounds—shrubbery, hedge plants, shade trees and large and small fruits, asparagus, etc.

Write to-day for 1920 catalogue.

Harrisons' Nurseries
J. G. Harrison & Sons Proprietors

"Largest Growers of Fruit Trees in the World"

Box 56, Berlin, Maryland

LILIUM REGALE THE REGAL LILY

May be planted until the end of April to bloom in July. This Lily was collected especially for us by Mr. E. H. Wilson on the mountain slopes of Western China near the frontier of Thibet. It is as hardy as any known Lily. The flowers are white, slightly suffused pink, with canary yellow at the centre, and extending part way up the trumpet.

Strong Flowering Bulbs, $1.00 each; $10.00 per dozen; $75.00 per hundred.

R. & J. Farquhar Company

6 South Market Street Boston, Mass.

The Little Chap Next Door

SEVEN years of boyish exuberance bounded up on his new neighbor's porch. Gravely his eyes swept the long expanse of uninterrupted lawn.

"Nothin' but grass" he said. "Why don't you have a garden like we've got, with trees, an' bushes, an' everything?"

The owner laughed. But the more he looked at his lawn, the more its bareness impressed him. Seven years had taught forty. That night, he wrote the Landscape Architectural Department of the Keystone Nurseries for advice.

Japanese Barberry, Ampelopsis, Trees, and evergreens—including a Blue Spruce or two—transformed his grounds into a miniature Garden of Eden. Perhaps we can help you, too. We will gladly offer helpful suggestions. Write for our new 1920 catalog. We will send it by return mail.

B. F. Barr and Company

KEYSTONE NURSERIES

116 Barr Building, Lancaster, Pa.

For You Garden Lovers Surely Never Was Such A Catalogue As The Ten-Ten

It's just the sort of catalogue you would make, if you had the making of it.
The reason we say that, is because we asked a goodly number of genuine garden lovers and practitioners, the kind of catalogue to make, to make your gardening more pleasureable and profitable.
So that is the kind of catalogue the Ten-Ten is.

It's called Ten-Ten, because everything, so far as possible, is grouped in tens.
All of which applies alike, to flower and vegetable seeds; hardy plants; roses; shrubs and evergreens.

It does away entirely with that endless puzzle of making selections from lists of varieties, staggering in their length. Lists, that list everything as the best thing to buy. Surely *everything* can't be the best thing. Some surely are better than others.

Such being so, why not list the best ten?

That, then, is exactly what we did. Did it with the aid of a conference of experts, to pass on selections. When you look them over, you'll see what a choice lot they are.
Every one of them the top notchers in their class.

The print is plenty large enough to read easily, and there is only one column of it to a page. You don't have to run your finger across, to find out the price. Name and price follow on each other's heels.

Furthermore, it's full of helpful hints and withal, charming bits of enthusiasms, such as make a catalogue so much more than a mere catalogue.

Send for it, and see if it isn't your kind, containing your kind of things.

R. Roehrs

Julius Roehrs Co
At The Sign of The Tree
Box 10 Rutherford N.J.

Imp. Dwarf Blueberry
(Huckleberry)

Large, luscious, almost seedless. Succeeds where Strawberries, Raspberries or Blackberries succeed. Yields abundantly under ordinary culture, very hardy.

Also the best Strawberries, Raspberries, Blackberries, etc. Ornamental Trees, Shrubs, Vines, Roses, Hedge Plants and Garden Roots. Our descriptive Catalogue No. 1 gives details. It is FREE.

J. T. LOVETT, Inc. Box 125 Little Silver, New Jersey

Berry Specialists for 42 years

BEEMAN ONE HORSE TRACTOR —replaces the horse

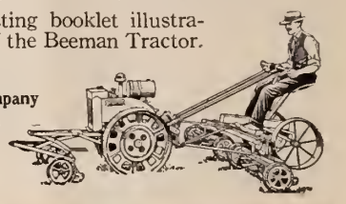
It plows—harrows—drills—cultivates. It mows lawns, mows hay, hauls loads—does any one horse work at ½ horse cost — also 4 h. p. belt work.

Be Independent of Hired Outfits

GET a Beeman and have the power of one horse or a 4 h. p. gas engine ready whenever and wherever you need it—dependable economical power. A big help the year 'round to suburbanites, truck gardeners, orchardists, farmers, managers of country estates, golf clubs, etc. Solves labor problem.

2 h. p. on drawbar, 4 h. p. on belt—S. A. E. Rating. The Beeman is the original garden tractor —fully developed, time-tested, thousands in use.

FREE—Interesting booklet illustrating many uses of the Beeman Tractor. Write for it.



Beeman Tractor Company
337 Sixth Avenue South
Minneapolis, Minn.

DINGEE ROSES
Sturdy as Oaks

Pot-grown rose bushes, on own roots, for everyone anywhere. Plant any time. Old favorites and new and rare sorts, the cream of the world's productions. "Dingee Roses" known as *the best* for 68 years. Safe delivery guaranteed anywhere in U.S. Write for a copy of

Our "New Guide to Rose Culture" for 1920. It's FREE.

Illustrates wonderful "Dingee Roses" in natural colors. It's more than a catalogue —it's the lifetime experience of the *Oldest and Leading Rose Growers in America.* A practical work on rose and flower culture for the amateur. Offers over 500 varieties of Roses and other plants, bulbs and seeds, and tells how to grow them. Edition limited.
Established 1850. *70 Greenhouses.*

THE DINGEE & CONARD CO., Box 337, West Grove, Pa.

Get This Seed Book

FOR 33 years Olds' Catalog has been the farm and garden guide of thousands of people. It has been responsible for the success of gardens, large and small, as well as field crops everywhere. It lists only carefully tested and selected seeds. It leaves no room for guesswork, for

Olds' Catalog Tells the Truth

It makes no extravagant claims. Every statement is based on fact. You positively cannot make a mistake when you order garden, flower and field seeds, plants or bulbs from this book. Every packet of Olds' seeds is backed by 33 years of seed experience. All seeds conform to the strict Wisconsin seed laws. When you buy Olds' seeds you buy with certainty and assurance of good crops from the seed standpoint. Why take chances?

SEND FOR THIS BOOK—IT'S FREE
A postal card brings it by return mail. Start right with right seeds. Send for this book now.

L. L. Olds Seed Company, Drawer C26, Madison, Wis.

Eschscholtzia Thorburn

The effect of the plant of above California Poppy in bloom is simply gorgeous.

Send ten cents for a packet of this beautiful flower, and the Catalogue for 1920.

GARDEN SEEDS

Successful Seed culture is a matter of expert knowledge and long experience—knowledge of soils, climatic conditions and sources of supply—experience in selection for maximum vigor and growing power.

Thorburn Seeds have stood the test of time—back of every Thorburn product is our reputation of continuous leadership for more than a century.

Insure the Success of Your 1920 Garden By Planting Thorburn Seeds

Since 1802 these dependable seeds have been famous for their superior quality and reliability. Used continuously by five generations of discriminating gardeners.

Our latest catalogue for 1920 of Thorburn Seeds contains many valuable and interesting gardening suggestions. Free on application.

J. M. THORBURN & COMPANY

Founded 1802

53 Barclay Street **New York City**

DAHLIAS

The Best All-Season Flower in the World

Dahlias will start blossoming six to eight weeks after planting, and keep on blooming until killed by frost. From some varieties you can cut as many as two hundred blossoms from a single bulb. Your choice in form and coloring is almost unlimited.

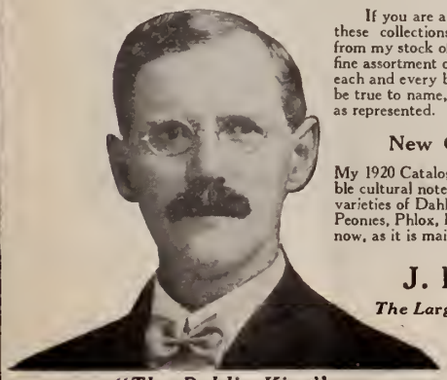
TRY THESE COLLECTIONS

SIX GIANT DAHLIAS FOR $5.00 PREPAID

Bianca (Hybrid Cactus) Rose-pink, very free-flowering
Cardinal (Peony-flowered) Purple-crimson, long stems
Hortulanus Fiet (Giant Decorative) Salmon-pink
Kalif (Hybrid Cactus) Beautiful rich scarlet
Mrs. Brandt (Incurved Cactus) Orange-buff blending
Yellow King (Hybrid Cactus) Giant yellow, long stems

FIVE CHOICE DAHLIAS FOR $1.00 PREPAID

Ella Kramer (Cactus) Rose-pink, free-flowering
J. H. Jackson (Hybrid Cactus) Giant deep maroon, almost black
Mina Burgle (Decorative) Finest scarlet-red, free-flowering
Queen Wilhelmina (Peony-flowered) Fluffy pure white
Stradella (Show) Double quilled purple-crimson



"The Dahlia King"

If you are a flower lover, you will be delighted with these collections. They have been carefully selected from my stock of nearly 2,000 varieties and will make a fine assortment of types and colors. You run no risk as each and every bulb is fully guaranteed to grow and to be true to name, and I will replace any that fail to prove as represented.

New Cultural Guide Free

My 1920 Catalogue and Cultural Guide contains valuable cultural notes, and complete descriptions of over 500 varieties of Dahlias, and a complete collection of Gladioli, Peonies, Phlox, Hardy Plants and Nursery Stock. Write now, as it is mailed free to all applicants.

J. K. ALEXANDER

The Largest Dahlia Grower in the World

27-29 Central St.
East Bridgewater Massachusetts

Display Fountains

Various designs, carefully worked out and models beautifully made.

Consult us to prepare special designs for anything you require in ornamental Iron or Bronze.

We issue separate catalogues on:

Display Fountains
Drinking Fountains
Electroliers, Vases
Gateways, Sun Dials
Stable Fittings, etc.

Ornamental Department

THE J. L. MOTT IRON WORKS

Trenton, N. J.

Fifth Ave. and 17th St. **New York**

New Hybrid Philadelphus

The great French hybridizer Lemoine has produced a new race of Philadelphus commonly known as Syringa or Mock Orange that are the most valuable introduction in shrubs in twenty-five years. Not only are the flowers wonderfully improved but they are produced in marvelous profusion and the smallest and youngest plants are covered with flowers. Nothing has ever attracted more attention and admiration in our trial grounds where they have been thoroughly tested.

"Mer de Glace" (Sea of Ice). Undoubtedly one of the most beautiful shrubs introduced for many years. Everyone is familiar with so-called Syringa or Mock Orange but Lemoine, the great French hybridizer, has improved this old shrub wonderfully. The flowers are globular semi-double, of a glistening pure white and deliciously sweet-scented. It would be impossible for a shrub to bear more flowers and the smallest plants are covered. People who have seen it in our trial grounds have been delighted with this exquisite shrub. **$1.50 each.**

Albatre. An extremely floriferous shrub in the way of the beautiful variety "Mer de Glace," slender branches furnished with middle-sized serrate leaves. Full double flowers produced in dense panicles, pure white. Very sweet. **$1.00 each.**

Dame Blanche. Small foliage, upright branches set with semi-double fringed flowers. Cream-white, very fragrant. **$1.00 each.**

Favorite. The large erect branches are furnished with waxed leaves and carry large single flowers 3 inches wide. Pure white with a bunch of yellow stamens. Small plants. **$1.00 each.**

Glacier. Strong and erect stems, medium-sized ovate, serrate leaves. Flowers double, clustered by six or seven, in erect and thickly set panicles, each panicle being similar to one enormous double flower. A very good sort. **75c. each.**

Mont Blanc. Upright branches, panicles of numerous sweet-scented flowers. **75c each.**

Virginal. A vigorous and tall shrub. Flowers in dense clusters, large and double, pure white. A grand sight. **$1.00 each.**

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Owing to the great demand we have nothing but small plants left of these splendid shrubs, but the smallest plants bloom profusely.

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These are the small-flowered Chrysanthemums of the old-fashioned gardens, and bloom in October and November after almost all flowers are gone. They are showy in the garden and effective as cut flowers and being perfectly hardy and of easiest culture, can be successfully grown in any garden. We offer a fine collection of the best varieties, ranging from white to deep crimson.

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Pink Beauty. Very small, button-like pink flowers.
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Rhoda. Apple-blossom pink.
Rosinante. Pale pink, centre lighter; a good sort for cutting.
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St. Croats. White.
St. Illora. Silver-rose.
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Eagle d'Or. Golden Yellow.
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ELLIOTT NURSERY **367 Fourth Ave., Pittsburgh, Pa.**

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DARK THROUGH ITS VEIL OF PINK ARE THE RED-BUD'S BRANCHES

One of the loveliest of small native trees when its particularly infantile blossoms spring eagerly forth all over the smooth, tight bark, it is also lovely when robed in its clean, heart-shaped leaves. A moist sandy loam suits it best and it can be moved only in early youth. (Cercis canadensis)

WITHIN A WALLED GARDEN OF OUR OWN FAR (DOWN) EAST

Only the hardiest plants can withstand the rigors of a Maine winter yet Larkspur that runs the whole scale of blues from purply-dark to pale, in company with feathery Astilbe and fragrant Lilies suffice to make this Bar Harbor rendezvous of summer appropriately lovely

A PERMANENT PLANTING WHERE ROADS INTERSECT

Most unusual in character is this "bedding" dominated by the splendid pyramidal Rose Conrad Ferdinand Meyer and edged with Azalea amoena. Hybrid Rhododendrons share the remaining space with Aquilegias and Phlox. Estate at Seabright, N. J.

THE JOB OF PLANTING

THE work of making a garden or of planting trees and shrubs and flowers is in the last analysis a piece of manual labor; and the manual skill which is necessary for its successful accomplishment is a fundamental part of gardening which everyone having a garden should master whether it devolves upon himself to do the work or not. The first consideration is of course the earth wherein the planting is to be done—some understanding of its character and its requirements.

The Soil is a mechanical support for plants, a reservoir of water for them, and their source of food. When it is very dense, as in clay formations, it offers greater resistance to penetration by roots than certain kinds of plants can overcome, as well as retains moisture to a greater degree than they like perhaps—hence these do not "thrive" in a clay or heavy soil. When it is the opposite of this, as in sandy regions, roots may penetrate readily enough but water is not retained and a totally different condition obviously prevails. Up to a moderate degree the natural character of soil may be modified, especially with humus; but it cannot be actually changed.

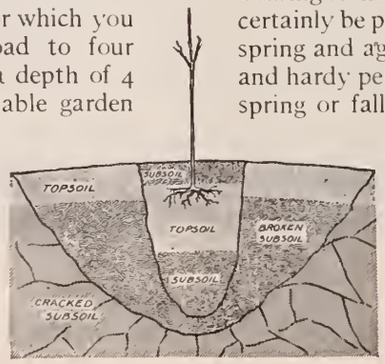
Fertilizers are not always necessary but should be applied when you know definitely why and what for. Land that is newly worked may be rich in everything that such plants as trees and shrubs will require; and consequently better off without additional plant food that may only overbalance the rations, whereas for quick growing, or casual crops—vegetables and flowers—they may be well used. But applications of lime are always in order (unless plants that require an acid soil are being used) since lime not only corrects acidity but also acts mechanically on the soil, improving its texture; and further releases plant food which may not be in form for plant use although abundant in the soil. Therefore, unless you are planting Azaleas, Rhododendrons, Laurel, Ericas, Huckleberries, Cranberries, or any of this (the Heath) family, use lime as directed in the article on page 280 of the February GARDEN MAGAZINE. Further, if you are making a lawn, be governed by this rule: lime is absolutely essential to success with Blue Grass, while Redtop thrives in its absence.

Manure may generally be applied at the rate of a two-horse load to 50 by 50 feet of space, this being the equivalent of about sixteen tons to the acre. Spread it evenly as the first operation in land preparation; proceed to turn the earth over by plowing or spading, and then spread the lime. Finish by harrowing or raking to break up all lumps and "fine" the soil. This amount of manure is the minimum for lawns and general purposes, and additional applications should be made according to the special plants or crops for which you are preparing. A two-bushel wheelbarrow load to four square yards (6 x 6 feet) covering the soil to a depth of 4 inches is a good annual standard for the vegetable garden and for perennial borders. Pulverized sheep manure is a good alternative to stable manure, and can be had at the seed stores.

Seedlings or small plants that are transplanted need earth that is fine and soft and mellow in texture to receive them—humus in the soil assures this. If their roots are left encased in a ball of earth such as adheres when they are carefully transferred from thumb-pots or paper pots, the work is of course very simple, and the texture of the receiving soil not so important since this does not come in direct contact with the plants' tender rootlets. But if the earth is lost from the roots and these are exposed, pay great attention to the niceties of getting them into their new quarters in the right way. This means that every rootlet is insured full contact with the fine soil about it, and that no treacherous earth pockets are underneath the plant—that it is not "hung" as gardeners express it. Set the dibble with which you are making the holes to receive the plants—or the spade or trowel, if you are using one of these instead—into the earth at the proper spot and a little deeper than the roots will reach, press the handle to one side thus making an inverted wedge-shaped or cone-shaped opening, lower the plant roots into this to the proper depth, and then by setting the dibble into the earth alongside the opening and pressing its handle toward the plant, close the earth against the roots. This is always a better method with tender and succulent plants than digging a hole and sifting earth in from the top; for the latter is almost sure to tear some of the roots. Leave a depression about the plant into which pour a pint or thereabouts of water, let this settle and then level the earth in.

Planting a tree or a shrub is the same kind of an operation magnified to such a degree that the earth must of course be put in on top of the roots. And in order to insure its being brought into complete contact with all of them it must be tamped down around them and against them. Use for this purpose a round-headed stick such as an inverted rake handle, and as the fine soil is sifted over the roots, work it in and against them thoroughly; at the same time settling the plant itself by shaking it very gently up and down as long as this can be done. Water it in after the roots are covered but before the depression is entirely filled, let the water settle and then level as with seedlings. Remember it is the roots with which you are most concerned in planting anything; once these are properly in the ground it is pretty certain that the top will take care of itself, although it should of course be reduced by cutting back about one third in order to balance the loss of roots which is inevitable.

When to plant depends upon what you are planting. Spring is regarded as always all right for everything and so it may be if you do not mind losing a season's bloom. But if you wish to conserve this, remember that spring blooming perennials should be removed after blooming, or early in the fall. All thin barked trees, trees with soft and punky roots, late blooming trees, trees with a naturally meager root system, trees bearing stone fruits, and broad-leaved evergreen shrubs should certainly be planted in spring. Evergreens may be planted in spring and again in August and September, Roses in spring, and hardy perennials and practically everything else in either spring or fall. But there is planting going on somewhere all the year round (see chart on next page).



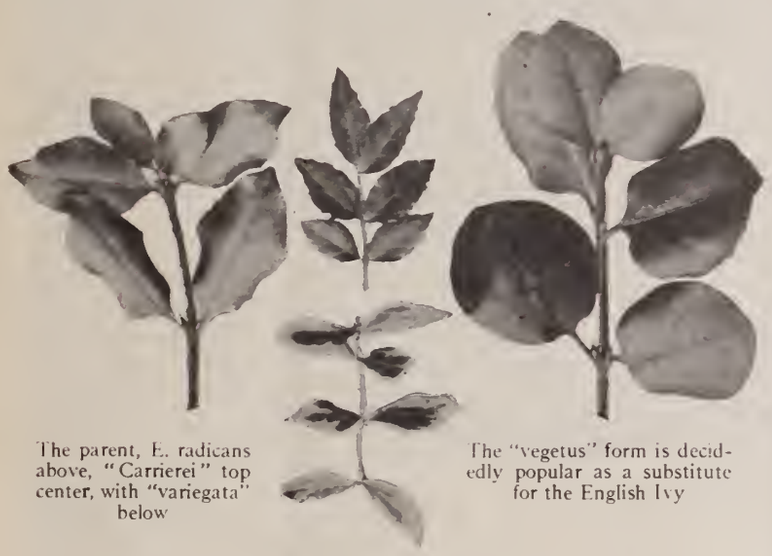
SECTION TO SHOW DYNAMITE ACTION AND PROPER REFILL WHEN PLANTING

The size of the hole is important. Always make it ample, let it be large enough to receive all the roots spreading naturally, and a little bit more. Also make it deep enough to put a layer of topsoil on the bottom before planting. Then bank the soil around the roots. Use good sensible tools—a spade for digging, though on mellow soil a digging fork will serve, and a shovel for shoveling.

PLANT BRIEFS

Climbing Evonymus—There is some confusion concerning the different varieties of the climbing Evonymus, and the average plant catalogue does not help. They are not distinct species nor even distinct varieties, but rather different vegetative forms of the same thing!

The little vine with long narrow leaves known as Evonymus radicans has been a familiar subject for many years, being used largely to cover stone foundations and stone or brick walls. This came from Japan, and is sometimes considered a variety of the bush Evonymus japonicus. But in suitable soil this vine will often make strong growth, climbing ten or fifteen feet high and the foliage on the upper part of the plant gradually takes on



The parent, E. radicans above, "Carrierei" top center, with "variegata" below

The "vegetus" form is decidedly popular as a substitute for the English Ivy

THE FOUR FORMS OF THE JAPANESE EVONYMUS

a different form. The leaves instead of being long and narrow become almost round and a deeper green in color, and in the fall the vine has produced a large number of orange colored fruits, resembling those of the common Bittersweet. What has happened is simply that as the vine has aged it has taken on the fruiting form, and it is this form which is sold under the name of Evonymus vegetus, or the Evergreen Bittersweet. The common English Ivy behaves in just the same way, taking on a different appearance when it reaches fruiting age, and in the greenhouse the Climbing Fig (Ficus repens) is another familiar case. If the seeds of these adult forms be planted, the resulting seedlings would be the ordinary climbing forms. If, however, cuttings be taken from the matured and fruiting form, the plants will be of course the matured type—and so we get Evonymus vegetus. There is another form offered by nurserymen as Evonymus Carrierei. It has leaves about an inch and a half long, and somewhat shiny.

There is also a variegated form known as Evonymus variegatus and other varieties—reticulata for instance which has leaves marked with white along the veins. Not long ago on a single large plant on the Bayard Thayer estate in Lancaster, Mass., could be seen specimens of all four "varieties." Of course "radicans" never fruits. "Carrierei" may be called semi-fruiting. For many purposes Evonymus radicans vegetus is the most desirable form, being handsome both in leaf and when fruiting, and certainly making the best substitute for the English Ivy which can be grown in the North.

Double Gypsophila—Of the comparatively recent introductions in the floral field, Double-flowering Baby's-breath (Gypsophila paniculata fl. pl.) deserves better acquaintance as a decided improvement on the single form. Its airy grace commends it as a "filler" in bouquets where flowers of a compact habit are used, and it is exquisite in combination with the red berries of the Morrow's Bush-honeysuckle. It has tiny, white, rosette-like blossoms which look like miniature editions of the double flower of the Bridal Wreath Spiraea (S. prunifolia) and they may be dried for a winter bouquet. The plant grows from two to three feet high and branches out freely. The stalks should be cut down late in the fall and new shoots will come up from the old root in the spring.

Acacias—are getting to be really popular as pot plants for the cool house in the East—on the Pacific slope of course a number are well known as garden material. One of the earliest to bloom is A. Baileyana, coming into flower in December in the greenhouse, and this is also very common in California. A. pubescens is the more popular one among Eastern florists, and has been accepted in the West, after being introduced from the East. Both these have ball-like flower clusters. Following in season is A. longifolia, with elongated flower clusters. This is represented by two forms in two shades of yellow. A European garden hybrid (A. Nabonnandi) with ball-like clusters is the earliest of all to bloom. There are more than 400 species recorded and the Standard Encyclopedia describes 67, but those named above are among the most "practical."

Townsendia — is a genus of low-growing herbaceous plants, having daisy-like flowers, native to the Rocky Mountains which would seem to be worthy of a better acquaintance among gardeners. Of course we have a large quantity of these aster- or daisy-flowered plants to choose from but here is one that should commend itself to those whose soil is poor, dry, sandy. The flowers are bright blue to violet all summer in the one illustrated herewith and the individual ray is a half inch long; and the whole plant is described as 9 to 18 inches high, biennial or perennial. It is a native from Nebraska to Colorado and New Mexico.

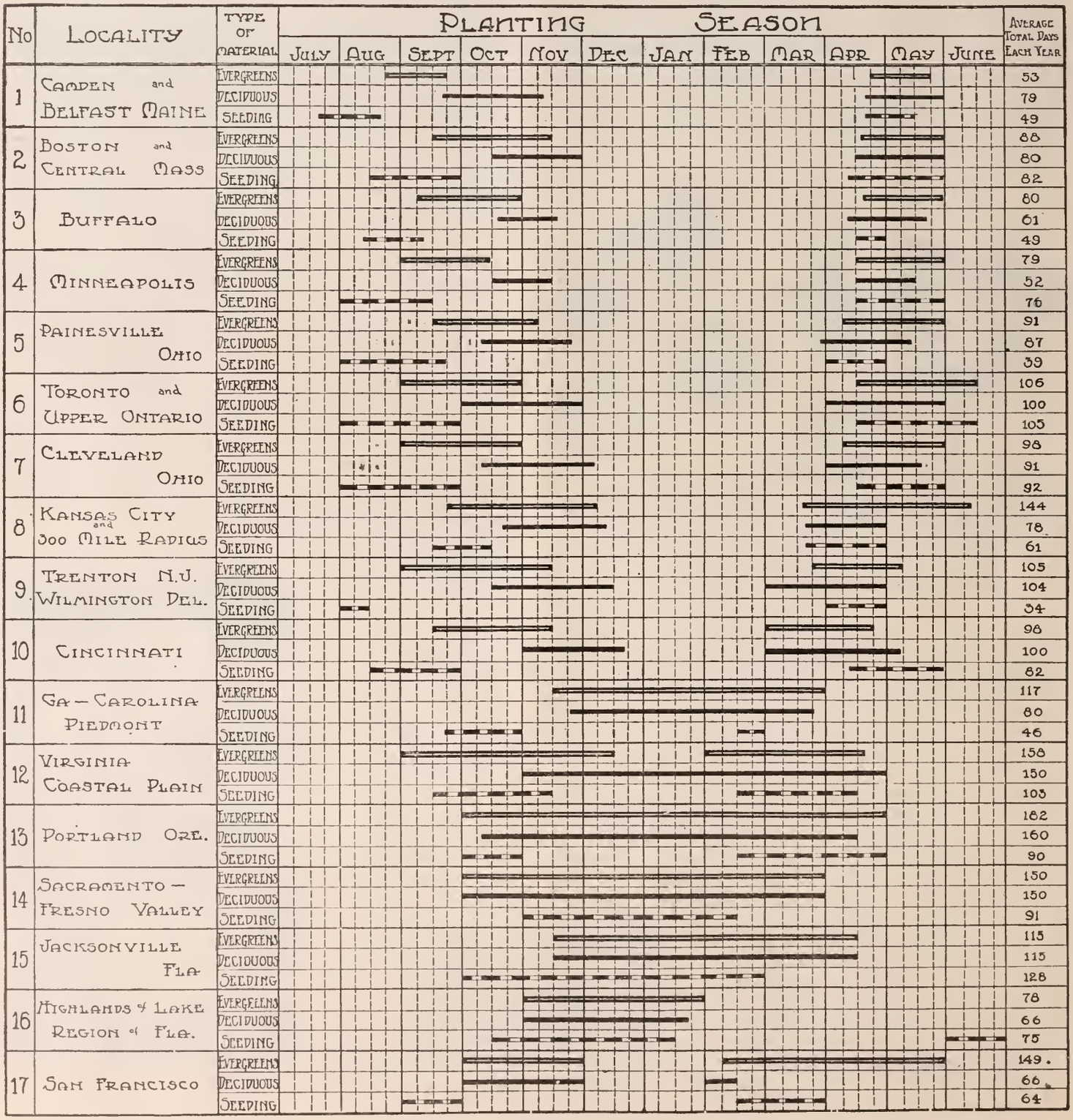
TOWNSENDIA GRANDIFLORA
Flowers blue to violet; 18 inches high. Suitable for dry, sandy soils

THE BEST TIME TO DO YOUR PLANTING

A. D. TAYLOR, Landscape Architect

With acknowledgments to the various members of the American Society of Landscape Architects, and the assistance of Gordon D. Cooper

There is always an open season for planting somewhere in the United States! With the aid of this chart you may choose the most favorable time for your location. The number of weeks during which the work may be carried on, however, as well as the length of the season varies greatly in the different parts of the country. It is an advantage of the utmost importance to be able to plan ahead and order your material for delivery at the time most auspicious for your section. The total number of days during which planting is possible is given in the extreme right-hand column



THE HEDGE FOR WHERE YOU LIVE

E. I. FARRINGTON

Whatever Your Latitude and Longitude May Be There are Plants Available for Such Type as Your Architecture Demands and You Desire

IT IS a fundamental rule, although it is often disregarded, unfortunately, that a hedge, like any other kind of "fence," ought to conform to the character of the place which it surrounds. Some types of architecture call obviously for a closely clipped, formal treatment while on the other hand such a hedge would be entirely out of place in connection with a rambling country house or cottage. Further, in some ready-made communities where a man has to count the houses from the corner to be sure of getting into his own dwelling, hedges of a uniform character harmonize with the general scheme. But many less regular suburban towns are made more picturesque by the use of variety in the hedge plants chosen.

Of course this point is elemental and the same wherever your home may be; but the choice of the hedge plant itself must be regulated largely by the locality. Probably the plant which has the widest adaptation is the Japanese Barberry (Berberis Thunbergii). Fortunately this has no part in spreading the wheat rust, as does the common Barberry and the variety purpurea, both of which are often recommended for use as living fences—for it is one of the most useful hedge plants in all the list. It will thrive in almost all parts of the country—except the arid section of the West—and will flourish at the seashore even though drenched daily by a salt spray. It can be pruned but looks well when left to "gang its ain gait"; and the scarlet berries which it bears in great profusion and which persist throughout the winter even in the Southern states, add immeasurably to its ornamental value. All things considered, therefore, the Japanese barberry comes nearest being the most satisfactory hedge plant in all the country, and gardeners everywhere owe a debt of gratitude to the Arnold Arboretum, which introduced it. The one drawback to it is the fact that it is dwarf in habit; if a hedge more than three or four feet high is needed something else must be used.

The common Barberry (Berberis vulgaris) makes a very good hedge in the Northern states and will grow up to six feet high, but while thorny it is not so impenetrable as its Japanese cousin. Moreover, in sections where wheat is grown it should not be planted under any circumstances. Some states indeed expressly prohibit the use of it, but in the East it makes a more satisfactory hedge than is commonly realized. This statement is equally applicable to the purple-leafed variety, Berberis vulgaris purpurea.

Undoubtedly the California Privet, so called—it is really a Chinese plant—has been used more extensively than any other hedge plant. This is true partly because of its low price—made possible by easy propagation—and partly because its name for some reason has stuck in the minds of amateurs everywhere, which has led to a call for it as a matter of course. Truth to tell it makes a good hedge, especially when expected to serve as a partial screen; few plants are more amenable to shearing; it grows rapidly (not always considered an advantage by the owner who has to do his own pruning!) and it does not mind a salt water bath. Indeed, people having homes near the seashore have better success with this plant than those who live inland. Its susceptibility to winter damage is considerable in the North, however. This does not mean that it is frequently killed out by the cold, for that is not true, but very often the top growth is frozen back to such an extent that heavy cutting is necessary to restore the symmetry of the hedge. But when all is said and done it is undeniable that the California Privet has many merits, not the least of which is the tenacity of its leaves which remain green very late in the fall.

A HEDGE OF MASSED TEA-ROSES IN THE WEST

In the favored climate of Portland, Oregon, which is rapidly growing famous for its Roses, this sort of thing along a city street is as common as the wild Rose along a country roadside

Other Privets have this same tendency, and in some instances to a greater degree. The so-called Common Privet, Ligustrum vulgare, has this characteristic well developed—and makes a good hedge plant for Northern states, too. Considerable has been heard about L. Ibota in recent years. This is a good Privet for shearing, but is not absolutely hardy in the more northern sections. It bears great numbers of blue berries which are ornamental. Regel's Privet is really a variety of L. Ibota but is dwarf, seldom growing more than four feet, and has a loose, spreading habit of growth quite different from the other Privets. In the South Ibota Privet and Regel's Privet are virtually evergreen, holding their leaves through the winter but dropping them when the new ones come. For the South there is also a true evergreen Privet known as Ligustrum lucidum, which makes a serviceable hedge—but this is tender and suited only to the South. Of all Privets it must be said that they are among the most desirable of all shrubs for cities, not being greatly affected by dust or smoke. This is particularly true of the California Privet and the species known as L. Ibota.

IN PASSING I may say that there is a good deal of confusion in the catalogues concerning Ligustrum amurense and L. sinense. Some Southern nurserymen give the former name to

the latter although they are totally different plants, while other nurserymen say that there are Northern and Southern forms of Ligustrum amurense. Properly speaking L. amurense is really a distinct species and will thrive in the extreme North. Ligustrum sinense, on the other hand, can be used only in the South; which is just as true, of course, when it sells under the false name of L. amurense, "Southern type."

Mention has been made of the fact that Privet will thrive close to the ocean. Another and quite different shrub to be included in this category (which, by the way, is rather limited) is Rosa rugosa. There are some Eastern summer resorts where very effective use has been made of this, splendid tall stout hedges being produced in a few years. Rosa rugosa is better adapted to such places than to some others, because it does not make a very hedgelike appearance in the winter. Moreover, it develops a tremendous root system (which is not desirable in gardens) but this strong rooting feature has one distinct advantage when it is used as a hedge plant, since it enables it to thrive even in hot, arid sections where there is but little rainfall. It does reasonably well both North and South and its heavy spines give it a defensive value, too, which is not to be overlooked under some circumstances.

Where Defence Counts

FOR a really defensive hedge, though, there are few plants to surpass the Honey Locust and the Osage Orange. In the Middle West the latter plant has been used to a large extent, but unfortunately suffers badly from attacks of San José scale which fact is militating against its continued use. The Honey Locust will grow farther north than the Osage Orange—succeeds in almost all parts of the country indeed. It has been especially recommended for arid sections of the North, and farmers find it a very useful defensive hedge plant.

Suppose you live in the North and want a flowering hedge.

THERE ARE CERTAIN VINES THAT MAKE PERFECT HEDGES

Where a barrier that is impenetrable is needed a wire fence supporting Actinidia arguta which is sheared to a form the same as any bushy hedge plant, once the fence is covered, is as beautiful as it is unusual

TRIMMED OR LEFT TO ITSELF JAPANESE BARBERRY IS GOOD

One of the most generally satisfactory hedge plants that there is, Berberis Thunbergii, makes an ideal, compact edging where a height of three feet will suffice and may be used in place of Boxwood where the latter will not thrive

The charm of Lilacs appeals to everyone, and it is common to find old places which are wondrously beautiful in late spring with the burst of Lilac bloom from hedges several hundred feet long. By selecting different species and varieties it is possible to regulate and extend the blooming season greatly and also to have either a high or a low hedge. Some Lilacs, too, have certain definite climatic preferences. Varieties of the so-called common Lilac (Syringa vulgaris) have a wide latitude, but for the great plains of the West where natural conditions are a bit different Syringa amurensis is the best subject. The Persian Lilac (Syringa persica) grows well under the same conditions and is dwarf, while S. amurensis grows ten or twelve feet high.

Lilacs will stand shearing reasonably well, and in many Eastern suburban towns clipped hedges of this material are to be found. They are not to be recommended for use in this way, however, for they are best when allowed to take their natural habit of growth and to produce their wealth of flowers. A Lilac hedge is good for many years—indefinitely indeed—for while there is a certain tendency in the plants to become leggy, they can be constantly renewed by means of suckers coming up from the roots.

Probably the next best flowering hedge is Spiraea Van Houttei. This Spiraea makes one of the loveliest displays imaginable during the blooming season when used as a hedge plant.

It grows three or four feet high and is hardly surpassed for an untrimmed, informal flowering boundary hedge. The Rose of Sharon also makes a good hedge plant but must be kept cut back severely. Otherwise it will soon lose its proportions. Even at the best it is likely to become rather open at the bottom. But it makes a screen up to ten feet high and sometimes can be planted to advantage inside of a wooden or iron fence. It is by the way, always advisable to transplant this shrub in the spring rather than in the fall.

Occasionally a very good hedge formed by the Japanese Quince is seen, and this is a plant which will grow almost anywhere. Its heavy spines are quite as effective as the Japanese Barberry too, in keeping out intruders. Its one drawback is a certain susceptibility to attacks of San José scale. Another flowering and spiny plant in the North is the Cockspur Thorn (Crataegus crus-galli), but it must be pruned carefully and regularly when young to develop a good habit of growth.

QUITE UNMINDFUL OF WEATHER OR DROUGHT

Though its growth is redundant for a hedge, requiring severe cutting back annually, this does not count against a plant as fine as the Russian Olive (Eleagnus argentea) which makes a thick and beautiful barrier

Roses for Living Fences

OF LATE years increasing use has been made of Roses for living fences, and none is better adapted to this purpose than Conrad Ferdinand Meyer. This is a very strong growing Rose, reaching four or five feet high in a few years. It will stand considerable trimming, and remains well clothed with leaves almost to the ground. During the blooming season in June it makes a handsome display, the flowers being pale pink and even larger than those of Rosa rugosa. While it is often grown in gardens its value as a hedge plant has not been generally realized. There are, though, several places in the country where good hedges of Conrad Ferdinand Meyer exist.

Even the little Sweet Brier Rose (Rosa rubiginosa) makes a good hedge when height is not a desideratum. It has rather a loose-growing habit, and its pretty flowers, followed by handsome red hips, make it distinctly ornamental. It will grow almost anywhere except in arid sections.

Evergreens for All the Year Round

THE most perfect hedge material after all is evergreen, and fortunately there are plants that will thrive in almost all parts of the country, among them the common Arborvitae (Thuya occidentalis). This has been used for a great many years; nevertheless it must be admitted that it develops serious faults in its old age and is not as desirable as its popularity would indicate. The common Hemlock (Tsuga canadensis) is a much better hedge plant in many ways. While this can be kept low when desired, it can also be used for a screen up to thirty or forty feet high. It will thrive in any part of the Northern states, wherever there is a fairly moist soil; and what is more, it will stand hard cutting back better than most other evergreens. Hedges which have gotten out of bounds may often be restored by cutting them back a little at a time for three or four years. Some extremely handsome Hemlock hedges clothed to the very ground are to be found in the Eastern states.

Another Hemlock which probably would be just as useful and used as much if it were not so expensive, is the Carolina Hemlock (Tsuga caroliniana.) This is entirely hardy in New England. Then there is the White Spruce, which is especially desirable when a somewhat formal appearance is sought. It is hard to keep low, but makes a fine tall screen. It thrives in most parts of the North and is far better than the Norway Spruce, all things considered—one of the finest evergreen hedges, indeed.

If you live in the South you have of course a much longer list of evergreen plants to choose from; and naturally nothing can supplant the beautiful Tree Box (Buxus sempervirens). This plant, famous in colonial history and in literature, is of surpassing beauty and almost without a fault as a hedge plant in sections where it is hardy. So handsome is its foliage and so lasting that large quantities are cut from Boxwood trees in the South for distribution among florists all over the country. It grows as far north as New York City and southern New York—but it is in the South that it reigns supreme. Although its growth is slow, it sometimes attains a height of fifteen or eighteen feet. The dwarf variety, also evergreen, is very useful in gardens. This dwarf Box is catalogued Buxus suffruticosa.

In the North there is nothing to approximate this dwarf Box

THE HARDIEST OF ALL HEDGE POSSIBILITIES

In many other ways unrivalled too, Buckthorn develops a protective barrier of such density and resistance that it is like nothing less than an exquisitely neat green wall

as a year round plant except Evonymus radicans vegetus, which if kept trimmed will make an excellent low hedge and which holds its foliage in perfect condition all winter. But the so-called Box Barberry, though it loses its leaves in winter, makes a very attractive dwarf hedge during the summer and can be used much like dwarf Box. These plants will grow in the South as well as in the North.

Gardeners south of Washington have the beautiful Abelia grandiflora available for an evergreen hedge and one which produces very handsome flowers. It grows four feet high. In some sections too the Cape Jessamine is available for hedge purposes, and is to be prized for its flowers as well as for its evergreen foliage. The English Holly can be grown as far north as Philadelphia and St. Louis, and the American Holly makes a good hedge plant even up to New Jersey. But though found native in New England it cannot be depended upon there as a hedge plant. It was believed at one time that the then newly discovered Ilex crenata, the Japanese Holly, would make a broad-leaved evergreen suitable for hedges in Northern situations, but it has not proved as hardy as expected. South of New York it is good for low hedges.

Where Real Hardiness is the Thing

THE evergreens mentioned as hardy north, together with the Barberry, Rosa rugosa, the Japanese Quince, and Spiraea Van Houttei are really hardy far north—such a very cold part of the country say for example as Minnesota or Wisconsin. But certain other plants are even better adapted to such a section. Probably the hardiest of all the hedge plants which a nurseryman can furnish is the Buckthorn (Rhamnus catharticus.) It is a splendid all round plant too, and submits readily to trimming, so that it can be given any desired shape. Then there is the Siberian Pea (Caragana arborescens). In general appearance the foliage is much like that of a Locust, and handsome yellow flowers are produced about the end of May. This is probably the best of the flowering hedges which can be chosen in sections where the climate is very severe. The Russian Olive (Elaeagnus argentea), however, is a hedge plant not to be overlooked, for it seems absolutely immune to drought, heat or cold, or to sudden changes of temperature. In order to keep it in compact form it must be cut back rather severely each season, but apart from that it has few disadvantages; and the silvery-white foliage is highly ornamental. This plant also produces yellow flowers, although they are small. And another good plant for this part of the country, especially on land located near the water is the Laurel Willow (Salix pentandra).

Perhaps the most talked of hedge in Minnesota at the present time and in other sections where the climate is similar is Cotoneaster acutifolia, which is considered by some growers as the best hedge plant for the extreme North. It is absolutely hardy, is not attacked by insects of any kind, has shiny foliage, makes good strong growth, and bears black fruits in quantities. All things considered, this Cotoneaster, which came from China by way of Russia, gives unusual promise.

Several of the plants already mentioned have been found especially available for western Canada. In that section the Lilac makes a particularly good hedge, and keeps its foliage for a large part of the year. Caragana is also looked upon with great favor. It reaches a height of ten to twelve feet in that section, and makes a strong, compact growth. Honeysuckles, Spiraea Van Houttei, and Amorpha frutescens will also be found hardy and attractive. The last named is particularly good for city and town planting because of its ornamental character, while the Buckthorn is to be recommended for planting in the country, especially where the soil is dry and sandy.

In the Middle West and on the Pacific

THOUGH there are many plants which will not thrive well in Missouri and adjoining states, the Missouri Botanical Garden, after long experiments, has reported on hedges which are especially available for St. Louis and other cities in that locality. For formal hedges the Privets, the Japanese Barberry, Stephanandra, Honey Locust, English Haw, and Buckthorn are recommended. The Box or Dwarf Barberry is also suggested here as a substitute for Boxwood. For informal effects Honeysuckles, Dogwoods, and Weigelas are the most satisfactory.

Many of the shrubs mentioned thrive in California, and the further list of plants available on the Pacific coast is a long one. It includes some excellent low edgings, like Berberis Darwinii, Lonicera nitida, Veronica buxifolia, Veronica carnea, Erica mediterranea and Myrtus Ugni. For taller hedges there are several Veronicas, Evonymus japonica, Taxus baccata, a number of medium sized Ericas, Elaeagnus pungens, Acacias in variety, Pittosporum tenuifolium, and Cupressus macrocarpa.

NEAR THE SEA OR NOT RUGOSA ROSES ARE A RICH RESOURCE

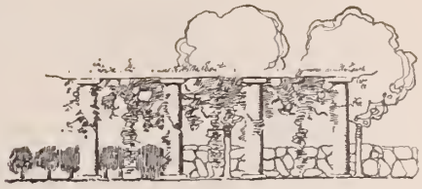
Usually left to grow as it will this splendid wild Rose of Japan becomes one of the loveliest of natural hedges in a very short time, and throughout the season shows a few flowers at least, scattered here and there

THE NATIVE HEMLOCK IS SOLID YET AIRILY DELICATE

Observe that here the natural form of the tree has been followed in shearing the hedge so that the top narrows, leaving all exposed to full light and air. This is the proper way to shape all hedges and the only way to maintain dense growth clear to the ground

POOL FROM LOGGIA

A LANDSCAPE PLAN FOR A COMPLETE PLACE

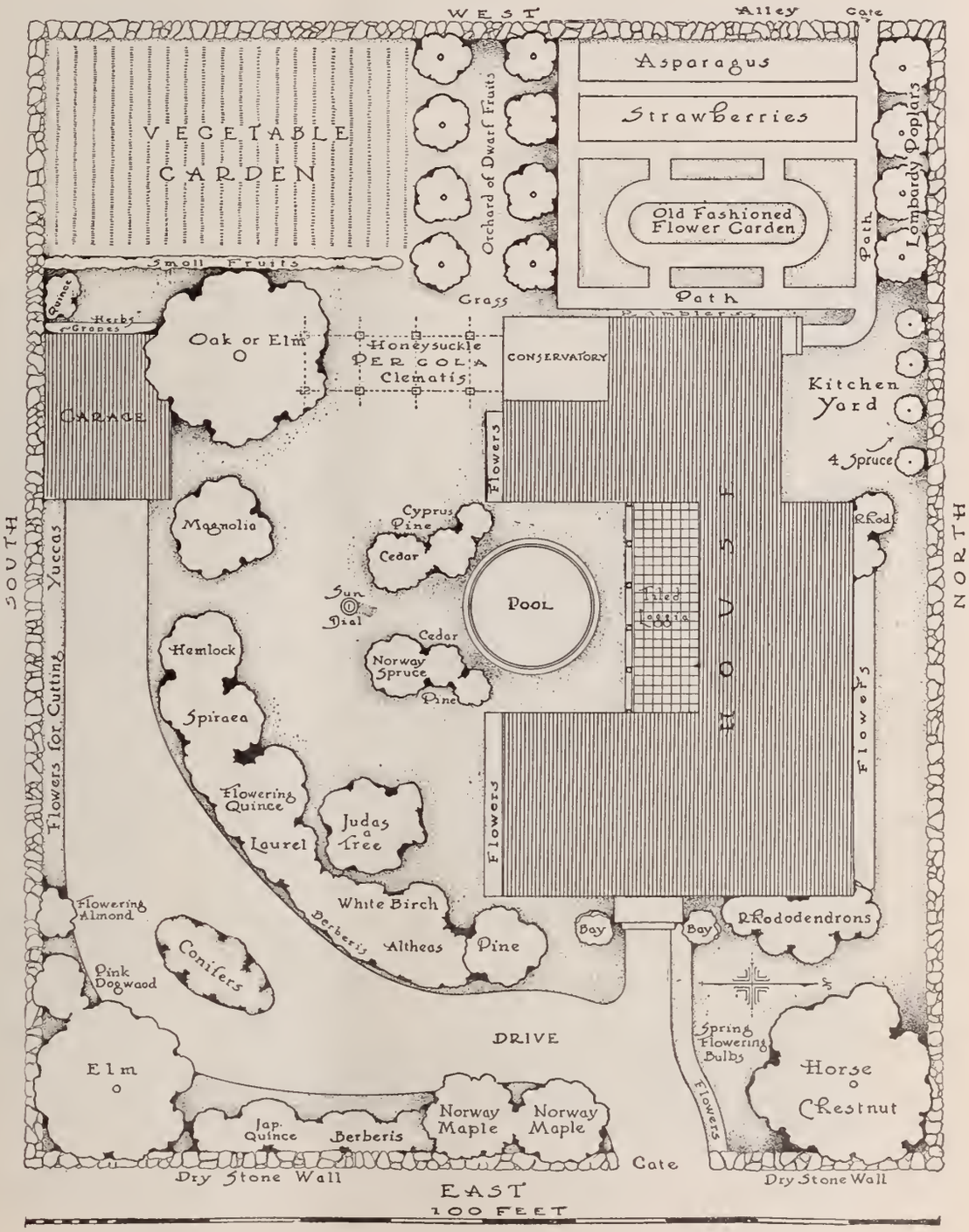


AND THE PERGOLA

Through Which the End is Visualized and Assured Before the Beginning is Made

THIS first of a series of four garden layouts for a complete place shows the house placed lengthwise of the plot to give a greater expanse of lawn and garden. The circular pool backed by a fringe of tall and slender evergreens makes with its reflections and the sundial beyond it a charming picture from the tiled loggia. There is a little grassy orchard, a pergola screening the vegetable garden and leading quite properly from the conservatory, and an old-fashioned flower garden with strawberries and asparagus suitably adjacent. The service entrance is on a lane at the rear of the place. A stone wall encloses the property; and shade trees and flowering shrubs well disposed form screens where these are needed as well as delightful garden features. A greenhouse extending from the conservatory into the orchard (at the sacrifice of perhaps two trees) might be added at any time.

Subsequent plans will show the same plot assuming a different house differently placed thereon.



DESIGNED BY J.M ROSE

WHEN PLANTING FRUIT FOR YOURSELF

HENRY GIBSON

Quality, Rather Than Mere Quantity to Govern the Selection—Commercial Grower's Methods and Ideals Misleading and Wasteful of Space and Labor from the Home Point of View

MANY varieties of fruit actually do better and produce more freely when grown under the more intensive and more or less shaded conditions of the suburban plot, than they do in the open fields of the commercial grower. As a matter of fact the very varieties discarded as unprofitable by the market man are the ones for the home garden, for they more than make up in quality the deficiency in quantity that has made them commercially unprofitable. The cultivation for example of the English varieties of Gooseberry which, with rare exceptions have proved a failure here commercially owing to our hot dry summers which weaken the plants and make them very susceptible to mildew, meets with notable success under conditions that obtain in the average home garden.

Several factors such as the nature of the soil, the extent of the area available for small fruits, the size of the family, and the demands of the household will determine the amount and the variety of fruits to plant. Gooseberries and Currants both do better in a northern exposure, or under the half shade of large trees, and Grapes will find a resting place over the roof of a porch or summer-house. On a plot 50 x 50 ft. in size at least two varieties each of Strawberries, Gooseberries, Currants, Raspberries, Blackberries, Dewberries, and Grapes as well as 4 Cherries and 4 Plums are possible without eliminating the smaller vegetables.

IN setting out a new plantation it will make for economy of labor in the subsequent care of the plants if they are set in rows, inasmuch as many of the smaller vegetables may be grown between the rows, and the cultivation these need will meet the requirements of the fruit. Gooseberries, Currants and Raspberries will do very nicely in rows 6 feet apart, with 4 feet between the plants. Blackberries and Dewberries require more space, both between the plants and between the rows; about 5 x 7 feet should be the minimum with these. With Grapes the distance apart to plant varies with the varieties; the stronger and more vigorous growing demand more space than the less vigorous, naturally. When planted in rows trellises are indispensable to support the canes, and these should never be set nearer together than eight feet. Ten feet apart in the row is not too far for vigorous vines, six to eight for the more moderate growing ones. Plums and Cherries may be set 12 feet apart, and if separate space for them is lacking they may be put in the rows with the Currants and Gooseberries, where they will shade those.

The purchase of the right kind of stock is most important. In the case of Raspberries, Blackberries, Dewberries and such, "transplants"—that is plants that have been once transplanted in the nursery—are better than one season rooted tips, suckers, or root-cuttings because these will bear fruit sooner. There will be fewer losses too, which with the earlier bearing will more than offset the extra cost. They should be set out in the spring. Well grown one-year-old Grape vines may be used, though two-year-old ones are better. Whether they are set in the fall or spring does not make much difference, the convenience of the planter being the deciding factor. In the case of fall planting it is not advisable to cut back the canes until spring, when they may be reduced to two or three buds. Strawberries may be pot-grown—which are offered for sale during the summer, and planted in August or early September—or freshly dug one season "runners" which are set out in the spring. Currants and Gooseberries are best as two-year-old rooted cuttings, these being much preferable to three-year-old plants unless they have been transplanted in the nursery. Both of the latter may be set out in the fall, as they are very hardy and seldom if ever suffer from the rigors of winter.

With Cherries and Plums two-year-old trees have hitherto been the favorites for planting, but many fruit growers to-day prefer one-year-old trees. There is one particular advantage in these—none but the most thrifty are salable at this age. Moreover they cost less to buy and ship; and they may be headed back if low heads are desired—treatment which cannot be given to older trees with heads already formed.

Varieties of the fruits named are legion, but those mentioned below are to my taste among the best of their types, and have some particular quality—as early, late, unusual flavor, etc., to recommend them—these respective attributes are duly set forth in the catalogues, which the reader should consult.

CURRANTS:—*Black*—Black Victoria; Boskoop. *Red*—Perfection; Diploma; Victoria. *White*—White Transparent; White Imperial.

DEWBERRIES:—Lucretia; Austin Improved. Blackberries; Joy; Kittakinny; Blowers. (This is an erect grower, very hardy, large berries of fine flavor and with a longer bearing season than any other variety I know of.)

CHERRIES:—*Sour*—Early Richmond; Montmorency. *Sweet*—Wood; Black Tartarian; Bigarreau; Bing; Yellow Spanish; Napoleon.

GOOSEBERRIES:—(English) *White*—Keepsake; Whitesmith. *Green*—Delaware; Overall; Industry (is a dark Greenish-yellow);—Wetherall. *Red*;—Slaughterman; London Red. (American) Josselyn; Poorman; Downing; Chautauqua.

GRAPES:—*Red*—Delaware; Catawba. *Green*—Diamond; Niagara. *Black*—Barry; Herbert.

PLUMS:—The European varieties of plums are so much better than those of American origin that we will not consider the latter for the home garden. Damson is perhaps the best known for its late astringent blue fruit, impossible to eat raw though among the best for preserving. It is adaptable to a diversity of soils and climates.

Shropshire and French are both of the Damson type, but of somewhat better quality. French is later than Shropshire, while the trees are larger and prolific annual croppers.

Middleburg is a large late purple, of long season and useful for dessert and preserving.

Reine Claude is a yellowish-green plum, which when well grown and the fruit thinned is the climax of excellence as a dessert fruit. Unfortunately the trees are sometimes subject to sun-scald and are short lived. Washington is a large midseason, freestone fruit. Yellow Gage is large, a freestone; subacid.

RASPBERRIES:—*Black*—Gault; Cumberland; Black. *Red*—Cuthbert; Herbert; Perfection; St. Regis. A giant everbearing Raspberry 'LaFrance' is being put on the market this spring, and judging from reports it has a great future. *Yellow*—Golden Queen.

STRAWBERRIES:—There is no "best." It all depends on the cultivation given and the locality where they are grown. Varieties a decided success in one locality may fail in another and vice-versa. My personal choice includes Marshall, William Belt, Crescent and Gandy.

Of the everbearing varieties, don't expect too much especially the second season, or you may be disappointed. Treat them somewhat as annuals. Pick off all the blossoms from plants set out in spring until June; then let them bear until frosts stop them. Let them bear a full crop the following spring, and set out another plantation for fall fruiting. Throw away the plants that have fruited twice. Superb, Progressive, Americus, and Peerless compare well with any others.

VINES THAT DIFFER FOR DIFFERENT PLACES

FLETCHER STEELE

Only Studious Care in the Selection, Planting and Training of this Material Will Result in Effects That Are Desirable

INDISPENSABLE as they are, vines should be strictly disciplined in most places and never allowed to overrun and conceal architecture. Rather their function is to accentuate and adorn. And so in general it may be said that where architectural support exists it must be exposed and plainly realized; and that therefore it is a mistake to use a thick-growing vine that may entirely cover and hide it, against such a structure. Even where a heavy vine is appropriate—as on unbroken surfaces of stone or brick—enough of the wall to explain the whole construction should always remain uncovered.

But in the garden or wider landscape where stiff architectural line and surface are not wanted, but rather a mass of foliage, the more rampant the vine very often, the better. The photographs will help us to study the question. First is the entrance of an old Colonial brick house with a drapery of Wisteria, like fine lace on an old-fashioned lady's fine silk gown. Nothing is concealed by this. The delicate mouldings of the entablature, the strong shutters, the surface of the old brickwork, all are revealed—yet softened by the graceful vine. And the airy tassels of clustered flowers give a touch of elegant, subdued festivity, while wall, doorway and windows are brought into unity by the over-all tracery of stems and blossoms and the shadows these cast. Further, all retain their character and individuality as would not be the case if a heavier vine were used. Wisteria in such a place is indeed completely satisfactory, for it adorns but never conceals architecture.

NEXT is a modern house—a house with porch supports, walls, and foundations literally smothered in Ivy. This is further advancing on the shingled walls higher up as well. The vine is a fine specimen; but little can be said here for it as decoration, for so completely does it cover and conceal all that should not be concealed that the second story of the house seems to rest upon the unsubstantial mass of leaves. Below, the architectural lines are altogether lost; above, they stand out sharp and uncompromising. And though everything is well

ORIENTAL OPULENCE CURIOUSLY AFFILIATED WITH CHASTE SIMPLICITY

No plant is perhaps more closely associated in the minds of most persons with Colonial days than the Wisteria of China (Wisteria sinensis) yet it was unknown to the western world prior to 1816 and, though the finest of all vines in many ways, is therefore never a relic of really old gardens

kept the vegetation, far from being an ornament, is the occasion of a certain "lumpiness" in the composition.

It is plain that the vine grows too luxuriantly. This could be remedied by cutting it away on one or more of the piers altogether to reveal the second story supports. The framing of the lower windows, too, should be cleared of all ubiquitous growth, and in at least one place the foundation wall should be discovered to view and permanently kept free to disclose its rocky character. There is never any question but Boston Ivy is a good vine, but it needs a firm hand over it.

Following this reasoning one might say that the arbor completely covered with verdure is bad. But obviously it is quite the contrary—it is charming, indeed. Why? Because all it undertakes to be is a cool, leafy grotto terminating a hot garden path. There is no upper structure which the vines seem to support as in the case with the porch: and though it might be desirable to see some sign of what is supporting the vines, this is not essential in an out-and-out garden structure, since vines not infrequently find support themselves by festooning from tree to tree when growing wild. In a garden of greater formality—or of a less casual and naturalistic character, to put it the other way about—this riotous effect would not be desirable; but it is quite proper here.

THE material of which a house is constructed must influence the choice of vines to be planted to a certain degree, since any vine that climbs by means of aërial rootlets and clings closely as a consequence—like the Boston Ivy—is decidedly a menace to woodwork, though it may be allowed to cling to stone, brick, or cement without hindrance. By their mode of climbing indeed vines may be separated into two great classes: those which cling and those which twine. And the latter are still further separable into those which twine in their entirety—that is, by twisting themselves around an upright—and those which climb by means of tendrils or leaf-stalks, which reach for any small support and by coiling, draw the trunk of the vine up to it and against it and hold it there. The last named are usually of a more delicate character than either of the others and less likely to do damage than the vines which wrap themselves around their support. Wisteria is one of the latter, Trumpet Creeper is another (the latter decidedly unsafe to plant beside any building as it works under shingles and cornices and often pries a building apart). Bittersweet is another, and the Honeysuckles, Actinidia, Dutchman's Pipe, Matrimony-vine and Kudzu-vine are all in this class. All must therefore be watched very carefully if they are used near a building, even the Wisteria being no exception.

VINES MAY HAVE FREEDOM IN THE GARDEN

Where shade as dense as this bower of Akebia furnishes is more essential to the general scheme than the architecture of the supporting arbor

TO CONCEAL AND DISGUISE IS THE SOLE AIM OF SOME

Which is admirable in the right place but altogether disastrous if necessary supporting members of a building are involved and to all appearances obliterated

The best vines for use on house or porch for screen and shade are Akebia quinata, Ampelopsis quinquefolia, Clematis in all varieties, Dioscorea batatas (Cinnamon vine), Honeysuckle in variety, and Wisteria. For planting against masonry there is of course the Boston Ivy—Ampelopsis Veitchii—Evonymus radicans and the lovely climbing Hydrangea—Hydrangea petiolaris. For arbors and outdoor structures of a similar character, any of the vines which are useful for the porch are good, and in addition there are the stronger growing vines mentioned in the paragraph above as not well suited to the house. For porch and window boxes where delicate vines are wanted to trail downward, some of the annuals are usually best, such as the Morning-glories, Nasturtiums, Canary-bird vine (Tropaeolum peregrinum) Thunbergia alata, Maurandia Barclaiana and Myrtle.

APROPOS THE CEDAR OF LEBANON

WILLIAM ROBINSON
"Gravetye," Sussex, England
Founder of *The Garden, Gardening Illustrated, Flora and Sylva*, etc., Author of "The English Flower Garden"

Its Behavior Under Cultivation and Some Personal Observations on the Proper Planting of Trees in General

I READ with great interest in THE GARDEN MAGAZINE for December last, an article on the Cedar of Lebanon; and because this tree has been planted in our islands more perhaps than in any other European country, a few words as to its success and certain mistakes made in planting may be of use in your land. I am glad to see that the tree is hardy so far north as Boston, and if that be so it cannot be less so on the mountains of Virginia and Carolina, and also in California.

The first thing to say is about its extraordinary beauty and hardiness in our islands; of its beauty there can be no doubt, and so impressed were people with it at first that they took care to plant the Cedar well, and even too well! Good preparation is not a test of the fitness of a tree for any country. The Northern, or Lebanon, Cedar is, I think, one species, the others being varieties of it. I went with the late Maurice de Vilmorin to Mount Babor to see the so-called Atlantic Cedar in one of its native homes and we both felt that it was one in all visible features with the Lebanon Cedars we had at home. The Cyprus Cedar, of which I have only seen a tree, seemed only a starved Cedar of Lebanon, but that can be determined only in Cyprus.

As to the Atlantic Cedar growing faster than the Lebanon Cedar, that is not our experience. The Lebanon Cedar—healthy plants from seed—is a rapid growing tree, especially if nursed in the best way—that is to say, not allowed to spread about in bushy form only. The only real distinction between the Cedars is in the Deodar, which is not quite hardy in our region, it begins very well, but after a number of years has not the splendid health of the Lebanon Cedar. When I went to Mount Babor, on the third day of May, the ground being then covered with snow, the wild plants were nearly the same as our own and the Yew growing among the Cedars, thus showing the sameness of our climate with the tops of these mountains rising out of a dreary plain.

Planting and Position

IN OUR country the Cedar was often planted fully exposed and thoroughly well planted so far as it went, but that led to its becoming a temple of the winds far more so than the celebrated Temple at Athens. The best way is to plant them as we saw them on the mountains, to shelter each other and lose their lower branches as they grow up. It is quite exceptional to see the Cedar with a trunk like the mast on the ship of some great admiral, as it ought to be. If the Cedar is planted in our ordinary summer-leafing woodlands, it loses its side branches and makes a splendid plume at the top, but the best way to secure that is by grouping and planting the tree in the forest way, which is rarely done with us. I have planted woods in that way and with success, the effect of the bold groups being very fine. The best way to plant is about five or six feet apart with Larch in between, taking care to cut the Larch away in good time. In that way the growth of the Cedars is continuous and excellent.

Soil and Future Growth

THE fact that the Cedar grows well in calcareous soils like those at Goodwood, and in the good lands of Kent and also in the West country, is evidence that it is not, like your noble White Pine, a little difficult as to choice of soil. I think digging deep holes filled with loam is a mistake, as a test of the fitness of the tree for our climate; trenching too, was no gain, as it does not add to the staple of the ground at all. If the trees are rightly set out and fitted to the soil and conditions the roots will soon find any good there is in the soil. In planting I often do not even prepare the ground but plant the young trees in any bit of a grass field. One fault of planting on lawns in exposed places is that in very hot summers, such as sometimes come to us, the grass gets all the moisture, whereas if we plant in the right way in clean earth instead of in sod, there is no grass to absorb the water.

Timber

IN OUR country the wood has not yet come into use as timber, and indeed there is not enough of it to test its value. It is a very sweet smelling wood. I remember seeing in Carthage some very old samples of it in a museum and I believe it had great value in past years. On the mountains the natives had built fires against the old trees and injured them, and if they wanted a plank had cut it from the living tree! The French forester will look after that! Whatever the value of the tree in future years, the right forest, or group, planting would certainly be the best from every point of view, as the ordinary lawn-planted tree is a mass of branches into which the force of the tree grows instead of going to make a noble bole.

What is said of the Cedar as growing freely in various soils without preparation is not to be taken to mean that it will grow anywhere. In getting up the mountains in Algeria I saw a vast area of ground which was shaley and poor rock with scarcely any soil, in which the Cedar trees grew not much higher than Furze bushes. This tree like other trees benefits by a fairly deep and friable soil but it should not object to rocky ground, ground useless for the plow, but enjoy such ground as the Larch does on the Alps of Europe.

LEBANON CEDAR IN IDAHO

WHILE on a vacation to Portland, Oregon, in November I chanced upon THE GARDEN MAGAZINE of that month which appealed greatly as I am especially interested in greenhouse culture.

I certainly enjoyed the article on the Romance of the Cedar of Lebanon. In the yard of my sister in Idaho is a Cedar of Lebanon grown on the ground from a seed brought from the Holy Land by a traveler there many years ago. There were two trees but one was killed by accident; the other is now about 40 ft. high and has a diameter of possibly fourteen inches near the base.

MILDRED WALKER, *Montana.*

—We are glad to get information about any interesting plant, and hope other readers will tell of anything that may come to their knowledge. We understand that the Cedar of Lebanon referred to is indeed a vigorous tree, and fruiting regularly; well developed cones from it are in the collections of the Arnold Arboretum Museum.—ED.

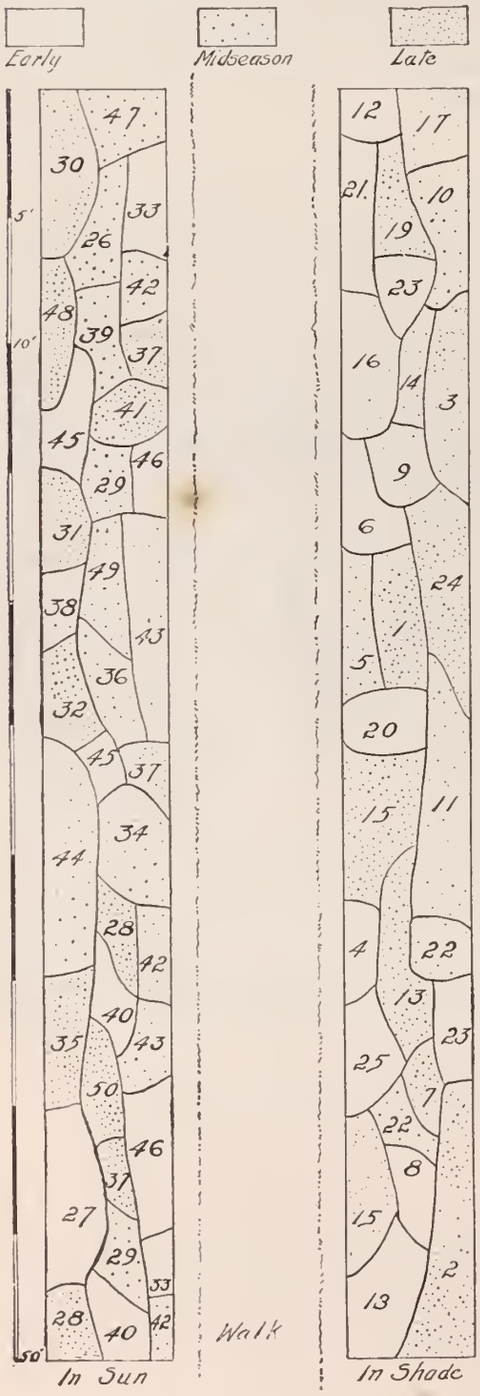
WORKING PLANS FOR GARDEN PLANTING

GRACE TABOR

Methods of Adapting Given Plants to Special Cases and Suggestions for the Effective Use of Materials That are in Harmony With the Situation and the Picture

ALTHOUGH the mixed perennial border is always with us and does to a very great extent shift for itself, it is a feature of the garden that responds to a study of its possibilities with more whole-hearted enthusiasm than almost any other one thing. Its constantly recurring handicap is an overload of one kind of plant, which means of course a gap in bloom when said plant has "gone by." To the end that this handicap shall be overcome for one thing, the border requires study and careful planning; and it requires it further, so that widest diversity shall prevail throughout its entire length—that it shall be truly a "mixed" border in other words. It will doubtless be noted that neither Peonies nor Iris are included in these plans for two borders along a walk, one shady and one sunny. These are purposely left out for the reason that they are among the standard flowers that do not rightly seem to belong in the very democratic company of the mixed border. Other plants will be found in greater or less abundance according as they require massing or not in order to produce their fullest effects.

THROUGHOUT the borders bloom is well distributed in each season; and this is above all other things a matter for strictest attention. For it is not only important to have a succession of flowers in a mixed border; but it is also extremely



KEY TO PERENNIAL BORDER IN SHADE

	EARLY FLOWERS	MIDSEASON FLOWERS	LATE FLOWERS
1			Aconitum Napellus } *blue*
2			" Fischeri } *blue*
3			" Wilsoni } *blue*
4	Ajuga reptans, *blue*		
5		Anemone pennsylvanica, *white*	
6	Anthericum Liliago, *white*		
7			Hemerocallis aurantiaca, *yellow*
8	Polemonium reptans, *blue*		
9		Astilbe Arendsi Ceres, *blue*	
10		" " White Pearl	
11		Digitalis gloxiniaeflora, *various*	
12	Dicentra spectabilis, *pink*		
13			Funkia subcordata gr., *white*
14		Hemerocallis Kwanso, *orange*	
15			Hypericum Moserianum, *yellow*
16		Aquilegia canadensis, *red*	
17		Lychnis chalcedonica, *scarlet*	
18	Myosotis palustris, *blue*		
19			Platycodon grandiflorum, *blue*
20	Dodecatheon Media, *pink*		
21	Mertensia virginica, *blue*		
22		Monarda didyma, *red*	
23	Polygonatum giganteum, *white*		
24			Stenanthium robustum, *white*
25	Trillium grandiflorum, *white*		

KEY TO PERENNIAL BORDER IN SUN

	EARLY FLOWERS	MIDSEASON FLOWERS	LATE FLOWERS
26		Achillea ptarmica fl. pl., *white*	
27	Anchusa Italica Dropmore, *b.*		
28			Artemisia lactiflora, *white*
29		Asclepias tuberosa, *orange*	
30			Aster Chapmani, *blue*
31			" formosissimus, *violet*
32			Boltonia latisquama, *m.uve*
33	Geum coccineum, *red*		
34		Campanula Medium, *various*	
35			Thalictrum dipterocarpum, *pink*
36		Clematis recta, *white*	
37			Chrysanthemum, pompon, *var.*
38		Delphinium hybrids, *bl., wh.*	
39		Phystotegia virginica, *pink*	
40	Doronicum caucasicum, *yel.*		
41			Eupatorium coelestinum, *blue*
42		Polemonium coeruleum, *blue*	
43		Heuchera sanguinea, *coral*	
44		Althea rosea, *various*	
45	Dictamnus Fraxinella, *pink*		
46	Thalictrum adiantifolium, *wh.*		
47		Liatris pychnostachya, *purple*	
48			Lythrum roseum, Perry's, *rose*
49		Pyrethrum hybridum, *various*	
50			Veronica subsessilis, *blue*

important to have these distributed along its length so that at all times there will be the impression of floral abundance.

Either of these borders might be used along a boundary according to whether the situation demanded plants for sun or shade; or tne two might be set end to end for a greater length if a sunny section followed a shady; or either might be repeated for greater length in the event of the need being for a hundred feet all in sun or all in shade.

ANOTHER variation of the hardy border is to arrange it in three or more continuous rows of successive bloomers, whereby its entire length will be in blossom at one time with the chosen flower. This is good for it gives the mass effect that is always highly desirable. Whatever the arrangement which you decide upon, keep ever before you this thought of mass, which will guard you against breaking the clumps into trivial proportions. A safe rule is never to plant less than three of anything and always to plant from six to a dozen if possible. In bordering a walk allow a turf edge from ten to twelve inches wide between walk and flower space.

SHRUBBERY PLAN WITH TWO KEYS

SHRUBS and shrubbery have been called the resource of the lazy man—but this seems hardly fair to either! For the shrubs are much too important to be relegated negligently to a mere assemblage of "bushes," while the man may not be lazy at all and yet greatly dependent upon them. Indeed the shrub border, screen, or background planting is one of the most potent factors in the development of that gracious seclusion which the home demands, whether it is large or small. And though it is possible to dispense with the garden flowers both annual and perennial and yet have a lovely garden—and a great many blossoms as well—it is literally impossible to dispense with shrubs.

For a beginning therefore plant shrubs—a few at corners of the boundary if for any reason an entire project cannot be undertaken at once, a mass to screen a roadway or to give it an excuse for the curve in it which convenience and other considerations may make desirable, a specimen at just the point where an accent is needed, and so on as your particular problem demands. But in doing even this fragmentary planting, keep to masses and never scatter it. If a space fifty feet long is to be planted, select the eight shrubs that complete the group at one end and four let us say at the other, and plant these in their proper relations; and then fill in between these ends in subsequent operations until you have the mass completed in its entirety. Or reverse the scheme by starting with the central dozen shrubs and plant in either direction from these, if for any reason it is more important to have something planted at this point first.

Above all get rid of the idea that everything must be done at once—*except on paper.* Make the plan on paper for all of the work however before anything is done, in order to insure continuity and a result that is good in all the ways that planting should be good—in design as well as service, and in all its aspects. Some persons are unable to see the need of a plan and with difficulty bring themselves to follow one; but details of just where to set each shrub in a group are as necessary to good grouping and design as are details for the building of a house. And they are further the greatest help when the shrubs arrive and the task of getting them out of their bundles and into the ground is at hand—for then is no time to try this way and that.

SHRUBS should go from two and a half to four feet apart in planting a group, the lesser distance being between small and light kinds such as sometimes face down the foreground, or between tall growing, slim kinds—such as the Rose of Sharon—in the background. These distances are a constant source of dispute with your gardener possibly—even with others, perhaps. But remember that in the mass shrubs are not wanted as specimens. What is wanted is unbroken thickets wherein the tops intermingle in a tangle of growth that offers an impenetrable barrier: and the individual shrub is of no consequence as an individual. Over and over it may be necessary to meet the argument that "they are getting no chance," but never let this wear you out nor dismay you. They are getting no chance as specimens, true enough; but the shrubbery is getting its chance—and this is what is intended. For a series of individual shrubs set along in more or less distant company to give each its "chance," results in a collection on the order of a curio or museum feature instead of in a framework for garden pictures. There is indeed what amounts to a perpetual conflict between the horticultural and the pictorial in matters of this kind, whether the material is large or small; and while the horticultural point of view must not be forgotten it is essentially the pictorial that must govern in all general plantings.

KEY TO SHRUBBERY

IF IN SHADE		IF IN SUN	
1. Cornus Mas	Cornelian Cherry	1. Hibiscus syriacus	Rose of Sharon
2. Berberis Thunbergii	Japanese Barberry	2. Azalea Vaseyi	Azalea
3. Cornus Baileyi	Cornel	3. Aronia arbutifolia	Choke-cherry
4. Syringa vulgaris	Lilac	4. Buddleia Veitchii	Butterfly-bush
5. Philadelphus coronarius	Mock Orange	5. Cephalanthus occidentalis	Buttonbush
6. Ribes odoratum	Flowering Currant	6. Forsythia Fortunei	Golden-bells
7. Ligustrum Regelianum	Privet	7. Lonicera tatarica	Honeysuckle
8. Rhus cotinus	Smoke-tree	8. Magnolia stellata	Magnolia
9. Rhodotypos kerrioides	White Kerria	9. Malus floribunda	Flowering Crab
10. Cornus Amomum	Silky Cornel	10. Opulaster opulifolius	Ninebark
11. Hypericum prolificum	St. John's-wort	11. Potentilla fruticosa	Cinquefoil
12. Chionanthus virginica	Fringe-tree	12. Sambucus max. pubescens	Great Elder
13. Deutzia Lemoinei	Deutzia	13. Spiraea VanHouttei	Spirea
14. Symphoricarpos racemosus	Snowberry	14. Viburnum Opulus	Highbush Cranberry
15. Deutzia Pride of Rochester	Deutzia	15. Diervilla floribunda	Weigelia

CALM INSTEAD OF COMMOTION

ADOLPH KRUHM

And Common-sense Analysis of the Little Things That Distinguish Between Success and Failure in the Vegetable Garden

NO ONE appreciates more than I do the meaning of failures nor speaks of them with more authority, for I have scored them for nearly twenty years under widely varying soil and climatic conditions, in greatly separated sections of the country! And one thing I long ago firmly determined: I would some day take GARDEN MAGAZINE readers into my confidence and tell them the results of my own analysis of failures; because if you know what *not* to do, doing the right thing is easy.

IN THE matter of soil preparation, for instance. It is easy enough to tell a gardener not to dig or plow until the soil is in proper shape. *But when is the soil in proper shape?* About eighteen years ago I had a lesson which I never forgot. We were standing before a rather wet piece of ground on one of the largest experiment stations in the East, and the manager and the farmer had an argument as to the fitness of the soil for immediate preparation. It was early in June and getting late for the sowing of cucumber trials which were to be conducted on that particular spot.

After many pros and cons, and under the farmer's protests the soil was plowed. Then it was harrowed and dragged; and when we started raking there wasn't enough "soil" on that piece of ground to cover the cucumber seeds in the hills—for it was entirely composed of "lumps." The result was that we secured a very poor stand; seeds that did come up were weak sprouts; the beetles got most of these, and the experiment was a failure all around.

Therefore make it a point never to dig or plow while the soil is so wet that when you take a handful and squeeze it it will form a firm ball. The soil will crumble after squeezing when it is ready to be worked. Until it does, let it alone.

THE trouble with most of us is that we are in too much of a hurry to get started. The matter of *a start at the right time* means so much more than just early activity can possibly mean that the thing to do is *wait*. Until soil and season have combined to produce the correct conditions all attempts to hasten work are simply courting disappointment. Make due allowance for all suggestions that you see in all sorts of books and catalogues by discounting them a week or ten days and you will be the gainer. Thus, if it is suggested that you should sow any time after the middle of May in your neighborhood, wait until the end of May and you will be safer. Chances are that plants coming into the world earlier than this will receive a setback; and it always takes a plant longer to get over the effects of a set-back than it does to start later and grow right along.

Of course while the garden season is young and the garden fever consequently at its height the enthusiastic gardener wants to get on the ground every minute of spare time, regardless of the condition of the soil. *But*—one of the great big monumental facts that should never be forgotten is that it is more detrimental than anything else I can think of to walk and work over soggy ground—outside of plowing and digging at the wrong time! *Walking over soggy ground will compress the soil so that subsequent cultivation cannot go as deep as it should* nor be done as thoroughly. For where the ground is tramped down while soggy it forms chunks which the cultivator teeth will tear up. What is more those chunks or lumps will remain there all season. They will not "melt" though many seasoned gardeners so claim.

WHILE we are talking about moisture let me caution against one of the biggest mistakes made—*don't go in your bean patch while the vines are wet.* Last summer I called across the way to a good neighbor of mine who was busily picking pods immediately after a big shower and told her that I felt sorry for her bean patch. She didn't know what I meant until two weeks later when all the new pods in that patch had black and brown spots and the plants themselves were beginning to die. She was inclined to blame this on blight or another fungous disease beyond her control—for hadn't she gardened all her life and didn't beans somehow always act the same way around that time of the year? It took me considerable time to convince her that she started the trouble, but I believe that she is now cured of picking beans immediately after a rain, or early in the morning while the dew is on the plants.

We are all inclined to believe that plants need moisture very badly, and in endeavoring to provide sufficient moisture we often put it where it doesn't belong—with the result that bearing is cut short in unnecessary fashion. All plants of which we use the seeds yield their crops as the result of blooming of course and the matter of proper pollination or fertilization of the flowers enters in largely. These should *never have their tops and foliage drenched with the hose.* This applies particularly to tomatoes, peppers, eggplants and the whole "vining" family, such as cucumber, squash, melons, pumpkin, etc. Turning the hose on these washes away the pollen which is so essential to proper fertilization, without which no fruits will set.

In most instances the garden needs cultivation a whole lot more than moisture. Frequent cultivation really accomplishes the same thing as occasional moistening, because it keeps the moisture *beneath* the ground where it can do the greatest amount of good. Frequent watering on the other hand draws the roots to the surface and the slightest drouth will affect the plants far more seriously than where cultivation has induced the plant roots to go deep down for moisture. Therefore a wheel hoe, or one of the modern hand cultivators is a practical alternative for a hose!

HAVE you almost given up trying to raise radishes because they are usually eaten by maggots, and are wormy? This simply means that you have disregarded one of the fundamental rules in the garden which is this: first cousins among the vegetables should never be planted on one and the same piece of ground during the same season or even two seasons in succession. The whole cabbage family, for instance, thus draws maggots—and when you follow kale with cabbage and cabbage with radishes and radishes with brussels sprouts, etc., etc., you are cultivating the presence of Mr. Maggot quite as effectively as you are cultivating the crops.

TIME and again I have had home gardeners come to me to show me corn that was very irregular in its rows, with only a few filled rows and the kernels very irregular on the cob. In ninety cases out of a hundred this fault is due entirely to the wrong method of planting the corn. *Never plant corn in long,*

single rows but always in short blocks or squares. If corn is planted in a long row or even two long rows running north and south and the wind blows from east to west during the few days that fertilization takes place it carries all the pollen away from the patch, and the ears will be lopsided. On the other hand, if the corn patch is laid out in blocks of 10 to 15 rows of equal length it matters little which way the wind blows; it will always blow good for the corn crop.

THOUGH sympathy is rooted deep within the hearts of all gardeners yet there is less room for sympathy in the garden than any other place. To sympathize with a sick plant and try to get it well entails in most instances more work than the plant is worth. Besides, please remember that it endangers the health and bearing power of every plant of the same or related family that grows near it. The survival of the fittest should be the dominating thought in the garden, and the slightest indication that any plant in the row does not live up to the standard of the others should be good and sufficient reason to remove that plant. And while you are pulling it up, don't throw it in the aisle or between the rows! Carry it clear off to some isolated corner where it may die quickly, thus carrying with it the germs of its disease—or better still, destroy it by burning.

WE DREAM about the luscious vegetables the garden should yield and yet 75 per cent. of the vegetables we pick in our gardens are too old to be considered in their prime. It may be that we have failed to learn just when the vegetables are ready for gathering, or it may be we have desired to give them a chance to grow to full size in order to get big basketfuls. It doesn't matter—for either reason will defeat one great purpose of the home garden, which is to give us *better vegetables than we can buy in the market.* If you see in a catalogue that a variety is ready for picking in from 60 to 75 days, begin to look over that row after it has been planted 50 days. Soon you will find that writers "play safe" by allowing lots of leeway in the matter of when the vegetables should be ready for use. In the garden the best rule is to *take no one's word, but find out for yourself.*

Another reason why the vegetables we gather do not bring the quality which we have a right to expect is that most people plant too much at one time. That means that a big lot of a given thing will be ready at one time and before it can be used up most of it has gotten too old. It is then either wasted, or put into cans, and the latter is another mistake—for why should old, overgrown, tough and stringy vegetables be stored away to be used at a season when we value vegetables most? *Make small plantings frequently* instead of one big planting.

HOW I GROW BIG POTATOES

E. V. LAUGHLIN

THERE is a big sense of satisfaction in getting really big potatoes for the home table—and it is worth the effort just for the pure satisfaction of showing what can be done in the home garden, which the commercial man cannot attempt to do. Nevertheless there may be some helpful suggestions for the large grower in my way of growing big potatoes. There are four essential conditions which must be considered and I name them also in practically the order of their importance: (1) rich soil, (2) good seed, (3) preparation of the seed bed to insure depth and mellowness, (4) proper planting followed by frequent and clean cultivation. Unless the year is terribly "off" nice potatoes will be obtained.

It is useless to expect good potatoes on poor soil. The crop demands the best of soil fertility and if that be refused the inevitable result is small potatoes. My experience has been that barnyard manure is the best fertilizer. Two or three weeks before plowing time, earlier if possible, I cover the location of the prospective potato patch quite deep with manure and I hope for drenching rains for this will leach the substance out of the manure and carry it down into the soil. Shortly before plowing time this manure, except a limited quantity of the finer particles, is raked off. I have observed that potatoes do not do well on a soil that contains much unrotted straw or coarse material.

SPROUTS JUST STARTED, READY TO PLANT

Save seed from the best hills. This is the produce of one plant of Sir Walter Raleigh, seven tubers, weight 5 lbs. The average yield per plant in America is ½ lb.

The teamsters who plow my potato patch invariably complain that I am awfully cranky. This is because I insist that every inch of the soil be turned over to a uniform depth of eight inches. I had a real argument with one teamster because I caught him "cutting and covering." I excuse my grouchiness in this one respect because I know that potatoes like good housekeeping—they do not repose comfortably in a bed unless the mattress is fluffed and smoothed, and all rough spots ironed out. In this case the mattress is the bed in which the seed is to be planted. Always stand by as the teamster plows, harrows, and re-harrows the seed bed until it is in A-1 condition. You may have to pay more for having this done but it is money well spent.

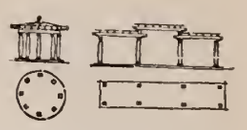
For sets I prefer medium sized "seed" of some variety that thrives in my locality (here in my part of Iowa I favor Early Ohio though I get almost as good results with Early Rose). I cut my seed very carefully making sure that each piece has two thrifty looking eyes. I plant these 18 inches apart in rows 30 inches apart, covering about three inches deep. I have just one rule in cultivating. It is: Cultivate frequently and absolutely clean until the tubers are as big as walnuts. And just one thing further: Attack the bugs with paris green just as soon as the first one appears.

Sections are sometimes roofed and columns paired

PERGOLA BUILDING DETAILS

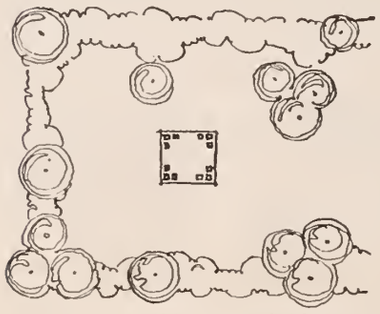
LEONIDAS WILLING RAMSEY

The Place, Purpose, Permanence, and Proportions, These Being a Pergola's Cardinal Points



Classic lines are well revived by some forms

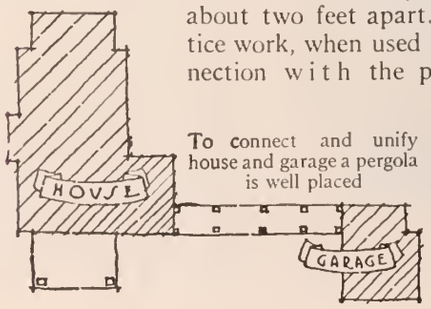
THE earliest examples of the pergola were used along pathways and they are best to-day when used as a connecting feature between two buildings or two garden motifs. A pergola may, however, furnish a terminal motif at the end of an axis, a central motif of a formal or informal area, or the major part of some comprehensive architectural scheme. Whatever the situation, however, a pergola should be constructed of the best weather-resisting materials available; and further, there are a few structural precautions which must be observed.



A central motif for a secluded lawn

The columns should be made of staves joined together in some good interlocking method, for one thing, and built up that they may withstand the ravages of the elements. The capitals should be covered with either zinc or copper in order to protect the top. The base should be made of metal also, as a wood base resting upon a concrete foundation soaks up the moisture and is short-lived. The foundation for the column, made of concrete preferably, should go down below the frost line which is about three feet below the surface of the ground in the northern part of the United States. And finally the columns should be firmly anchored to the foundations in order that they may resist heavy winds.

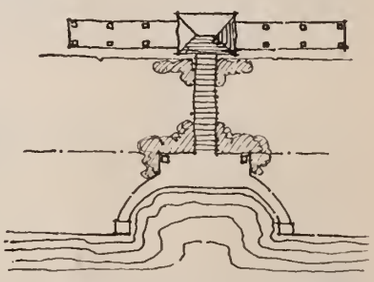
The rafters may be of the same wood as the posts. A number of end designs are suggested. Rafters are usually placed about two feet apart. Lattice work, when used in connection with the pergola, should be snappy and should therefore be executed by a careful workman. Proper construction calls for the strips to be spliced together.



To connect and unify house and garage a pergola is well placed

I feel that pergolas should be painted white, except under very exceptional conditions, for white by contrast brings out the color in foliage and flowers. Hence it is a good policy to let no one tempt you into painting your pergola any other color unless it is so closely related to the house that it demands consideration as a part of it.

Paths for the pergola may be either of grass, macadam, brick, flag stones, or concrete. Personally I feel that brick walks are the best for their color, and they are easily kept clean. Concrete colored a turkey red is effective if brick cannot be used.



As a water gate above a landing place

It is of course as impossible to give a fixed rule for the height and the spacing of the posts for pergolas generally as it is to establish a fixed rule for any architectural design; but I may say that the best columns to use ordinarily are the ones 10 in. in diameter, which will come 7 ft. 6 in. in height. These may be set 8 feet apart in a pergola that is 7 feet 6 inches wide. All measurements, be it understood, are made on column centres. Where columns are used in pairs instead of singly, the open distance between the pairs should be 8 feet, measured on centres.

A sketch to scale of the elevation of a proposed pergola should always be made—however roughly—in order to judge its proportions and its general effect when erected.

SUGGESTED SPECIFICATIONS

Foundations

All excavations to be 3 feet in depth or as necessary to reach 6 inches below frost line, and large enough to allow all cement to extend 1 inch beyond wood which it supports.

Bottom of excavations to be covered with footing 6 inches deep of cinders well packed and firmly tamped down.

Excavations then to be filled with regulation 1:2½:5 concrete mixture to the level of the ground, into which a ½ inch iron anchor rod 18 inches or more long and bearing a transverse ¼ inch iron plate 5-6 inches in diameter on the lower end, is bedded to a depth of 6 inches.

Columns (Cypress)

Height 7′ 6″: distance apart (width of Pergola) 8′ on centers: diameter 10″. Columns to be held firmly by anchor bar which is held fast by bolt drawn down on ¼ inch top plate similar to bottom plate, as shown.

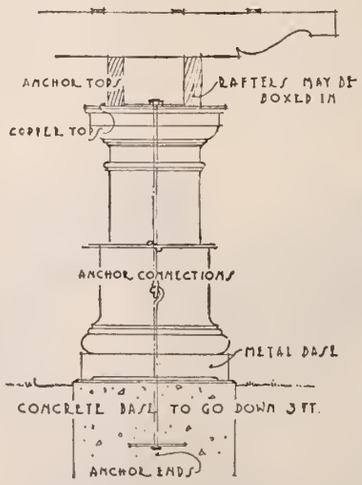
Overhead (Cypress)

Soffit or Plate of two 3 x 6 timbers set on edge with outside face aligned with side of Column. To be left open, or closed by boxing top and bottom with 1⅛ inch board.

Rafters of 2 x 4 timbers set on edge and fastened to Plate by angle-irons.

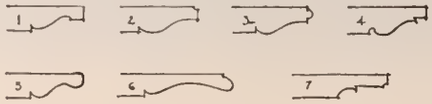
Finish

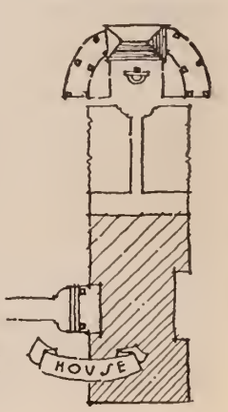
All woodwork to be finished either with a coat of preservative stain (if stained finish is selected) followed by two coats pure boiled linseed oil thinned with turpentine; or painted with a creosote paint sufficient to cover; or painted with a standard outside paint three coats, allowing 24 hours for drying between each.



Structural details of Base, Column, Capital and Rafters

A diversity of Rafter ends below





Closing a garden vista and enclosing the garden

PLAYGROUNDS OF SUNLIGHT

THE pergola is a place of moods sometimes gay, sometimes grave, and sometimes altogether mischievous, as when the hide-and-go-seek of the sunbeams reverses the accustomed disposal of high light and plays the eye a trick reminiscent of wartime camouflage. There is just one invariable rule with regard to these fascinating structures, namely: put them only where they lead definitely from something to something and never aimlessly just whence to whither—for the first purpose of a pergola is to shade a walk.

Wholly pergola yet half wall is this garden enclosure which has Evonymus radicans clothing it within and fragrant yellow Day-lily (Hemerocallis) under its shade. Estate of Mr. Phipps at Westbury, L. I.

A more startling yet more wholly delightful contrast than this naturalistic bit of rock garden brought into closest intimacy with the house and hidden within a cloister-like surrounding pergola it is impossible to imagine. Residence of W. E. Hering, Arlington, Pa.

Leading from the house on the estate of James L. Breese, Southampton, Long Island, along a garden wall and open only toward the garden this type of pergola is designated a "peristyle" by McKim, Mead & White, its designers

THE KURUME AZALEAS OF JAPAN

ERNEST H. WILSON
Assistant Director, Arnold Arboretum of Harvard University

Far and Away the Greatest Horticultural Sensation of a Half-Century this Extraordinary Race is Even Yet Scarcely Known Outside the Orient Though Shown Here Five Years Ago

[EDITOR'S NOTE: *This is the first published statement concerning a group of wondrously beautiful Azaleas, which will be on public exhibition in Horticultural Hall, Boston, March 24 to 28. We were favored with an opportunity to see the plants last year, shortly after arrival, and were enraptured at the clear, beautiful, almost "ethereal" tones of the scattering blooms. The introduction of these at this time is a sensational achievement indeed, but sad to relate though they exist in quantity in Japan a further importation is impossible because of Quarantine 37 as administered by the present Federal Horticultural Board.*]

IT SEEMS absurd that after almost three quarters of a century of direct intercourse we should virtually know nothing about a whole race of plants which have been developed to perfection by the flower-loving Japanese. Yet such is the case in regard to these Kurume Azaleas. Three are familiar—the fairly new "hinodegiri" and older Azaleas amoena and obtusa—but these three are not of the best; and there are hundreds! Moreover, these Kurume Azaleas appear to be no better known in England than here. Bean's "Trees and Shrubs Hardy in the British Isles" (1914) makes no mention of them; while Millais' monograph of the genus Rhododendron, (1917) says a few complimentary words and lists about a dozen under "Japanese R. indicum or R. indicum amoenum hybrids."

It was during the Arnold Arboretum expedition to Japan in 1914 that I first became acquainted with these Kurume Azaleas in general, and visited the garden of a Mr. Oishi who specialized in these flowers at Hatogaya, a few miles north of Tokyo. His plants were very small but he allowed me to make a complete collection of dried specimens for our herbarium. In and around Tokyo itself I found Azaleas amoena, obtusa, and hinodegiri commonly grown and in quantity, but none other of this group. That year I had no further opportunity of studying these Azaleas more deeply, but on our next Expedition (1917-19) I determined to visit the city where they were originated and the mountain on which the wild parents were reputed to grow.

The opportunity came in 1918, and, to my great good fortune, I had as companion Mr. H. Suzuki, the head of the Yokohama Nursery Company—an important personage in Japanese horticulture and a delightful companion. The city of Kurume is on the island of Kyushu and some 800 miles south by west from Tokyo. There we arrived on May 3rd, to find the Azaleas in the pink of perfection! I went prepared to see a display of blossoms, but the entrancing beauty of the delicately colored flowers surpassed my most sanguine expectations. The gardens of Messrs. Akashi and Kuwano, the two leading specialists, were veritable fairylands; and I gasped with astonishment when I realized that garden lovers of America—and Europe, too—knew virtually nothing of this wealth of beauty.

A BIT OF THE GREAT COLLECTION OF MR. KIJIRO AKASHI

From this, into which the initial collection of Mr. Sakamoto the originator of these Azaleas, came at his death, the fifty-two pairs of plants now in Boston were brought eleven months ago

MOST of the plants were trained into low standards each about 20 inches high with flattened or convex crown some 18 inches through, and were monuments to the patience and cultural skill of the Japanese gardener. Other shapes there were but this was the favorite and most effective. The flowers—each about half to three quarters of an inch across, and borne in clusters of from two to several at the end of every twig—were in such profusion as almost completely to hide the leaves. If a fault could be found it was that the flowers were too numerous! The colors are most pleasing—pure pink to rose, cerise, lavender, mauve to magenta, salmon, vermilion, bright red to deep scarlet; others the purest white. Some have bizarre-colored flowers, but such I do not favor. A great many have the calyx petaloid and the flowers are hose-in-hose. The stamens, always five, and pistil are perfect and there is no malformation as in ordinary double-flowers. The anthers tip the straight filaments, are light to dark, varying with the color shades, and add not a little to the pleasing appearance of the flowers.

Specialists in Kurume recognize some two hundred and fifty sorts and each has a name, but the distinguishing points are often too slight for the uninitiated to grasp. More than fifty kinds however are quite distinct one from another, though for practical purposes this may be reduced to about twenty-five. Messrs. Akashi and Kuwano selected as the very best the following six:—"Takasago" (pure pink, hose-in-hose), "Azuma-kagami" (deep pink), "Kirin" (deep rose, shading to silvery rose), "Kumonouye" (pure salmon), "Kurainohimo" (vermilion, hose-in-hose), and "Kurenoyuki" (white, hose-in-hose). My companion and self concurred; but had the number been a dozen the task would have been easier!

We visited the principal gardens and spent several hours in that of Mr. Kijiro Akashi, who for more than forty years has assiduously devoted himself to the development of these Azaleas, and has raised from seeds and perpetuated by cuttings nearly all the forms in cultivation. In his garden is the finest of all collections, and the loving pride with which this grand old gardener pointed out to us the particular merits of this or that pet can be appreciated only by those whose lives have been lived in close

PLANTS DESTINED FOR AMERICA PHOTOGRAPHED BY MR. WILSON

It is not alone colors ranging from pure pink, rose, cerise, lavender, mauve, magenta, salmon and vermilion to deep red which distinguishes this remarkable group, nor the profusion of the flowers, but rather a peculiar luminosity that radiates from every color, making the one word "ethereal" truly descriptive of them all

companionship with plants. In this garden I made a selection of forty-three of the best kinds, in duplicate; and this was later increased to fifty-two kinds.

I am happy to say that on April 24, 1919, these 104 Azaleas were unpacked in the Arnold Arboretum and all found to be alive; and, considering the length of their journey, in good condition. Making the selection was much easier than persuading Mr. Akashi to part with them; though, with true old-time Japanese politeness, he had offered me any or all that he had. He loved his plants and I fully understand his reluctance to part with them when the time to do so actually came.

MR. AKASHI kindly furnished us with the details of the history of these Azaleas, as far as these are known. They were originated by a Japanese gentleman named Motozo Sakamoto, who lived in the city of Kurume about one hundred years ago. The parents came from sacred Kirishima (a volcanic mountain in south Kyushu, still active) but whether brought from there by Mr. Sakamoto or given to him by some pilgrim is uncertain. At any rate, Sakamoto cultivated several varieties and raised and selected seedlings, including one he named "Azumakagami" from which it is claimed have descended all the pink-colored forms. After his death, Sakamoto's collection passed into the hands of Mr. Akashi.

THE original plant of "Azuma-kagami" is still living and healthy. I photographed it but failed to purchase it—though I tried hard to do so. Mr. Akashi showed us a gold medal awarded to him for an exhibit of thirty plants, in a dozen kinds, of Kurume Azaleas at the Panama-Pacific Exposition, San Francisco, in 1915. The plants were afterward sold; and Mr. Akashi's pride in the gold medal seemed a little saddened when he thought of the loss of those thirty plants. [Question: Where are these plants now? ED.]

We next determined to visit Mt. Kirishima, whence tradition says the parents of the plants came. I had visited this mountain early in March, 1914, and remembered that an Azalea grew there and that I had gathered leafless specimens. We spent a night near the base of Mt. Kirishima and starting early the next morning soon reached an altitude of 1,000 meters, where forest abruptly gives place to grass-land. And there we saw before us the mountain slopes dotted with blossoming Azalea bushes in quantity.

They grow on volcanic soil, on windswept grassy slopes, and among rocks. In size the bushes are from nearly prostrate to a yard high, and hardly two plants have flowers of the same shade of color! We gathered specimens of forms with pink, salmon, and mauve to rich magenta-colored flowers; then at a little higher altitude red-flowered forms, and among these an occasional white one. Much variation is found in the size and shape of the flowers and leaves; also the anthers vary in color.

With the variety of forms on the mountain before us we could accept without reservation the story of the origin of the Kurume Azaleas, as given by Mr. Akashi, and reiterated by others; for seedlings raised from such a variable and multicolored species could easily give rise to all the known colors in the garden forms of this group to-day.

TEA ROSES WHERE THEY ARE NOT HARDY

MARTHA HASKELL CLARKE

Where There is a Will There is Always an Effectual Way and Very Often it is Not as Troublesome as the Older and Ineffectual Ones

WITH a show of greater assurance than I actually could muster, I announced one winter day when the thermometer was hiding somewhere underneath the zero mark that I intended making a specialty of Roses. It was in front of a blazing fire with alluring catalogues all around—you know the sort of thing and how it makes you feel!—with every page a-bloom with a lovelier Rose than the last and with descriptions calculated to drive one quite distracted, horticulturally speaking.

"In *this* climate!" was the ejaculation from the other side of the fireplace—not a question even; just an admonition, I suppose you might call it. And it took. But, "I don't see why," I said obstinately just the same. "I love Roses best of all."

And when April brought the shrubs and perennials, "What are these?" in the midst of the unpacking gave me a guilty start. "*Tea* Roses? *Bride, Safrano, Killarney!*"

"One of them is a *Hybrid* Tea," I parried weakly.

There were a dozen—and if ever a group of Roses led pampered lives, those Teas and Hybrid Teas did. They were planted with the greatest care, received the richest soil and the sunniest location in the garden; and they grew tremendously! When fall came, they were great thrifty looking bushes loaded with buds and flowers, and the pride of my heart. I consulted books and experienced friends as to their winter protection, and in November old Mike wrapped each plant carefully in its winter jacket of straw, and hilled up the earth around its base; and we left them, dormant for the winter.

Alas! Dormant they remained forever, with the exception of the red Hybrid Tea "Gruss an Teplitz." This sent up one weak struggling shoot late in June. Yet "what shall I do with this little Tea Rose sent gratis with our perennials?" was the only thing my indulgent helpmeet said, as we unpacked the next year's garden order! "Oh, stick it in anywhere!" I answered as I felt. "I don't care." Thus I laid aside my Rose garden dreams (I thought) forever. But June brought the Sombrero Man for a visit—a person wise with the wisdom of flowers and growing things, and at the head indeed of a certain agricultural college—and to him I confided, in what seemed to me at the time a weak moment, my faded Rose hopes. Imagine my surprise when he looked interested instead of amused. "Let's see your location and soil," said he. So we strolled out and viewed the scene of the tragedy. "Fine" was his comment, and "I see no reason why you can't have your Rose garden." Wherefore I have—and here is the rest of the story, tabulated in the order of accomplishment:

THE Rose garden should have a southeast exposure, and if possible a hedge at least on the north and west as a windbreak. It should not be too large. A small garden which will contain a hundred plants is enough, and easy to care for. The soil should be a mixture of rather clayey loam well enriched. Pulverized sheep manure is an excellent fertilizer for Roses, and can be applied at intervals all through the summer.

It has made no difference whether I bought own-root Roses or those that were budded or grafted. They all seem to do equally well. If expense is to be taken into consideration, you can procure the one-year-old, own-root Roses much more cheaply than any others. In the method of growing here described they may be planted only a foot apart, which allows many more plants in a small area than are usually grown. During the summer ordinary care should be given by constant weeding and stirring of the soil, and plenty of well-decayed manure should be dug in at intervals throughout the season. All faded blooms should be removed at once.

IN the autumn after they have lost their leaves or after one or two hard frosts, cut the plants back to a uniform height of about two feet (this will not be necessary in the case of one-year-old plants the first year) to facilitate handling them. Dig them up, shake the dirt from their roots, and bunch them tightly together, tying the stems. Twenty or more plants can be tied into a very small bunch, particularly for the first few years. The longer and more straggling roots should also be pruned at this time. Stand the bunches upright in a wooden box, and cover the roots with soil, packing it in firmly. Then water thoroughly at once and set away in a dark, cool corner of the cellar for the winter. Water them about once every three weeks, or just often enough to keep the soil from becoming dust-dry.

As soon as the ground can be easily worked in the spring, or when danger of the worst frosts is over (in my latitude not until about the middle of May) the bundles are untied, the stems further cut back one half the previous season's growth, and the Roses put back into their old positions. Let me hasten to say, if this sounds like a troublesome method, that it is less trouble to winter them in this manner, which is absolutely safe and sure, than to gamble on their living by wrapping each plant in a straw jacket and covering its roots. I used the little Tea Rose which came gratis with our perennials as a test of this method and it behaved and flourished just as our friend assured me it would. So my dreams of a Garden of Tea Roses came true—and so may yours, no matter how far down the mercury goes in your latitude. And here is my list, if any one likes to use it.

YELLOW.—(*Teas*) Etoile de Lyon, Safrano, Perle des Jardins, Sunset. (*H. T.*) Harry Kirk, Melody, Mme. Melanie Soupert, Mrs. Charles Dingee. (*Climbers*) Gold of Ophir, Cl. Gloire de Dijon.

SCARLET.—(*Teas*) Papa Gontier, J. B. Varonne, Princess Bonnie, Princess de Sagan. (*H. T.*) Château de Clos Vougeot, Gen. McArthur, Rhea Rheid, Gruss an Teplitz. (*Bourbon*) Agrippina, Queen's Scarlet. (*Climbers*) Caroline Goodrich, Reine Marie Henriette, Cl. Mad. Jules Grolez, Cl. Meteor.

WHITE.—(*Teas*) White Maman Cochet, Bride, Devoniensis, Enchantress. (*H. T.*) Bessie Brown, Kaiserin Augusta Victoria, Mildred Grant, Viscountess Folkestone. (*Bourbon*) Duchess of Thuringe. (*Climbers*) Cl. White Maman Cochet, Mrs. Robert Peary, Cl. Clotilde Soupert.

PINK.—(*Teas*) Bridesmaid, Duchess de Brabant, Catherine Mermet, Maid of Honor. (*H. T.*) La France, My Maryland, Killarney, Souv. de Pres. Carnot. (*Bourbon*) Hermosa, Souv. de la Malmaison. (*Climbers*) Cl. Bridesmaid, Cl. Cecile Brunner, Cl. Killarney, Cl. La France.

SALMON.—(*Teas*) Gen. Robert E. Lee, Henry M. Stanley, Souv. de Jeanne Cabaud, Marie Ducher. (*H. T.*) William H. Taft, Mrs. Aaron Ward, Mme. Leon Pain, Mme. Phillippe Rivoire.

SOME FAVORITES OF THE BOARDS

A Forecast of the More Interesting Plants that Will Be Staged in the Season's Flower Shows

THE OLD CAMELLIA COMES BACK

TIMES do change and flower shows change with them, although to the casual looker-on one year's exhibition may seem to be very much like another. The fact that in each city the flower show is almost perforce held in the same building tends of course to result in a certain sameness in the disposition of the masses, and the more conspicuous groups, regarded purely as decorative compositions. But the penetrative observer finds interest to be in the details of the various exhibits, be they large or small and from private grower or trade dealer.

THERE have been no important floral exhibitions during the period of the war, and now that they have come back, starting in the two large Eastern cities this month (New York, March 15-21; Boston, March 24-28) it may be worth while to give these gatherings a little close study. Things have indeed changed. No longer may we confidently look to the nursery fields of Belgium for Azaleas, to England and Ireland for Roses, to France for new Gladiolus, or handsome forcing shrubs. The authorities forbid! There will be available this season of course a limited supply of left-overs from the war and before-the-war periods, but the effects of the restrictions on trade will be apparent. We have not yet had time nor opportunity to readjust ourselves. So it will be worth while to go to the flower shows to learn what is going on.

HEATHS

Or Heathers of the florists come in various kinds

ROSES of American origin, as well as of home propagation of foreign stock already on hand will of course be seen a-plenty; and we shall begin perhaps to look more closely into the future possibilities of hybridizing and raising new things for ourselves. And while it is lamentable that we are denied access to the floral productions of the rest of the world, since all these things should be available to all who love and grow beautiful flowers, it is without doubt a good thing that the situation will stimulate activities in the way of "home production" that have hitherto been somewhat inert. By reason of climate every region has something denied it that does flourish elsewhere, and ours is, of course, no exception to this rule. But we have on the other hand a vast amount of undeveloped material which it will be interesting to see skilled men turn their attention to. So far, good! For though there will be no new Bay-trees to furnish foyers nor stately Palms—unless the Jersey ones raised from seed!—who knows what we shall have in their place?

AN EASTER FAVORITE

The dainty yellow fluffs of Acacia pubescens will soon be familiar

Naturally we shall first turn to things that are capable of quick reproduction from seed or rapid multiplication by cuttings. Possibly the Acacias will move forward into a first rank place as pot-plants for Easter time, for they are easily raised. The old-fashioned Camellia is being brought back into the place that its profuse flowering quality and its easy culture, with almost no heat, justifies. As small pot-plants in season the Heaths (Erica) offer a rich variety of material. And the curio hunter will turn delightedly to the Orchid displays, in which there will be even a greater number of rare gems than ever before. One real sensation of the exhibitions too will be the new Kurume Azaleas, of which the whole story is told on another page.

ALWAYS THE ORCHID

The Blue Orchid (Vanda coerulea) is but one of many hundreds to intrigue the fancy with delicate mystery of form

GROWING ROCK-PLANTS IN THE GARDEN

LOUISE B. WILDER

Infinitely Better than a Rockery Upreared where Nature Never Intended is this Simple Method of Cultivation

A STEADILY growing enthusiasm for the class of plants known as Rock-plants and Alpines characterizes present-day gardening; and it is not surprising when it is remembered that the group exhibits such charm and variety, such dainty gaiety, and so subtly lures us on to experiment by hints of difficulties to be met and overcome before we may hope to please such shy little mountaineers.

Now it is self-evident that many or even most gardens do not have appropriate sites for a special garden for the accommodation of "Alpines"; and even when there is such site the acquirement of proper rockery is beset with difficulties. There are a hundred wrongly constructed rock gardens—utter absurdities as copies of some beautiful natural scenes, and utterly unfit as habitations for the helpless plants quartered therein—to one scientifically constructed and intelligently planted. It needs—and we should desire—more than a heap of earth and stones stuck over with forlorn rock plants in all the depressing stages of failing health. But how difficult it is, without expert advice, and sometimes with it, to arrive at anything else.

One need not read more than one of the many good books dealing with this type of gardening to realize the embarrassments, artistic, scientific and financial, which rear themselves threateningly in the path of the amateur who essays to build a rock garden. Being such an amateur myself and having met with more disconcerting failures at rock-garden architecture than I care to narrate—for if my achievements looked well no plant could remain alive in them; and if possible to plant life they were horrors to look upon—it may interest others held by the fascinations of these small folk to know that many of them may be enjoyed in a perfect physical state without a bona fide "rock garden" at all.

Of course, stones we must have; but these are used in the construction of most gardens—in walls, paved paths or steps—and consequently are already there; and with a little ingenuity and selection these stone utilities may be made to serve as up-to-date apartments for even quite airy Alpines, who would snort scornfully as it were, and perish upon any spot assigned them in the ordinary flower borders.

Crannied Wall and Stone-Paved Walk

IN OUR garden all the beds and borders are raised about a foot and held in place by large stones partly sunk in the earth. These overlaid and festooned with rock plants, chosen with regard to what is behind, form the most delightful edgings in gardens—if not made too pretentious.

It is by means of these stone edgings that my most successful rock gardening is carried on. By inserting a flat stone behind a joint of two of the edging stones, it is possible to make a pocket of any kind of soil required—and this device also keeps at bay the prowling roots of the border outlaws that would otherwise hustle our small mountaineers completely out of existence. Aethionemas have done very well here and so have many Alpine Pinks and Campanulas—grateful for the cool root-run and the warm stones over which they may sprawl in luxurious comfort. Of course there have been failures, among which I am sorry to have to number Nierembergia rivularis, Dianthus alpinus, Campanula pulla, Linaria alpina, and Omphalodes verna.

But we go on, making use of all the stone places to render our garden irresistible to Rock-plants; and our measure of success has been flattering. No chink or crevice that may be rammed with earth and converted into a home for some small green thing is overlooked. And it has been such a delight to find that many Rock-plants which I had so earnestly—and vainly—tried to coax into the joy of living upon my garden borders (and ill-constructed rockeries) fairly rushed into growth and bloom in a cranny of wall or steps, as if in haste to show there had been nothing personal in their former refusal to accept my hospitality. It was thus with the pretty Mountain Erinus, the Chedder Pink and the winsome Campanula pusilla.

Success though is not the result of simply possessing stones in the form of steps and walls and walks and edgings. There must be some understanding of Rock-plants—knowledge of their natural environments, their needs and their little stubbornnesses; for they are not as their brothers and sisters of the level garden by any means, though some will accept a place there with very good will.

Just What is an "Alpine"?

THERE is some confusion in the use of the term "Alpine" as applied to plants. Technically, I believe, it signifies a plant inhabiting a mountain region above the limits of forest growth and does not arbitrarily imply a residence in the Alps, as is sometimes stated. All Rock-plants are not Alpines, nor vice versa for many of the Alpines grow in fertile meadows and bogs. Our concern here is with Rock-plants, whether Alpines or not, whether belonging to a low or high altitude; and while there are many too shy and untamed to be tempted by anything within my humble means to offer them in place of their freedom, still the list of those that have accepted the change with serenity is of encouraging and ever increasing length.

Nearly all my Rock-plants have been raised from seed—in pots and pans of leaf-mold and sand—and inserted in the crevices and joints in very early seedling-hood. Plants that are bought are too large and too settled in the habit of expecting plenty of room to take kindly to narrow quarters. Seed may be mixed directly with the soil in the cranny but I have not been so successful with this method. The most acceptable soil to the majority of Rock-plants is a combination of coarse sand and good loam freely intermixed with chips of stone, the latter preventing too rapid evaporation of the moisture. Some are lime lovers and consequently grateful for limestone chips. A cool root-run between stones with their heads in the sunshine is the dear desire of most of them; stagnant water and winter damp are their sure destruction!

I have kept belated Alpines over the winter in my nursery beds by putting collars of stones close about each little throat to keep the crown well out of the damp; and I have also grown them—for experiment—in slightly raised beds of coarse gravel. One such bed sheltering that wildest and prettiest of Pinks, Dianthus sylvestris, was a perfect delight in spring, after passing through a most trying winter. In such beds other Rock-plants of doubtful stability have wintered safely—Silenes, Arenaria montana, Calandrinia umbellata, Lychnis alpina and Linum alpinum. Sometimes after a hard winter the Rock-plants

look in rather bad shape. Then is the time to be guided by what Mr. Reginald Farrar writes:—"Dianthus neglectus, like all other Alpines that make deep tufts, is very thankful for a top dressing of helpful soil as soon as the denuding winter and upheaving frosts are over. Frost and rain work all these tufted plants rather bare and decollete; just as the growing season begins they very much appreciate a fine sifting of light rich soil fretted gently in among their growths."

The Dry Retaining Wall

IF ONE has such a wall in prospect and intends it to become the home of Rock-plants it would be the part of wisdom to procure one of the many good books dealing with the subject, so that the construction and planting may be done in the best way from the start. But if such a wall already exists, laid loose or in mortar, it may be made to answer. I have rammed soil into mine with a little cement to hold it in place; and the plants confided to it find themselves very much at home. Now and then a fatality occurs where the soil was not rammed in firmly enough to discharge air pockets—and this should, of course, be carefully guarded against. Such a wall at Mr. William Robinson's beautiful garden in Surrey, England, is charmingly overrun with the little Fumitory, Corydalis lutea.

If the wall is high, quite large subjects may be introduced with fine effect among the rock plants—an occasional group of Foxgloves or red Valerian, Lavender-cotton, Nepeta Mussinii, Snapdragons, and now and then a great aspiring Mullein. The main consideration is that the plants should be arranged in irregular, natural looking groups, as if nature had done the sowing—not too many kinds to a stretch of wall and very seldom a single specimen. To form mounds of soft color or to hang in graceful festoons at the top of a retaining wall may be planted Santolina Chamaecyparissus, Nepeta Mussinii, Genista tinctoria fl. pl., red Valerian, Lathyrus latifolius, Gypsophila paniculata, Daphne cneorum, Pinks of the plumarius type, and Sun-roses.

Paved Paths and Stone Steps

WALKS that are paved with irregular stones, set with narrow joints between, are an attractive and comfortable adjunct to gardens (if not too magnificent in type) and will serve as a very charming setting for this sort of gardening. Good soil to the depth of several inches should lie beneath the stones; and self-control is necessary in the planting, for the path, of course, is first of all designed to be walked upon and to do this one should not be obliged to tread on the diminutive tenantry. But the fragrant little Woolly Thyme (Thymus lanuginosus) is one plant that does not resent the pressure of feet, and nothing is pleasanter for such a situation. Only small subjects should be used and these, save the Thyme, kept a little toward the sides. At the extreme edges such larger plants as Thrifts, Tunica, Aubrietias, Pinks, Erysimums, Silenes, dwarf Campanulas, Arabis, Alpine Poppies and Alpine Flax may be safely ventured.

The joints of stone steps may be tightly rammed with soil and utilized successfully as homes for certain of the rock plants, too. Small ferns, Erinus, and the moss-like and star-spangled Balearic Sandwort (Arenaria balearica) are good for the cool exposures and there are any number of gay candidates for the sunny places. Sprightly Pinks burst from the corner crevices of mine; and silvery Cerastium; and Veronica prostrata, flowing like a blue stream, outlines the joints.

A GROUP OF ROCK-PLANTS IN THE AUTHOR'S GARDEN

At the extreme left are spikes of Nepeta Mussini, next is a Lupine (which not being a rock plant does not count of course), then comes the delicate Alyssum citrinum, beyond which a Viola cornuta papilio peers from beneath the first of three clumps of Iberis sempervirens, while Cerastium tomentosum brings up against the steps. Above is a colony of spring bulbs

VIEWS IN THE GARDENS OF SIR EDMUND OSLER

Rosedale, Toronto, Canada

WOODLAND CLOSE TO LAWN

The wide diversity which provides within a limited area such a delightful stretch of shadowy woodland as this, with ferny carpet picked out by spots of sunlight, and a trim and sunny lawn of velvet texture backed by a rockery, with its assemblage of interesting and rare plants, is worthy of careful study and emulation. It is noteworthy that the pergola recedes into the verdure through the use of stain instead of paint as a finish for the wood

HERE A FISH-POND IS A CENTRAL MOTIF

Unusually raised above the surface of the ground it is still low and unobtrusive

WROUGHT-IRON GATES AND ORNAMENTAL LANTERNS

Opened hospitably or closed these "clairvoyees" are an adjunct to the picture of sweeping drive, shrubs, and trees

FLOWERS FOR THE HOUSE FROM THE GREENHOUSE

HENRY GIBSON

As the Winter Occupants Finish Their Careers Make Preparations for Newcomers Which Shall Supply Cut Flowers Until the Garden Flowers Become Available

PERHAPS the one thing which can never be said too often, since it is continually forgotten, is this: conditions demanded by certain plants (especially conditions of temperature) are so different that these plants will never succeed together in the greenhouse and attempts to grow them together are foredoomed to failure. So the first element of success is to choose aright in selecting the things which you will have as your source of cut flowers, if only one section or one greenhouse is to be devoted to this work. Carnations will not succeed with Roses, since the latter demand a temperature of approximately 60 degrees at night which is altogether too high for Carnations: Gardenias need a temperature higher still at night and the moisture which they must have in addition, is fatal to Roses. And so on! Therefore, though Roses, Gardenias, Carnations, Chrysanthemums, Antirrhinums, Stevias, Primulas and Eupatorium Fraserii are all available for maintaining a supply of cut flowers, you may choose only certain of them to grow together and be resigned to go without the rest.

But, while Roses are far more exacting than Carnations and should properly have a section to themselves where an adequate temperature can be maintained, it is quite possible to grow some other plants with them, if selection is made among such as will adapt themselves to the Rose's requirements—for there can be absolutely no yielding on the part of the Rose! That should be understood positively, once and for all. Such plants are Callas; formosum, Harrisii and other forcing Lilies; Poinsettias, Smilax, and Lily-of-the-valley. But this is not the season to start these plants, with the exception of the Smilax and Poinsettia. Seed of the former are sowed at this time and the old stock plants of the latter are started up to furnish cuttings for propagating.

THE AVERAGE GARDENER WANTS TO GROW A VARIETY OF THINGS

Sweet-peas, Freesias, Alyssum on the side bench with Parsley beneath. Carnations in centre with Gladiolus just forging ahead. A rich assortment in happy combination

SO the present resources for general culture narrow down to the plants named in the first paragraph—with the Rose eliminated of course; for all of these are so elastic in their requirements that they may be successfully cultivated under the same conditions. Happily their freedom of growth and their generous flowering propensities will satisfy the most exacting appetite for cut flowers during the months ahead. Some of them are more suited to furnishing the "finishing touch" to a statelier group to be sure, than they are to playing independent rôles by themselves; but this detracts not at all from their value, since this finishing touch often is the thing that is essential to the beauty of the whole. The vase of Carnations for example to which Stevia is added gains in decorative value a hundredfold, while Eupatorium Fraserii is suited to a similar purpose—and merits more general cultivation, by the way, if only as a variant.

Of Primulas it may be said that there are few plants of more easy culture or more general merit. Among the many kinds suited for the greenhouse there are P. obconica in shades of pink, white, red, and crimson, and one or two decidedly blue, Sutton's Blue being probably the best. The pale blue flowers of this are quite distinct from any other variety and furnish a delightful contrast. Primula sinensis is available in a host of varieties the best of which is Duchess, a white flower with a zone of rosy-crimson surrounding a yellow eye. The Star Primrose —P. stellata—has many varieties; two that are fine are Ruby Star with flowers of a very deep ruby color (no Star Primula is more richly colored) and Enchantress with crimson flowers most distinct and beautiful.

PROBABLY the best of the newer varieties is P. superba, a vigorous grower with larger flowers than Primula Forbesii. Among the yellows we have P. kewensis, P. kewensis farinosa, P. verticillata, and P. floribunda grandiflora. Primula kewensis is said to be a hybrid of the two last named and is intermediate in character. In respect of its color, which is a deep yellow, it differs from any previous hybrid greenhouse Primula—and flowering perpetually as it does throughout the winter, it has become a general favorite. The flower spikes attain a height of 18 inches and the individual flowers are about the size of a one-cent piece. Primula kewensis farinosa is very similar to this hybrid save that the stems and foliage are covered with a white floury substance which gives it a unique appearance. In P. floribunda the "bundle-flowered" Primrose, we have a plant with dainty miniature yellow flowers which are borne on erect scapes 6 to 9 inches high. It is one of the best winter-flowering Primroses.

Primula malacoides (Baby Primrose) is a mauve-flowered species from China, very popular with florists, consequently well known. It and its variety alba, the white-flowered form, are very free flowering and desirable as cut flowers. P. malacoides Townsendii, of more recent origin, is a pink form much improved in size and color. Seeds of any or all of these Primroses may be sown at this time with the possible exception of P. malacoides and its varieties. These are better sown at the end of May or early in June.

Chiefly white flowered and early blooming are Stevias—tender greenhouse perennials of which S. serrata and S. compacta are the two kinds commonly seen in florists' establishments. Both of these may be employed to advantage with other cut flowers. Stevia serrata variegata has beautiful white and green foliage, the white predominating. This is especially useful as a white-leaved plant for mass effects, while its flowers are equally as good as the flowers of the green-leaved forms mentioned above. By pinching or cutting back Stevias can be kept at any height between one and three feet. Pot culture suits them best. They are of the easiest culture and are propagated by cuttings rooted now.

WE ARE now on the very threshold of the period when the great majority of Chrysanthemums are propagated and no time should be lost in getting the cutting bench filled with potential plants. If short on stock early rooted plants may have the tops pinched off when established in small pots, and these rooted to increase the supply. Among Chrysanthemums there is a choice of several types as well as almost innumerable varieties and a wide range of colors. Beginning with the large flowered Japanese exhibition type with their gorgeous blooms of immense proportions one may run the gamut through the dainty form and greater adaptability for decorative work of the Pompons, to the Singles and the Anemone-flowered sections; or one may include a few of each according to taste and inclination. Large exhibition blooms are always produced on single stems, and this very materially reduces the number that a given area will yield. A bench 15½ by 3½ feet in size, approximating 54 square feet, would accommodate about seventy-two 8 or 10 inch pots and allow ample room for development.

A very popular method of growing this type of Chrysanthemum for cut flowers is to plant them directly into the benches, allowing each plant two or three stems, each of which will develop a medium-sized flower. The Pompons, Singles, and the Anemones may be planted out on the side benches, as these do not require the head room demanded by the large-flowered ones. Frequent pinching of the growths of these varieties is necessary from the time the young plants are 6 inches high, in order to secure as many shoots as possible. Each shoot will develop from three to a dozen flowers according to the variety, thus affording useful sprays from which to cut.

Antirrhinums, while comparatively new as greenhouse plants cultivated for the production of cut flowers, are neither more nor less than the Snapdragons of grandmother's garden, vastly improved in form, size and color by hybridization. They lend themselves admirably to greenhouse cultivation as companions of the Carnation and Chrysanthemum in a temperature of 50 degrees at night. They are also useful as a crop to follow the Chrysanthemums; and their freedom of growth and flowering qualities rank them among the most satisfactory of all cut flowers. One has only to see a cluster of Virginia, Silver Pink, Nelrose, or Buxton's Pink to realize their superlative quality.

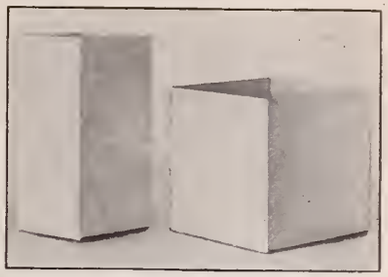
They are planted out in the benches the same as are Carnations. For a fall and early winter crop seeds should be shown now in pans of light sandy soil and grown on in 4 inch pots until the benches are available for them; or cuttings may be rooted now and grown on the same way. When wanted as succession to the Chrysanthemums sow in June.

CUTTINGS of Carnations made and rooted now will make fine plants for benching in a couple of months. If space is not available for them then in the benches they may be transferred to a coldframe after they have been established in pots, and then later planted out in the garden for an interval—where they may make considerable growth—before being taken again indoors to be set in their flowering quarters. If no stock is available in your greenhouse right now from which to take cuttings, place an order with a local florist immediately for the number of plants needed.

With anything like even fair treatment one can secure a wealth of bloom from a very limited area. Under ordinary conditions, for example, a healthy and vigorous Carnation plant will produce from twelve to eighteen flowers during its season, with sturdy stems that stand upright without support. With the plants set nine inches apart each way a bench of the size named for Chrysanthemums—approximating 54 square feet with a width of 3½ and a length of 15½—will accommodate eighty plants. And these at even the minimum production will yield upward of one thousand flowers.

TOOLS AND SUNDRIES FOR THE MODERN GARDEN

Little individual glass houses that are quickly erected or taken down are one of the real joys of the up-to-date gardener for they establish "under glass" conditions for any plant it is desirable to favor



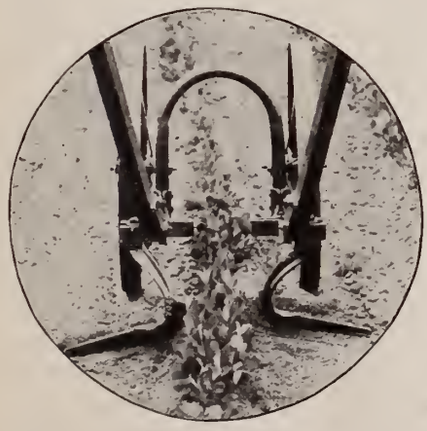
Paper pots are available in all shapes and sizes, and in nothing else is moisture maintained so equably

An implement for surface tillage which works close to the plants and stirs up the half-inch dust mulch, so essential to success, as fast as it can be drawn along the rows

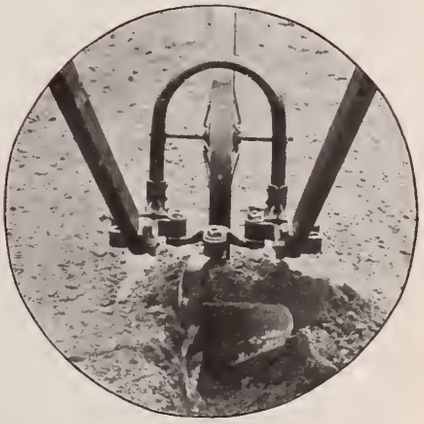
Such a basket will save a thousand wasteful steps to say nothing of the wear and tear on one's patience which the necessity of running after this or that involves

A celery blancher, which appears to be a cross between a straight-jacket and an overcoat, does the job better and leaves the stalk cleaner than banked-up earth

The entire operation of opening the row, dropping the seed, closing the earth over it and rolling it down, and marking the line for the next row is done with a once-over of the wheel-seeder



Beautifully exact is everything done with the wheel-hoe which plays no favorite anywhere



In a small garden the ubiquitous wheel-hoe may even break up the ground by plowing

THE ROMANCE OF OUR TREES—VI. THE MAGNOLIAS

ERNEST H. WILSON
Assistant Director, Arnold Arboretum of Harvard University

Familiar and Popular in Gardens Where Climate Permits Them to Grow Are Some of the Exotics but the Splendid Hardy Natives, Remnants of a Great and Widespread Forest Group, Are Almost Unknown to Us

THE group to be discussed here is remarkable in having the largest flowers and largest undivided leaves of any group of trees hardy in this climate. The American species all flower after the leaves are developed and are among the handsomest of native trees. There are Asiatic species which blossom after the manner of the American kinds but only three of these are common in gardens. The Asiatic members which produce their blossoms before the leaves unfold, however, are familiar and popular garden plants. Magnolias grow wild in the United States east of the Mississippi River and in eastern Asia from Japan westward to the Sikkim and Bhutan Himalayas, having their northern limit in Hokkaido and their southern in Malacca and Pinang.

IS THERE A MORE FLORIFEROUS TREE?
On the Madison, N. J., estate of Mr. Twombley their gorgeous bursts of bloom welcome the spring visitor

In all some 34 species and numerous varieties are recognized but only 12 species, 2 hybrids, and about half a dozen varieties have proved hardy as far north as Boston, Mass. The Japanese, with two exceptions (M. salicifolia and M. Watsonii) are hardy here; likewise the American species, except the noble evergreen M. grandiflora and the dwarf M. pyramidata. None of the Himalayan nor the Malayan species can be grown out of doors in New England, and of the Chinese two species only. Yet these two with their numerous forms and hybrids are, with the Japanese M. stellata, the familiar Magnolias of our gardens. In the first article of this series the Magnolia is mentioned among the types of trees which in earlier geological ages were found widespread in north temperate regions. It is in fact an ancient type and its members to-day are a mere remnant of a very extensive group of north temperate forest trees—trees which formerly grew in Europe, Siberia, western North America, Canada and Greenland. Though much less ancient than the Ginkgo it had in early times a similar distribution and fossil remains are common in Tertiary strata of the north Hemisphere.

I hope readers will not tire of these historical details which are necessary to the proper appreciation of the types selected for this series. I do not wish them to be deemed "dry as dust" facts, but tangible proofs of the venerable character of these trees and therefore adding interest to the appreciation in which we may hold them. I want readers to look upon these types as merely selected examples of forest growth that have long and nobly played their part in the world's history and to think of them as we do of old art treasures—as things to be proud of and grateful for their having been preserved for our edification and enjoyment. And not for ours alone but for that of the generations which come after us. A nation's finest trees should rightly be counted among its most prized national treasures; but of the countries of the world to-day, Japan alone regards ancient trees as a national treasure asset! Such they truly are and there is no escape from the punishment nature metes out to lands whose forest growth is destroyed. In this country the price is being exacted, and in countries like China and Korea the multiple interest is so great that the land groans beneath the burden. For in addition to timber scarcity and the shortage of fuel rivers become charged with silt, break their bounds, and destroy everything within their reach—crops, villages, the inhabitants, et al—when there is nothing to hold the soil on steep slopes under heavy rainfall.

NO OTHER genus of hardy or half-hardy trees and shrubs can boast so many excellences as the Magnolias. The free-flowering qualities and great beauty of blossoms and foliage are only equaled by the ease with which they may be cultivated. All grow naturally in moist, rich woods and they detest drought. They will withstand considerable hardship and abuse, but the best results are obtained when they are protected from strong winds and are planted in cool, deep soil rich in humus. An ideal place is open moist woods. In Northern gardens the best time to transplant Magnolias is late in the spring. They may be also moved successfully in late August, but they must not be allowed to suffer from lack of water at either season, and it is always advisable to mulch

them with well-decayed manure. These are practical items of the highest importance. Moreover, such magnificent garden plants are worthy of a little extra attention and repay it a hundred-fold.

Our Native Deciduous Species

THE most delightful of American Magnolias hardy in New England is the Sweet Bay, M. virginiana, better known as M. glauca. In the North this is never more than a large bush or small tree; but in the South it is often a large tree from 50 to 70 ft. tall and from 6 to 10 ft. in girth of trunk. It has dark green shining leaves which are silvery-white on the underside; in shape they are oblong to somewhat oval, are leathery in texture and in moist, sheltered places the plant is sub-evergreen. The bark on the young shoots is a rich apple green and on the older branches it is gray. The flowers are small, cup-shaped, creamy white, gradually acquiring a pale apricot hue and are delightfully fragrant, scenting the whole neighborhood. They continue to open in succession from about mid-June until August when the red fruit cones begin to show in marked contrast against the dark, glossy green foliage. The roots yield a yellow dye. According to Emerson, the plant affords a good tonic and warm stimulant and was formerly used with great success in chronic rheumatism, in intermittent fevers, and particularly in fever and ague.

The Sweet Bay grows wild in swamps and is found in Essex County, Mass., and from Queens County, Long Island, to Louisiana and southern Arkansas. There is not a more delightful North American shrub to plant in gardens nor one that will give larger returns in beauty and fragrance. It is an old plant, having been discovered and introduced into Europe before the 17th century—yet it is unknown to most American planters of this generation! In eastern Florida there is said to grow a dwarf form (var. pumila) which does not exceed 3 or 4 ft. in height. A hybrid (M. major, better known as M. Thompsoniana) between the Sweet Bay and the Umbrella-tree (M. tripetala) has the general appearance of M. virginiana, but larger leaves and larger flowers.

The most stately of the hardy American Magnolias is M. acuminata, the Cucumber-tree, so called from the slight resemblance borne by the young fruits to a small cucumber. It is a tree from 70 to 90 ft. tall with a stout trunk and ascending-spreading branches forming a bold, broadly pyramidal crown. The leaves are from 6 to 10 inches long, oblong and pointed, green on both surfaces and slightly hairy below. The flowers are erect, cup-shaped, glaucous-green tinged with yellow and are slightly fragrant. It is hardy as far north at least as Hanover, New Hampshire, and is found wild from western New York to Ohio and southward. A shapely, free-growing tree it is eminently suitable for avenue planting and as a specimen tree on lawns and in parks. It was one of the trees introduced into Europe by the famous John Bartram, who sent it in 1746 to Collinson in London with whom it flowered for the first time on May 20, 1762. There is a form of the Cucumber-tree (aurea) with yellow leaves slightly streaked and mottled with green.

Somewhat similar to M. acuminata is the Yellow Cucumber-tree (M. cordata) whose history is quite romantic. It was originally discovered by the French botanist and traveller, Michaux, in the neighborhood of Augusta, Georgia, some time between 1787 and 1796 and by him (or his son) immediately sent to France. All the trees now in gardens have been derived from the original introduction. Many efforts to rediscover this tree were made, but all failed until six years ago when Mr. Louis A. Berckmans accidentally happened upon it in a dry wood some eighteen miles south of Augusta, Georgia. Michaux described it as a tree 40-50 feet tall but the recent discoveries are bushes from four to six feet high. As we know it in cultivation Michaux's plant is a medium-sized tree with a shapely rounded crown, and broadly ovate leaves more or less heart-shaped at the base and hairy on the underside. The cup-shaped, faintly odorous flowers are yellow, about 4 inches across and have the inner petals frequently marked with reddish lines. It flowers freely about the beginning of June and in wet seasons bears a second crop of flowers in late July and August.

Most remarkable is the Great-leafed Magnolia (M. macrophylla) which has the largest undivided leaves of any tree hardy in the gardens of the north temperate regions. The leaves are sometimes as much as $3\frac{1}{2}$ ft. long and from 8-9 inches wide and are obovate-oblong, narrowed and heart-shaped at the base, and hairy and white on the underside. The flowers open about the end of June and are from 8 to 12 inches across, bowl-shaped, fragrant, white with a purple blotch at the base of the inner petals. It is not a large tree, seldom exceeding 40 ft. in height with a trunk about 3 ft. in girth. It attains its maximum development in sheltered valleys and forest glades on the limestone of North Carolina. A rare tree in a wild state, it is distributed from North Carolina to middle Florida and westward to southeast Kentucky and south through Tennessee to mid-Alabama.

It is another discovery of the elder Michaux, who found it in North Carolina in 1789 and introduced it to European gardens the following year. Naturally, with such huge leaves, it requires protection from the wind and should be planted in a cool sheltered place. It is hardy in the Arnold Arboretum and at Rochester, N. Y., where there are fine old trees in the Elwanger and Barry nursery. Such a remarkable tree is worthy of the widest recognition among garden lovers.

Ranking next in size of leaf to the above is the Umbrella-tree (M. tripetala) which has leaves from $1\frac{1}{2}$ to 3 ft. long, obovate-lance-shaped, tapering at both ends, and clustered at the end of the shoot. The flowers are white, slightly scented, and from 5 to 8 inches across. The Umbrella-tree seldom exceeds 40 ft. in height, and grows wild from York and Lancaster counties, Pennsylvania, along the Alleghanies to Virginia and Kentucky. It is an old denizen of gardens, having been introduced to England about 1750 where it flowered for the first time on May 24, 1760.

The Earliest Flowering Native

THE first of the American Magnolias to open its flowers each year in Massachusetts is M. Fraseri, the Ear-leaf Umbrella-tree. It is native of the south Appalachian region but is quite hardy in the Arnold Arboretum. A small tree, rarely more than 40 ft. tall, it has an open crown of long branches, leaves a foot long, oblong-obovate and spatulate in shape, deeply cleft at the base, green above and glaucous below. Its flowers, which are very conspicuous by reason of their standing well above the ends of the branches, are creamy-white, sweet scented and from 8 to 10 inches across; they open about the end of May. It was discovered by W. Bartram as long ago as 1776 and introduced to Europe about 1786 by John Fraser. Closely related to this but smaller in all its parts is M. pyramidata, which grows wild in the extreme southwestern corner of Alabama and adjacent Florida and is not hardy in the Arnold Arboretum.

The Evergreen Forms

WE HAVE now mentioned all the deciduous Magnolias of this country. It remains to say a few words about the Bull Bay (M. grandiflora) one of the noblest evergreen, broad-leaf trees of the northern hemisphere. It is native of the warm Southern states and unfortunately cannot be grown out

When the Yulan in pink or white dresses the garden in spring, calling a welcome to the outdoors

A Bouquet of Magnolias

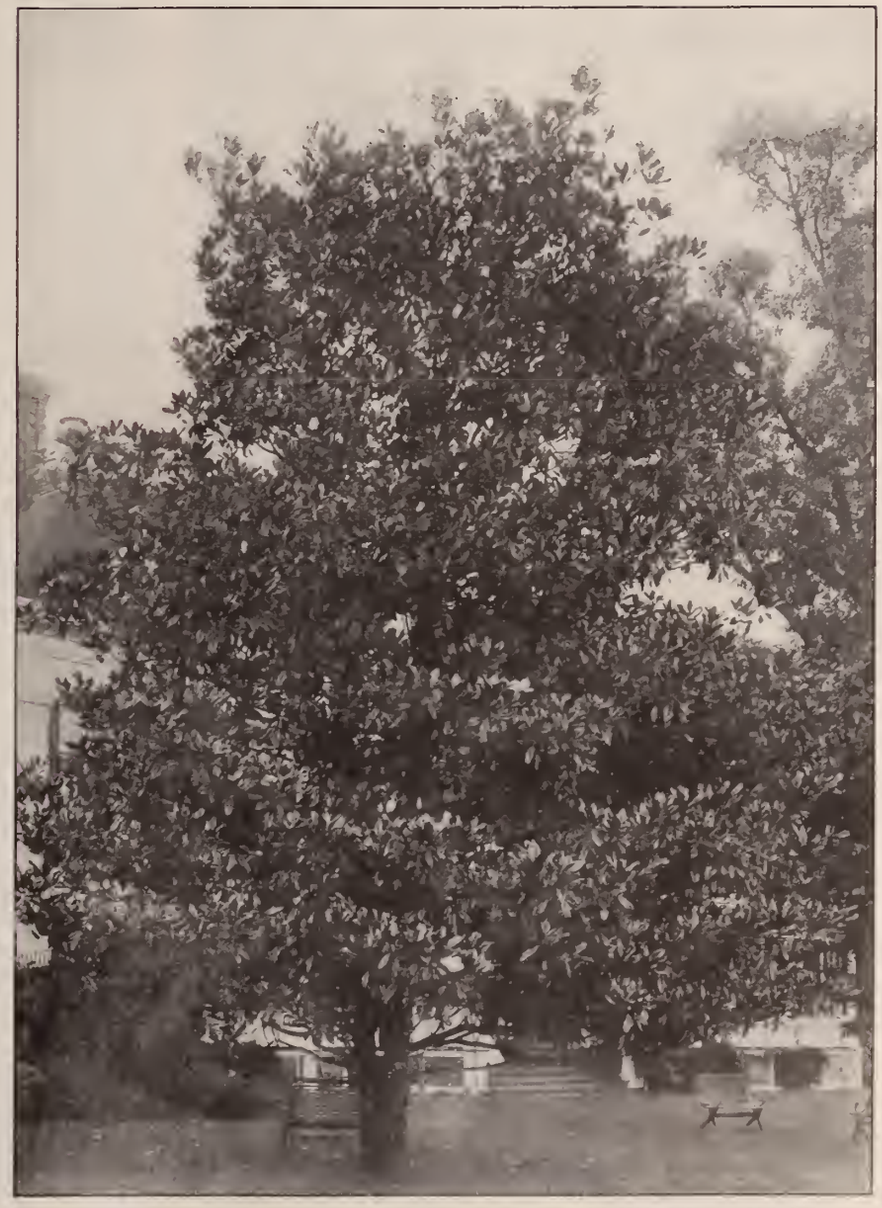
In the Umbrella-tree the white flowers are dwarfed by the immense leaves (up to 3 ft. long') It is well known in gardens (above)

(To the left) The pure white, heavily fragrant flower of the native Bull Bay, one of the noblest evergreen trees of the world

The cut branch of the Yulan has its value for indoor decoration

The late flowering M. Lenni, a hybrid of the two Yulans, has port-wine colored flowers

This hybrid of the Sweet Bay and Umbrella-tree, M. major or Thompsoniana, is rare



The evergreen Bull Bay (Magnolia grandiflora) that adorns so many gardens of the South barely exists above Philadelphia (Photo. at Twin Oaks, Washington, D. C.)

of doors in northern latitudes. But it is worth a journey to Louisiana to see this tree luxuriating "on its native heath" where it is sometimes 100 ft. tall and 12 ft. in girth of trunk. It has many relatively short, spreading branches which form a bell-shaped crown. The leaves are of good size, glossy green above, gray to rust-red on the under side. The flowers are cup-shaped, full 8 inches across, white fading to cream with a rather heavy spicy odor.

Like other American Magnolias it was early introduced to Europe; it was in England in 1737 but is only properly hardy in the most favored parts of that country. It is one of the few American trees introduced to the Orient. In the Public Garden, Shanghai, there are several shapely trees and in Japan it grows well in Yokohama, Tokyo, and places to the south. In Europe a great many seedling forms have appeared differing in trivial characters, chiefly those of the leaf. The most marked are varieties angustifolia, ferruginea, lanceolata, and obovata.

Asiatic Species Flowering Before the Leaf

THE Asiatic Magnolias, or rather the few hardy Asiatic species which open their blossoms before the leaves unfold, are now-a-days the most popular members of the family and are the most conspicuous of spring-flowering plants. Two of these are great favorites with the flower-loving peoples of China and Japan, and one—the Yulan—is known to have been cultivated in China for more than thirteen centuries. Its flower is regarded as a symbol of candor and in paintings, porcelains and embroideries it has been portrayed by all the best oriental artists.

The typical white-flowered Yulan (M. denudata, more generally known as M. conspicua) was introduced by Sir Joseph Banks from China into England in 1789. It grows wild in moist woods in the central parts of China, though this fact has only recently been made known. This form, however, is rare in a wild state and that most usually found has rosy or reddish pink flowers and is very like the M. Soulangeana of gardens. The colored variety has likewise been long cultivated in China and Japan; in the latter country it is known as "Sarasa-renge" and in Japanese nursery catalogues as "M. obovata var. discolor"; correctly it should be M. denudata var. purpurascens. In 1900 I introduced this variety by means of seeds collected from wild trees in central China, and these plants are now flowering in England. However, I strongly suspect that it has been growing in western gardens for a much longer period, under some other name and identity obscured.

Both the white and colored varieties of the Yulan are handsome trees 50 feet tall, with a trunk 8 ft. in girth, and ascending and spreading branches. Such trees I have seen in the forest of central China laden with thousands of flowers, and the spectacle they presented will never be forgotten. In the gardens of eastern North America examples of the white Yulan from 20 to 25 ft. tall are known and it is a deservedly popular tree. In regard to this Magnolia and also the one next mentioned, a point worthy of remembrance is that they have been propagated vegetatively by layering and grafting for we know not how many centuries. This does not appear to have impaired their constitution and accounts for plants less than a yard high flowering profusely.

Garden Forms

LESS hardy than the Yulan but a great favorite in gardens south of Philadelphia is the Purple-flowered Yulan commonly know as M. obovata, M. purpurea or M. discolor but correctly as M. liliflora. It was introduced from China into England in 1790 by the Duke of Portland but has not yet been discovered in a wild state. It appears to be always a shrub and its handsome flowers vary somewhat in color, the finest being a rich wine-red. Under cultivation in Europe several hybrids between M. denudata and M. liliflora have originated and have proved themselves hardier and even better garden plants than their parents. The oldest and best known of these hybrids is M. Soulangeana, which originated near Paris. It is a vigorous growing tree with flowers suffused with rose color. Many fine examples grow in this country and at Hampton, near Baltimore, Maryland, there is a specimen with a trunk 8 ft. in girth. Very similar to this are forms known in gardens as M. speciosa, M. superba, M. cyathiformis, M. Alexandria, M. spectabilis and M. triumphans.

Quite distinct is Magnolia Lennei, with its large blossoms, the outside of the petals of which are port-wine color at the base, and rich crimson toward the tips. This is a late-flowering kind and originated as a seedling in Italy. It is regarded as a natural hybrid of the two Yulans. But perhaps the finest of all these hybrids is that known as M. rustica rubra with large, cherry-rose-red flowers each petal of which is edged with white. It is a chance seedling supposed to be from M. Lennei and originated in a nursery in Boskoop, Holland, some twenty-five years ago. [See cover illustration which is a reproduction of a painting by Moon, appearing originally in Robinson's *Flora and Sylva*.—ED.]

The Japanese M. kobus is common in the forests throughout the greater part of Japan. The southern and typical form is a large bush or low tree, but the northern form (var. borealis) is a fine tree from 60 to 75 ft. tall, broad pyramidal in outline with a smooth trunk 6 ft. in girth. This variety is the most northern of all Magnolias and was introduced into this country by Mr. W. S. Clark in 1876 and later sent to Europe. It has proved to be the most free-growing of its group, and trees raised from the original seeds are now 35 ft. tall with broad pyramidate crowns. It first produced flowers in the garden of Professor Sargent, Brookline, Mass., in April, 1899. The blossoms are pure white, cup-shaped and smaller than those of the Yulan. On young trees the flowers were sparse but with age it has proved to be as floriferous as any other Magnolia.

The first of all Magnolias to open its flowers each spring is the lovely M. stellata, to my mind the most charming of all. It is always a shapely broad shrub from 10 to 15 ft. high and more in diameter; the star-shaped, snowy blossoms are smaller than those of other species but are produced in such profusion as to cover the bush with white. We owe this Magnolia, one of the most beautiful and most satisfactory of hardy spring-flowering shrubs, to Dr. George R. Hall who brought it from Japan in 1862 and gave it to Mr. S. B. Parsons, Flushing, Long Island. It was distributed as M. Halleana and it is a pity that the rule of priority prevents the use of this name which would so worthily commemorate its introducer. In addition to the type there is a pink-flowered form (var. rosea) which makes a delightful companion.

There are in Europe several other Asiatic Magnolias which flower before the leaves, but only two of them (M. Campbellii and M. salicifolia) have so far borne blossoms. The first named is native of the outer Himalayas at an altitude between 8,000 and 10,000 feet, and in flower is one of the most gorgeous of all Northern trees. It has scented, cup-shaped blossoms from deep rose to crimson in color and 10 inches across. It has not proved hardy in Europe save in one or two favored places in England where it has produced deep rose-pink flowers. In this country I have not heard of any one succeeding with it, though in the South and on the Pacific Slope there are places where it should thrive. Certainly such a strikingly beautiful tree ought to be given a fair trial. Rivalling this Himalayan treasure, however, is M. Sargentiana, which I dis-

covered and introduced in 1908. It is growing in France and England but has not proved hardy in the Arnold Arboretum.

The second species (M. salicifolia) is Japanese and is distributed on the mountains from Kyushu to northern Hondo. It was introduced into this country by Professor Sargent in 1892. It is a slender tree with small cup-shaped white flowers and narrow thin leaves. The shoots when bruised emit a strong smell of camphor; in fact when I first found it wild I took it for some member of the Camphor family. Somehow this plant has not taken kindly to cultivation though it has flowered in the arboretum of Mr. T. E. Proctor, Topsfield, Mass., and in the Cottage Gardens Nursery, on Long Island. It is essentially a woodland plant, delighting in moist slopes and quite likely if we could get it properly established all would be well.

Other Asiatic Kinds

FINALLY there are the Asiatic Magnolias which open their flowers after the leaves unfold in the manner of the American species. Of these, three only are in cultivation in this country—and none is as well known as it ought to be. The most striking is M. obovata, more generally known as M. hypoleuca, which in general appearance resembles the American M. tripetala. It is widely distributed in forests of Japan from the south to the north and is known as the Honoki. At its best it is a tree 70 ft. tall and 7 ft. in girth with smooth gray bark and a shapely crown of stout branches. The leaves are from a foot to a foot and a half long by half this in width at the broadest part, which is above the middle, and are deep green above and silvery beneath. Its flowers are bowl shaped, 6 to 8 inches across, milk-white fading to apricot with a ring of red-purple anthers, and are heavily fragrant. It has very large cone-like fruits which are bright scarlet when ripe and very conspicuous.

This Magnolia is an important timber tree in the forests of Hokkaido, and with M. kobus var. borealis reaches the most northern geographical limit of the family. Like a number of other valuable plants it was introduced first to this country and afterward to Europe where it flowered for the first time in the garden of Mr. B. E. C. Chambers at Grayswood Hill, Haslemere, Surrey, in June 1905. Closely related to the Honoki is a Chinese species (M. officinalis) which is growing in England from seeds I sent there in 1900, but has not proved hardy in the Arnold Arboretum. In China, the bark and dried flowers of this Magnolia are a highly valued tonic medicine.

A Magnolia whose beauty fascinated me in the forests of Korea is M. parviflora, which also grows in south Japan. Its snow-white flowers are egg-shaped in bud and bowl-shaped with infolded petals when expanded, and have scarlet stamens and long stalks. The specific name is misleading for the flowers are from four to five inches across. It is a large bush often 20 feet high, of straggling habit, with ovate leaves from 3 to 6 inches long by 2 to 4 inches wide, and is remarkably floriferous. It delights in rocky, granite country and is especially happy by the side of forest streams. On the Diamond Mts. in northeast Korea where the winter temperature is more severe than in Massachusetts this lovely Magnolia is a feature, and I have hopes of this Korean form being a better garden plant than the Japanese one now in cultivation. There is also in Japan a form (plena) with semi-double flowers. Growing and blossoming in European gardens but not hardy here is Magnolia Wilsonii, which is closely akin to the above. This I discovered and introduced in 1904 and again in 1908, together with several other Magnolias.

Of mysterious origin is the Japanese M. Watsonii which was introduced to Europe by the Yokohama Nursery Company at the Paris Exhibition in 1889. The plant was purchased and taken to Kew Gardens where it flowered the following year. It has not been discovered in a wild state and I am inclined to regard it as a hybrid between M. obovata and M. parviflora—but against this view must be stated the fact that it is much less hardy than either of the above. Very likely it will some day be found wild in the island of Shikoku or some other part of south Japan. Its leaves are rather larger and thicker in texture than those of M. parviflora, its open cup-shaped, white flowers with blood-red stamens have a strong spicy odor and are short stalked and about 6 inches across.

These are all the Magnolias found in gardens of the cool temperate parts of this country, but in the south M. coco, better known as M. pumila is here and there cultivated. This is a shrubby south China species with elliptic, wavy, rather leathery, glaucous leaves and sweetly fragrant, nodding egg-shaped flowers. It was introduced to England as long ago as 1786 by Lady Amelia Hume who had a garden at Wormley Bury, Herfordshire.

Of the evergreen Asiatic Magnolias only one species calls for mention here. That is M. Delavayi which has leaves larger than any evergreen hardy in temperate lands. It should be an excellent tree for the Pacific Slope and the South. The flowers are fragrant, white, cup-shaped and from 6 to 8 inches across; these are followed by large red cone-like fruits. It is a native of Yunnan, southwest China, where it is a broad, much-branched tree full 50 ft. tall. I had the pleasure of introducing it to English gardens by means of seeds sent in the late autumn of 1899. Plants raised from these seeds flowered for the first time in Kew Gardens in 1908.

HALL'S MAGNOLIA IN A MASSACHUSETTS GARDEN

Most useful is this starry or Hall's Magnolia (M. stellata). It makes a low bush, and begins to flower when only a foot or so high

AMONG OUR GARDEN NEIGHBORS

BEGINNING with this issue the GARDEN MAGAZINE appears much enlarged and (as we hope our readers will agree) in a much improved form. The size of the type page is increased in both length and breadth and full forty pages of text mark an increase of fifty per cent. over last month's issue. With this additional space at their disposal the editors will have an opportunity, hitherto lacking, to treat a greater variety of subjects in each issue. Further, a more complete scheme of illustration will hereafter be possible.

The World War wrought changes in gardening as in other activities—as we have had occasion to remark heretofore—changes which have given a new outlook and have broadened vision to an incalculable degree. For a period of three years we may say, the old, somewhat dilettante garden spirit of America was transformed into a spirit of serious, anxious and somewhat grim utilitarian endeavor, with every ounce of energy bent to productive and practical ends. And it cannot now revert to its ancient ways, since this endeavor has grown it into a giant while those ways were the ways of pygmies.

THROUGH the labor itself of those days people have come to a realization that gardening is not merely labor, but that it is something which ministers to the soul as well as to the body. Gardening means making gardens in the widest application of the words. By gardening we mean indeed *all* that goes into the embellishment of the surroundings of the home—that contributes to the use and the enjoyment of the outdoors as a part of the home. This includes (although it does not presuppose) a knowledge of plants themselves, and to some degree their relationships with each other; their likes and dislikes in given situations; their problems of planting, cultivation and so on; and further, the development of suitable places for their reception and display.

The art of garden design is not a thing apart from the skill of growing a plant; indeed the two, rightly considered, are inseparable. And so it is the proper and perfect combination of these two that spells good gardening and good gardens. A good garden must have plants well chosen, well grown, and well placed; and all of these in relation to their proper use and purpose. When all of these things are found in balance and true proportion, good design is found also. Whether therefore the subject be a gorgeous or spectacular flowering plant, such as a Magnolia, or a merely useful one like a potato or a cabbage, it is good gardening so to arrange things that it shall grow to its greatest perfection. And as the ultimate test in each case is final use, the cabbage is judged by the standard of the dinner table (or should be) while the Magnolia is judged by its ornamental effect and its position with regard to the fullest possible decorative display of its bloom.

In the conviction that we are on the verge of the greatest expansion of garden interest ever experienced in America, the publishers of the GARDEN MAGAZINE are determined to place before the public a periodical the like of which, both in completeness as to subject matter and in the method of handling the subject, has never been offered before. For there is no denying that much that is variously published misses the point.

BUT here, from the fascinating story of the discovery and introduction by Mr. E. H. Wilson of the sensational new Kurume Azaleas, to the working drawings for Building a Pergola, the reader will find inspiration as well as information of the most definite and practical character. Of this first account of the Kurume Azaleas the editors may say that it is presented with keen appreciation of the privilege which is theirs in making such an exclusive offering in connection with the horticultural event of the century. For here is indeed a piece of plant history that is epochal, and that will stand for all time as one of the most remarkable in horticultural annals.

Among the more usual features, the article on the Magnolias is one of the continued series by Mr. Wilson that began with the trees of great antiquity and has now come to deal with things that are of everyday association. Returning to our organization after an absence of some eighteen months, Mr. Kruhm takes up the stern demands of the vegetable garden with his customary instinct for hitting the nail on the head, and sounds a timely note of caution against the feverish haste that is never anything but waste which all will do well to heed. A new writer, Mr. Henry Gibson, a practical gardener now in charge of developing a private estate, deals with the fruit garden in the way that is above all helpful to the man who wishes to grow fruit for himself, since it emphasizes the very great differences between such and the commercial grower who is all too often the one considered. The article on Hedges is rich in suggestion and help for the gardener in whatsoever part of the country he may live—north or south, Atlantic or Pacific slope or Middle West—while the account of the great stars of the Flower Shows introduces these pampered aristocrats of the horticultural world to you, if so be you live where attendance at a show is difficult or impossible.

And speaking of Flower Shows, the current month is signalized by two of the largest—the one in New York (which is the seventh "International" so-called) running March 15–21, and the Boston, Mass., event, March 24–28. If these mean any-

thing at all they mean a tremendous reawakening of interest in active gardening. The Kurume Azaleas will be one feature of the Boston Show; and the Orchids of Mr. Burrage promise what is unquestionably the greatest individual display by an amateur ever undertaken, as the entire lecture hall of the Massachusetts Horticultural Society building is to be filled by this one exhibitor who, by the way, is further to make a weekly display each Saturday in the same place, of Orchids in season. It is many years since the general public has had such an opportunity of becoming acquainted with this interesting family of plants.

ANOTHER sign of the times is seen in the enthusiastic launching of the Iris Society at New York last month. A detailed account will be found on another page. The desirability of some such organization has been frequently broached in these pages; and when the ball was started rolling it at once picked up enthusiasm that increased its girth not only to a gratifying, but a surprising degree, and with astonishing rapidity. In all our recollections of such organizations—and we have assisted at the birth of several—there was never before such a representation of enthusiastic, earnest amateurs. It is especially significant that all other such movements have been launched by the trade, but here there is a sign of a new era—that of the ascendancy and dominance of the true amateur, or lover. Not the bungler be it noted, which unfortunate and erroneous significance is sometimes (ignorantly) associated with the word; an *amateur* is rightly "one who loves", which is the kind of amateur this magazine is made for. For the one who loves, in gardening even more than in anything else perhaps, is the one who does.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

Experiences With Three Perennials

FROM a dozen plants of Perennial Phlox, I am now abundantly supplied, but not from saving and sowing the seed. Efforts in that direction failed me several times. Then I moved a number of clumps to a new location, and lo! my supply was more than doubled, for not only did the roots remaining in old holes push up the next spring, but a fine lot of seedlings appeared all about. [You are lucky indeed! The seedling is the real reason for the alleged "reversion" in Phlox—Ed.] Peonies removed in the fall to a carefully fertilized bed did not come into *full* bloom till the third year following. These had bloomed beautifully in their old location, and they are now doing finely. In six years, I have succeeded in getting but two vines of the Perennial Sweet-pea to bearing size. Over and over again I have sowed the seed and nursed the little plants in high hope, only either to lose them during the summer, or have them fail to appear next spring. My two specimens are truly beautiful and much admired by everyone who sees them. Both have very unpromising positions where nothing else would live and thrive for even one season.—J. W. Dixon, *Md.*

What "Daylight Saving" Did

HERE is a summary of the benefits, which I as a suburbanite have enjoyed from the extra hour of daylight furnished by the Daylight Saving law last summer. On a plot 50 x 75 ft. in the rear of my place I started to produce the maximum crop consistent with quality with the minimum of expense. The gross results were $145.80 harvested at market prices at a total expense, exclusive of our own time, of $16.50. With the exception of the initial digging of the land all the work was accomplished by myself and wife. Part of the plot was new land, and on the balance I had had a garden the two previous years. The ground received one load of manure in the spring and a small amount of prepared fertilizer planted with the crops. Potatoes planted in April were harvested the middle of July, yielding four bushels. This ground was then planted with corn which matured before frost. Winter celery replaced the first peas, and winter root crops followed the early beans and lettuce. A greater yield would have been obtained but for the wet weather, which did considerable harm and curtailed the yield of lima beans, tomatoes, and eggplant. The brightest spot of all was the pumpkin and squash

THE FRUITS OF "DAYLIGHT SAVING"

This season Daylight Saving is or is not according to local ordinance. Where it is to be, March 28 will see the clocks advanced one hour

patch, a partial evidence of which is pictured in the enclosed snap shot. Please note "partial" for the total number of winter squash was 52, while the pumpkins numbered 20, of which the largest measured $4\frac{1}{3}$ ft. in circumference. Aside from the usual garden vegetables, which we enjoyed in abundance, we harvested 80 cantaloupes, 12 watermelons, 114 cucumbers, 250 winter celery heads put into storage, endive, okra and oyster plant. The opportunity for work in the garden is coming again and incidentally we'll give a jolt to old Mr. H. C. L.—Stanley M. Babson, *New Jersey.*

Sure Kill For Field Mice

FOR several seasons I have been troubled with field mice in my garden and although I have tried numerous ways to destroy them everything seems to be of no decided help—in fact they seem to thrive on my methods of destruction. I am writing to The Garden Magazine in an effort to secure an efficient means to destroy these pests.—Inez Brownell, *Long Island.*

Mix thoroughly one ounce of powdered strychnine, one ounce of powdered bicarbonate of soda, and one eighth ounce of saccharine. Put the mixture in a tin pepperbox and sift it gradually over 50 pounds of crushed wheat or 40 pounds of crushed oats in a metal tub, mixing the grain constantly so that the poison is evenly distributed. Put out in runs, and if possible, under shelter, using not more than a teaspoonful of the grain at a place.

In the Same Mail!

ALTHOUGH expressing totally diverse opinions we thank equally the writers of these accompanying letters—they both help though it is ofttimes difficult for us to keep an even balance between opposing opinions such as these:

I am fortunate in possessing a complete bound file of the Garden Magazine and have in years gone by found it of great help to an amateur gardener, but I'm free to confess to a feeling of keen disappointment over the way it has dwindled in interest and size in the past few months. Had I not recently renewed it I should be inclined to discontinue my subscription. Mrs. C. W. M., *Cleveland, Ohio.*

I wish to renew my subscription to the Garden Magazine as it is indispensable. It has been wonderfully improved and the many illustrations are to me very instructive. The Garden Magazine in my opinion is superior to all as a practical help, enjoyable for reading, and instructive.—H. E. W., *Conway, N. H.*

—Just what are we to do? May we hope that the present enlarged form of the magazine will afford ample bulk and variety of material to satisfy all?—Ed.

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in *a normal season* is taken as standard; but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

MARCH—THE MONTH OF FIRST PLANTINGS

ORDER chemical fertilizers. Bone meal, dried blood, nitrate of soda, a bag of general mixed fertilizer, and a supply of lime are the essentials. Begin removing mulches a third at a time. Burn all rubbish and refuse. Spread manure in readiness for plowing or spading. Prune wherever this is still necessary.

General

As the snow melts mark spots where water stands for grading up later.

Rake manure from lawns and add to compost pile, as all of its essential plant food has long since been washed into the soil. Roll the lawns as soon as frost has left the ground.

Greenhouse and Frames

Ventilate daily, never leaving the sash on frames down tight except on the stormiest days.

Water according to condition of the soil. During cloudy periods water may not be needed for several days.

Make cuttings of Chrysanthemums, Carnations, Crotons, and all "soft" stuff for use outdoors.

Sow seed of Cyclamen, Primula, Antirrhinum, Abronia, Aster, Fibrous Begonia, Canna, Cineraria, Gladiolus, Heliotrope, Petunia, Torenia, and all hardy garden annuals.

Divide Cannas, plant each division in a pot and plunge in hotbed. Start Dahlias into growth and pot up the shoots as cuttings, saving the roots to plant out later as usual. Start Tuberous Begonias in pots, also all other tubers. Divide and repot Alternantheras.

Start radish, lettuce, forcing carrots, etc. Transfer to hotbeds hardy vegetables started indoors last month.

Keep heat loving vegetables still well protected.

Start corn in paper pots for transplanting to the garden.

Replace glazed sash on frames with cloth-filled sash as soon as the weather settles.

Flower Garden

Cut all old stalks off to within an inch of the ground—break off stalks that are loose, being careful not to injure the plant crowns when doing this.

Sprinkle finely ground bonemeal around all perennials and rake lightly.

Transplant such perennials as are to be moved while they are still dormant.

Plant Roses as soon as received if they are dormant; otherwise as soon as settled weather.

Remove protection from tender shrubs in two installments a week apart the last of the month.

Vegetable Garden

Uncover asparagus and rhubarb. Sprinkle salt lightly on the asparagus bed, also nitrate of soda, using a pound and a half per square rod.

Regardless of air temperature plant the very hardy first-early vegetables as soon as the soil can be worked. Make all first plantings shallow and thick.

Keep all tender vegetables growing rapidly in their flats.

Use plant forcers judiciously so as not to stimulate tall and spindly growth.

Transplant the first time just as third leaf is appearing. If seedlings are not transplanted till later than this, cut away half of each large leaf.

Dig all parsnips and oyster plant remaining in ground and store in cold cellar or on frozen ground under enough earth to prevent sprouting.

Fruits

Cut and store in sand in cellar the cions for grafting. Graft plums and cherries early, other fruits as mild weather advances.

Complete all pruning before growth starts.

Finish all dormant or winter-strength spraying before buds begin to swell.

MULTIPLE GRAFTING OF APPLE TREES

WE HAVE a sturdy apple tree which yields four different kinds of apples, each good and each ripening at a different time. The only objection to it comes in spraying for codling moth—but multiple grafting is not designed for large orchards. It is for the well tended trees in the home garden, where the spraying is done by hand power.

Always remember that the only absolutely necessary thing in grafting is to have the living *inner bark* of the graft in close contact with the living *inner bark* of your tree. This living bark is inside the thin green line that is next to the rough outer bark of the tree; or in the graft is inside the green line that is next to the brown outer skin. Grafting wood should be a good clean piece of last year's growth about the size of a lead pencil taken from a perfectly healthy tree. Choose a piece where the distances between the buds is as short as you can find. If possible cut the wood the day you use it but if it must be cut earlier, keep it in your refrigerator. It *must not* wither nor dry out.

Select on your tree the branch you wish to graft into and saw it straight off, *not* slanting as you would in pruning. Place a knife or hatchet (according to the size of the branch) across the middle of the stump and strike it a quick, light blow with the hammer. Do not split it any further down than is absolutely necessary to admit the grafts. Put a plug or wedge of clean wood in the split to hold it open. With a very sharp knife cut the lower end of the graft into a tapering wedge. Insert this tapering wedge into the split of the branch until the line of living tissue *a* is against the corresponding line of living tissue in the branch—that is, not too far in toward the middle of the stump nor too far out.

Of course only one side of the graft can come against the living bark of the stump; it is the contact at the outside edge that you must have.

Set the graft so that the lowest bud is turned to the outside, and put a graft in at each side of the stump. Then carefully take out the plug that holds the split open, see that the grafts have not slipped even ever so little; and then with a brush proceed to cover the stump to well below the crack of the split with a thin coating of melted grafting wax, being very sure to fill the split itself. Pull strips of old muslin about an inch wide through the melted wax, and wrap these waxed strips around the stump and over the top. Finally cover all generously with the wax to keep out water and infection. If the weather is cold and your wax stiffens, put it in a glue pot or a double boiler with boiling water in the outer pot.

FRANCES MARKHAM

The Gardener Who Profits Most Labors Least

The wise gardener purchases the best seed and the best fertilizer—then plants and cultivates *properly*. This combination is bound to secure the best results humanly possible.

To cultivate *properly* the right garden tools should be used. Planet Jr. Farm and Garden Seeders and Cultivators are designed scientifically and are absolutely practical from every standpoint. They were designed by a farmer for farmers and gardeners.

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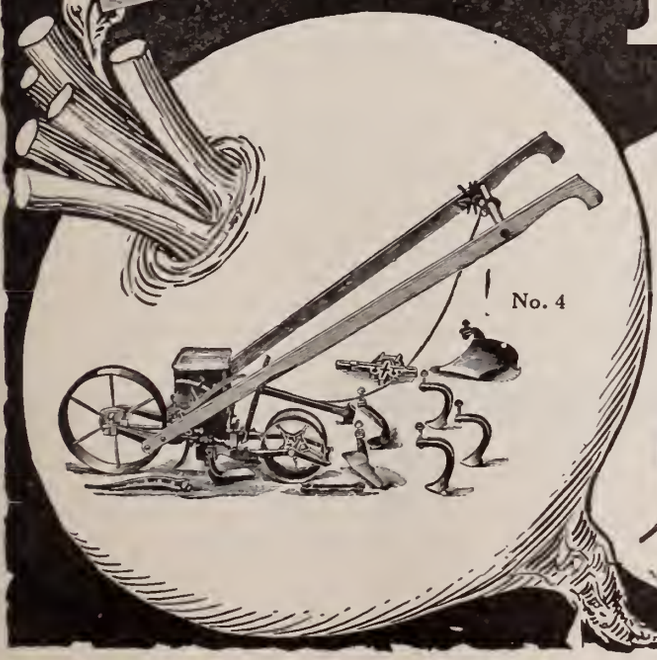

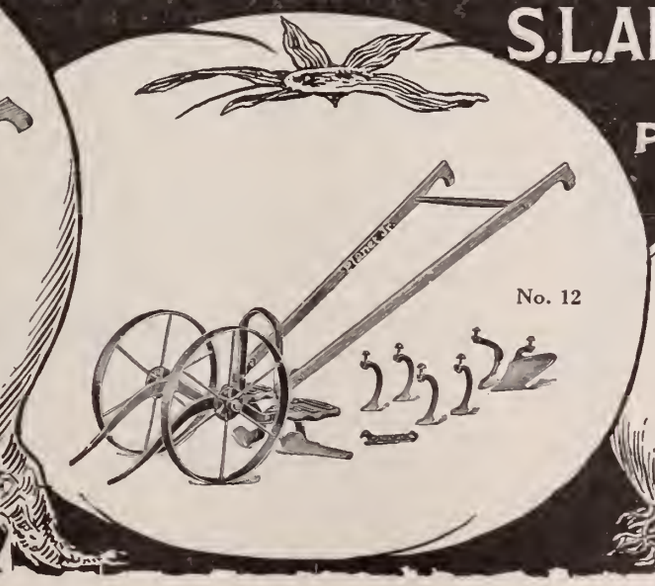

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IRIS FANCIERS UNITE FOR ACTION

American Iris Society Successfully Launched

TO COLLECT and disseminate knowledge of the Iris, to encourage its cultivation and improvement, and to work in harmonious coöperation with all organizations of kindred interests." Such is the avowed purpose of this new flower society which was organized on January 29, 1920, at the The New York Botanical Gardens at an enthusiastic meeting of many lovers of the flower. We owe much to the hospitality of Dr. N. L. Britton, the Director, and to Dr. H. A. Gleason, through whose kind offices so many interested individuals have been brought into active coöperation.

Any person interested in Irises is eligible for membership and an active coöperation and outline of the general policy adopted, will, I think, clearly reveal the value of membership to all who grow even a few varieties as well as to those with large collections, or special interests. To the commuter with a small garden who has just decided to add Irises to his collection, we can offer unprejudiced advice on culture and treatment, recommend the best varieties to suit his particular color taste or conditions; to the large grower, recommendations of good varieties should also be of value, and often correct nomenclature is of importance. We are in touch with commercial growers throughout the country, as our data increases we can advise you as to where in your vicinity there are good collections of Iris to be visited or where you may obtain particular varieties not commonly listed, for many prefer to make their selections from the blooming plants or, after reading some article in the GARDEN MAGAZINE, for example, are unable to find in a trade catalogue the variety mentioned. I shall now proceed to consider the developments in detail.

Collections of Iris in full flower are well worth attention for only then do many of us appreciate the great range of color, the possibilities of using them in selected groupings, or in glorious masses. There are already many fine collections, both public and private, and we hope to make arrangements so that members may have an opportunity to visit the private collections, and we hope to announce the period of greatest display so that any one may be reminded when the Iris are at their best. There are already collections in the vicinity of Boston, New York, Philadelphia, Washington, Cincinnati, Chicago, St. Paul, and Los Angeles, to mention but a few, and it is planned to coöperate with the public authorities in establishing representative collections of fine varieties in many sections. Already coöperation has been suggested in connection with the University of California, the Dept. of Agriculture at Washington, The Missouri Botanical Garden, and Cornell University; and the New York Botanical Garden which already has a fine Iris planting is to be the site of as complete a collection of Iris as is possible. That we have already compiled a check list of more than 1,000 varieties suggests how large a collection this will be. An agreement has been entered into whereby all members of the Society will be supplied with the published reports. Here will be taken up the question of correct nomenclature and authentic description. Other plantings will be largely for cultural tests and for display, to permit the garden lover to select from the finest of them all.

Of but little less value to the prospective purchaser is the opportunity to see the cut flower in an exhibition. The Iris Society will hold no annual exhibition in the accepted meaning of the word but it hopes to coöperate with local garden clubs and horticultural societies in many cities. Initial action must, of course, rest with the local unit, but to a greater or less degree the society is prepared to enter into many such projects. I foresee exhibitions of Iris, held in connection with our society in Philadelphia, Boston, Washington, Cincinnati, and elsewhere this approaching spring. Many of us have noted with dismay the gradual decrease of interest and participation in exhibiting at flower shows, and the crying need is to help and encourage the small grower. How many of us have come away from a visit to an exhibition of hardy flowers, with the perhaps unspoken thought, "Why, I could have won that prize, I have a finer display in my own garden" and yet how few of us have actually tried another time to exhibit. Let me compare for you two experiences of the past season, a show in a small community with eighteen entrants, and a much advertised exhibit in a large city with only four; in one case a community of friends with friendly competition, in the other a gathering of strangers with advertising their concern; the fact that the first was without resources and that the second is richly endowed but enhances the contrast. Apparently flowers are not a sufficient bond of interest, there must be a general community of interests, and yet have you ever run across a true garden lover who was not willing to share his information, even his very plants, with kindred spirits. Let us all get together, acknowledge Iris as a bond for companionship, join the society with an honest intention of hearty coöperation, and, if in no other way do our part in making an Iris show a real display and a lively but pleasant competition. The Iris Society is preparing advice for exhibitors, and plans to standardize the schedule, recommend the judge and provide set methods of judging for his guidance. Satisfying and just awards, however small they may be intrinsically, wholly impersonal and impartial; and the establishment of standards by a central authority is the first step.

The pageant of Iris colors appeals to many but it is an impersonal appeal dependent upon the individual's appreciation, and there are other and often stronger calls of shape or mass dependent on a more restricted predilection. Information must be gathered bit by bit from many sources and it is here that we urge all members to do their share. Your bit of knowledge or opinion may seem irrelevant, not worthy of attention, but it is only by this coördination of personal experiences that we can arrive at a concensus of opinion, the real authority in many questions. Whether you are a mere amateur or a thorough-going specialist, get in touch with the Society and let us put you in touch with others with a similar trend of thought. There are many lines of development which space permits me merely to touch upon. There is much in Iris Botany that remains to be solved in the nice distinctions between species, probably the records of the careful breeder if subjected to analysis by a trained geneticist will assist and who would not like to discover the mysterious alchemy that produces a fine variety, not a poor one. The common origin of all Iris or the complex origin of our finest, both hold a touch of the unknown; there is a joy of anticipation in just raising a seedling but it is heightened if it is the culmination of long and studious planning. The history of Irises also has its adherents, there is amusement to be derived from the materia medica of the old herbalists and romance

(Continued on page 62)

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Dodson Wren House. 4 compartments, 28 in. high. 18 in. in diameter. **Price $5.00.**

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Spring Will Bring the Birds

A Dodson House *Will Attract and Keep Them. But Important —Erect Them Now So They May Weather*

WHILE they are scientifically built to overcome the little peculiar features to which the birds object, an appearance of newness sometimes intimidates the little feathered fellows, and they abhor fresh paint. Erected now they will weather, blending into the foliage, and inviting immediate habitation. The first step to beautify your grounds is the erection of Dodson Bird Houses—as important as planting trees and shrubs. The trees and shrubs will thrive when protected by our native songbirds. They are invaluable for destroying insectivorous pests—and their beauty and song lend a finishing touch to Nature's brush. Mr. Dodson will personally supervise the proper location of bird homes if transportation is assured.

FREE BIRD BOOK—Sent On Request

—illustrating Dodson Line, giving prices; also beautiful colored bird picture free.

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Dodson Sparrow Trap, guaranteed to rid your community of these quarrelsome pests. Price $8.00.

Dodson Cement Bird Bath **Price $19.00.** Height 32 in., Basin 34 in. in diameter

WING'S GLADIOLI

For years we have worked with this flower in our trial grounds, testing out the varieties offered by our American growers, and the choicest products of the great European hybridists, discarding everything not worthy, and keeping the ones that showed especial merit. As the result of this work we offer our collection of over 400 varieties, many of which can be obtained from no other source. We have more rare imported Gladioli than any other house in America. The Exclusion Act forbids the further importation of these bulbs, and they will become more and more scarce and higher-priced.

We offer below a selection which we believe to be unequaled:

Albert 1st. Flesh and pale rose. Enormous wax-like flowers of perfect form and remarkable texture, tinted like the inside of a sea shell. They are borne in long, full spikes which are beautifully curved, lending themselves to graceful and artistic arrangements. Price $10 each.

Antoinette. White and pale rose. Flowers large, of perfect bell type and most exquisite coloring. The characteristics of this Gladiolus are its perfect form and delicate hues. Price $10 each.

Emile Aubrun. Rose Begonia and carmine-lake, with velvety blotch of carmine-purple. Coloring warm and deep. Flowers of immense size, with remarkable texture, broad and well opened, on long, sturdy spikes. Of most distinguished appearance, a knight and a warrior among the flowers. Price, $10 each.

Lutetia. Pale rose with snow-white midrib and throat. One of the very largest of all Gladioli. Flowers fully four inches across, with very long elliptical petals. This is a flower with a distinct personality, like a beautiful, queenly woman. There is nothing else like it. Price, $10 each.

Roi Alexandre. Deep rose and ashy violet, with large ivory blotch. Petals slightly bordered with ashy violet and lightly overlaid with gold. The contrast between the violet and gold is rare and very beautiful. Massive flowers on magnificent spikes. This variety is of outstanding quality even when placed with a royal collection. Price, $10 each.

Sans Pareil. Clear, glowing orange pink, with pure white blotch. The color of this flower can be compared to nothing but a rosy sunset cloud, so pure and bright it is, while the form is very fine. Price, $10 each.

Souboutai. Clear copper-red, slightly suffused blue, with very large white blotch. This flower resembles Roi Alexandre in its contrast between a slight blue suffusion and a gold overlay, and is a proper companion to that variety. Flowers large, with heavy texture. Strong, full spike. Price, $10 each.

Entire Collection, one bulb of each for $50.

We have them at all prices. Some varieties of great beauty are quite inexpensive because they are not scarce.

Write for free copy of our beautiful catalogue. Besides Gladioli we list Peonies, Irises, Dahlias, Hardy Phlox, and Flower Seeds.

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Better Seeds for Your Garden

The per cent. that will grow is marked on the package

Harris Seeds are the kind that make the garden more productive and the vegetables more delicious. Bred as carefully as prize live stock on our own Seed Farms five miles from Rochester, Harris Seeds have for years been used by the largest and most successful market gardeners.

You can get fine results from this pedigree seed because *every lot is tested and the percentage that will grow is marked on the label.* So you know just how thick to plant.

Send for our free catalogue and learn about our new strains of Peas, Beans, Beets, Corn, Cauliflower, Tomatoes, Melons, etc. See why our method of selecting the Seed from the best individual plant enables you to produce better sized and more delicious vegetables in greater quantities.

Write for the Free Catalogue To-day

It shows how to have a truly successful garden and enables you to buy direct from the actual grower at wholesale prices.

Introductory Offer—Free

To every one sending for our Catalogue if you ask we will send absolutely free one package of our famous Irondequoit Muskmelon Seed—the big Melons in the picture.

JOSEPH HARRIS COMPANY

Box 25, Coldwater, N. Y.

Harris Seeds

(Continued from page 58)

in the way a great French enthusiast "carried on" under shell-fire in this last war; to me, these points of association give an added value to the occupants of my garden, they may carry me in spirit into strange lands. Among you who are but hesitating at the gate, let us guide you into the realm of the Iris with its wealth of history.

Join the Society and as a beginning tell us just where your interests lie, just what variety you like the best, and how we can help you.

This is not all a mere vision, it is but a picturesque statement of the broad policy adopted, sponsored by enthusiasts, certain of whose names, at least, are not unknown to the gardening world. J. C. Wister is President; Wm. A. Peterson, vice-President; Frank H. Presby, Treasurer; R. S. Sturtevant, Secretary. Regional Vice-Presidents are Sydney B. Mitchell of California; T. A. Kenny of Minneapolis; Mrs. Samuel Taft of Cincinnati, Dr. F. E. Bennett of Ontario; Floyd Brallior of Tenn.; and B. Y. Morrison of Washington, D. C. Other members of the Executive committee: M. J. Hendrickson, James Boyd, Edwin C. Shaw, Dr. H. A. Gleason, Bertrand H. Farr and Harry A. Norton; and among the committees, or acting in an advisory position you will find the names of Mrs. Francis King, Mrs. L. B. Wilder, Miss Grace Sturtevant, W. R. Dykes, A. J. Bliss, M. Denis, R. W. Wallace, B. H. Farr, Wm. Peterson, Jennett Dean, D. M. Andrews, W. F. Christman, E. A. White, Leonard Barron, Madison Cooper, E. C. Vick, and many more. There are already 250 charter members and this should prove merely a good beginning.

Last, and yet again, let me urge YOU to join and share with us the knowledge of and interest in the Iris. You may become an ACTIVE MEMBER by the payment of $3.00 a year, a LIFE MEMBER upon the payment of $25.00. As a member you will receive the official organ each month and will be entitled to many other privileges, certain of which only have been mentioned here. Full information may be procured from the Secretary,

ROBERT S. STURTEVANT, *Wellesley Farms, 95; Mass.*

American Rose Society Awards Hubbard Medal

THE Executive Committee of the American Rose Society at a recent meeting in New York City voted to award to the Hybrid Tea Rose Columbia, registered in 1917 by E. G. Hill of Richmond, Indiana, the Gertrude M. Hubbard gold medal for the best Rose of American origin introduced during the last five years. This award was made possible by the generosity of Mrs. Gertrude M. Hubbard of Twin Oaks, Washington, D. C., and has been awarded but once when, in 1914, it was given to M. H. Walsh of Woods Hole, Massachusetts, for the introduction of the Climbing Rose Excelsa.

The honor which goes to Mr. Hill is distinctive. It is the highest honor which the American Rose Society can confer on a hybridizer, and it is a recognition, not only of a variety of merit but of the valued work of a pioneer in Rose breeding—one who has devoted a half century of real service in the advancement of the Rose through breeding.

E. A. WHITE, *Secretary.*

Send Some Seeds to France!

FOLLOWING the request of last year with regard to sending seeds to the Comité Américain pour les Régions Dévastées de la France, we again ask our readers to add a few packets to their orders for seed, these to be sent to the Comité Américain, 15, Boulevard Lannes (XVIe) Paris, France, whence they will be distributed into the devastated regions.

New Zealand Spinach

ALTHOUGH New Zealand spinach is not by any means a new vegetable there are comparatively few gardens in which it is grown. Yet no kind of green which can be grown in the back yard garden is more economical of space nor so abundant as to crop. The flavor may not be exactly like that of ordinary spinach, but the difference is not easily detected when the dish is properly prepared. New Zealand spinach flourishes in midsummer heat as well as late in the fall. Its great merit, from the standpoint of the man with a little land is that it is a continuous cropper. The same plant will yield from midsummer until hard frost blackens the garden. Each plant sends out a considerable number of semi-prostrate branches, from which many laterals start. It is the leafy tips of these laterals which are used. As fast as they are picked off more are produced, and with a fairly large number of plants, the ground will be covered even at the close of the season. The tips are at their best when about six or eight inches long, and are cooked and served in the same way as common spinach.

New Zealand spinach does not grow nearly so rapidly as common spinach. Seeds sown in May will produce plants ready for picking by the first of August, or perhaps earlier, if conditions are particularly good. The early spinach is out of the ground long before this, so that it is very desirable to have the New Zealand spinach ready for use by the first of July. There is no difficulty in transplanting New Zealand spinach, and the plants started under glass will make rapid growth when set outside, if they have been given a good start. The average amateur has never considered New Zealand spinach as a vegetable to be pushed along in this way, but experienced gardeners find the plan a good one. The spinach should be planted in rows, three feet apart, and set two feet apart in the rows. This may seem like giving them an unusually generous amount of room, but by the end of the season the plants will have formed a green mat over the entire plot.

E. I. FARRINGTON, *Mass.*

"Hardpan"—A Problem

I HAVE been an inveterate reader of garden books for several years but only once have I seen the term "hardpan" used, and that was in THE GARDEN MAGAZINE (one March). Hardpan is my problem. While I have considered it allied to clay, still it lacks some of the sticking properties of clay and I have always been at a loss just how to consider it. It cannot be called sand, though it is dry and lacks the moisture of clay. I happen to have exceptionally good drainage—the property being about ten feet above street level. We have heavy or rather constant rain here, and very little freezing weather. Rarely any snow. The soil is pretty heavy in winter—but in summer! I would recommend a pickaxe and a crowbar for any gentle little trowel work. I have not yet found the implement for heavy labor. Yet, I have succeeded in getting a pretty good garden, having used liberal quantities of manure, sifted coal and wood ashes, and a great deal of sod dug under. Also put in sand *with rotting Maple leaves*, but never alone. Sand put in by itself makes what I have declared to be a splendid Portland cement—though perhaps the building inspector would not pass it. Bulbs and Roses seem to do exceptionally well; even

(*Continued on page 64*)

Protect Your Flowers, Vegetables, Shrubs and Fruit Trees

with the

Niagara Hand Dust Gun

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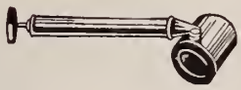
Niagara "All-in-One-Dust-Mixture"



No. 2 Sprayer—Strong and indestructible, made of heavy tin. Delivers a large volume of mist spray in any direction desired.

No. 1 Atomizer Continuous Sprayer—Three times faster and lots easier to work· furnished with two interchangeable brass nozzles.

Niagara Compressed Air Sprayer Has No Equal

Easier to operate, More Powerful, Brass Pump, durable Galvanized Steel Tank, New Design Nozzle. Hose cock to regulate fineness of spray.

Half the joy of having a garden is taken away by the insects and diseases which partly destroy or riddle your plants and trees.

Dusting, by killing insect pests, and controlling fungous diseases, will help you to enjoy the garden to the utmost without the sloppy, mussy bother of mixing various chemicals with water and making various solutions for different pests.

Niagara "All-in-One-Mixture" is a clean flour like dust which contains fungicide poison, and contact insecticide in combination. So a single application fights all classes of insect pests and fungous diseases.

The dust is placed in the hopper at the end of the Niagara Dust Gun and by short, easy strokes of the piston blown in a thin cloud over the plant. There is no chance of soiling or spoiling the clothes and the entire outfit is so light and easy to operate that any woman or child can rid the garden of plant lice, green worms, potato bugs, mildew, etc., etc.

Niagara Hand Dust Gun, One Pound of Niagara "All-in-One-Mixture" and the Niagara Garden Guide are all packed in a single attractive carton for sale by dealers everywhere.

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We also manufacture a complete line of hand sprayers and atomizers of the highest quality.

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25 Main Street, Middleport, N. Y.

Manufacturers of Power and Hand Dusting Machinery for Orchard, Vineyard and Field. Special Dust Mixtures—All kinds of spray materials and sulphur.

To Dealers. If you have not already investigated, write at once.

Abundant Vegetation In Hottest Summer Weather

is a certainty with the "Sub-Pipe" System of Irrigation. Lay a row of "Sub-Pipes" between every third or fourth row in your garden. They will "water the roots directly"—make your garden produce a succession of big crops all summer long when it would otherwise BURN UP from the heat. "Sub-Pipes" will also keep your lawn fresh and green until frost—produce better orchard and farm crops—through supplying plenty of moisture at all times. Easily adapted to YOUR irrigation requirements, whatever they may be. The

"Sub-Pipe" System of Irrigation

is simple, practical, economical. No trouble to install or to operate. Requires only small amount of water. There is no water lost through evaporation, or through the necessity of thoroughly drenching the top soil before the water will penetrate to the roots. You can irrigate at any time without injury to vegetation—you do not have to wait until after sundown. Once used you will wonder how you ever got along without the "Sub-Pipe" System in the past.

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Get this free illustrated booklet. Learn NOW all about the "Sub-Pipe" System. "Sub-Pipes" should be installed with the beginning of spring for maximum results. Write TO-DAY for free "Sub-Pipe" booklet.

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BUIST'S SEEDS

Take the Guesswork Out of Gardening

No matter how carefully you prepare the soil, despite your skill at planting, and regardless of weather conditions you won't get the right results with the wrong seeds.

And the difference between the garden that reduces the high cost of living and the garden that is "just a garden" is principally the difference in the seed. Buist seeds have produced quick and positive results for three generations of American gardeners. They are the result of over 92 years of scientific selection and development.

Send To-day for Our Free Garden Guide

Tells what, when, and how to plant for best results. Our prices at no sacrifice of quality, show worth-while reductions over those listed last year.

Send for the garden guide to-day—there's something on each of the 140 pages you'll be glad to know.

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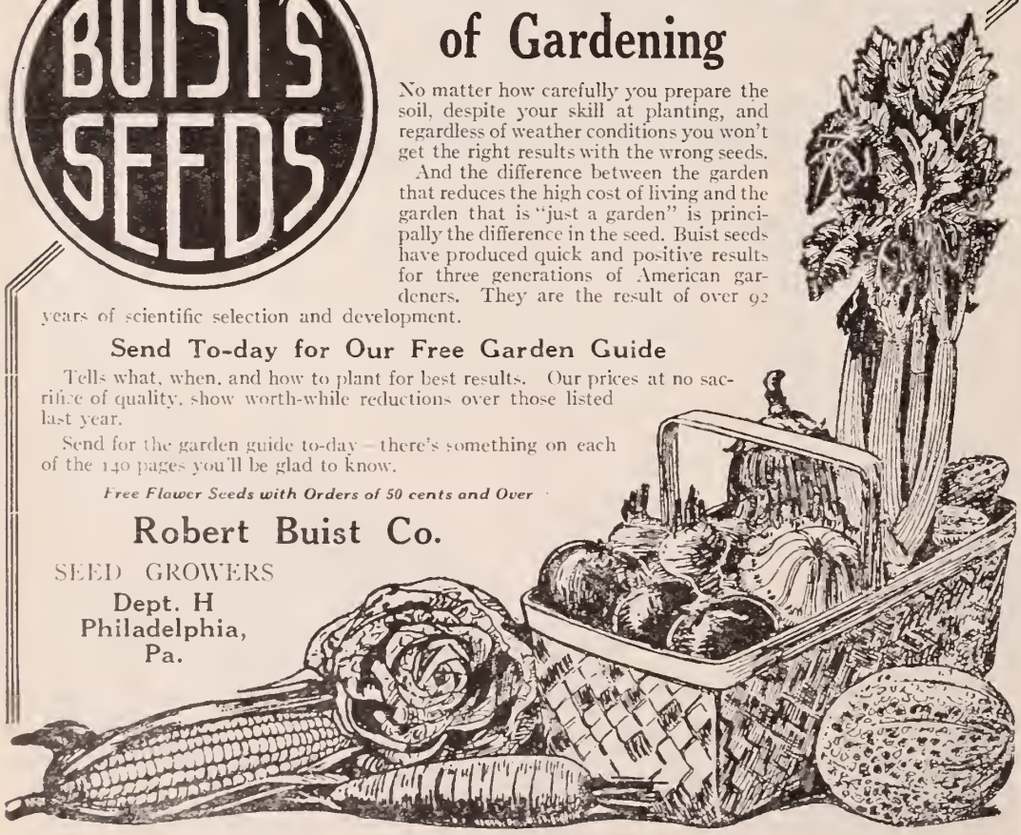

(Continued from page 63)

Lilies thrive, and most perennials with the exception of Delphinium. These seem dwarfed; as also African Marigolds Petunia and Stock. Now what I would really like to know is whether I belong to the "clay" class; and when I see the word "clay" am I to sit up and take notice in spite of the lack of wetness always attributed to clay, or am I still to watch for that elusive word "hardpan."

In passing, may I make a plea for you not to forget your technicalities. It seems to me we look to a garden magazine as to something knowing more, not less, than we do. I have also succeeded with Alpines and the books say they will not tolerate clay—so what *is* my soil?

ALICE WOODRUFF MCCULLY, *Wash.*

—You are evidently working a subsoil—regard it as clay. The soil of your region is in general a form of gravelly or stony loam which would give good drainage. It is evidently lacking in humus, hence does not hold water for herbaceous succulent plants, but fits finely for ripening bulbs. You probably have gone below the normal surface soil. It may have been carted off or buried under a fill of subsoil. Vegetable matter dug in, manure, humus in any form, is required.—L. B.

Summer and Autumn Bloom

WITH a desire for prolonged bloom, in the fall I went in search of Chrysanthemums. For some years various varieties have been tried by me, and I have not yet finished. Seven or eight varieties were bought some years ago of a reputable house, only one of which proved satisfactory. It is of this particular one I am telling. At the time of the purchase, I was told it was a new early flowering variety imported from England, and which would blossom in July and continue sending forth blooms until frost. And lo and behold, it did! My garden record shows that on July 18th it commenced to blossom (33 miles north of Boston) and continued doing so with all its might until cut down by frost. In color it is a gorgeous, rich blood red with a touch of bronze, of the Aster variety, the size of Lilian Doty.

Through August or hot weather, a smile of yellow spreads over its lovely countenance. With the cooler days its rich, stunning color returns. It blossoms in the shade as well as in the sun, but not quite as early. Even then, however, the middle of August sees it in its rich, velvety dress of reddish bronze. It has been so satisfactory a plant on account of its very early flowering that I have jealously guarded it, not attempting to disturb it for fear I would lose it. Last year, however, it was moved and to its great advantage, for it increased amazingly. Every one who sees it, selects this one from all the others. It has survived at least four cold winters with a covering of leaves only, so I know it is hardy. It was bought under the name of "Boston," but friends who have admired the plant sent for plants of Chrysanthemums to a firm listing under that name, and did not get the same thing at all. The firm from which I procured this plant are not listing it now. I cannot understand why unless they may be listing it under another name. A nursery firm have taken cuttings of the plant, and I am glad for it is a plant worth propagating.

MRS. GREENLEAF CLARKE, *Mass.*

A Sextette of New Spencers

FOR many are called, but few are chosen." In my observations I have eliminated to date, as worthless or "not entirely distinct," practically everything but the following half dozen

(Continued on page 68)

VAUGHAN'S
Glorious Gladioli

BEST ALL-SUMMER FLOWERS
EASILY GROWN, SURE BLOOMERS

Graceful spikes often with twenty buds opening consecutively into twenty giant flowers. Plant every 10 days from April until June for continuous flowers from August to October. To increase further the "Gladiolus vogue" we offer a one inch blooming size bulb in our

50 HOMEWOOD MIXTURES Bulbs (5 kinds mixed) prepaid **$1**

For the particular planter we give larger bulbs and exhibition kinds in our

22 RAINBOW MIXTURE Bulbs, all different, prepaid **$1**

Cultural directions in every package. Our 1920 136-page catalogue mailed free everywhere. Address Dept. G.
Customers beyond 4th postal zone from Chicago or New York, add 16c. stamps.

SURE TO BLOOM

VAUGHAN'S SEED STORE
43 Barclay St. NEW YORK — 31 W. Randolph St. CHICAGO

The Clipper There are three things that destroy your lawns—Dandelions, Buck Plantain, and Crab Grass. In one season the Clipper will drive them all out. your dealer should have them—if he has not, drop us a line, and we will send circulars and prices.

CLIPPER LAWN MOWER CO.
Box 15 Dixon, Ill.

IF THERE are those who need a little informal advice for their Spring gardening, perhaps a better grouping of perennials for color effect or more continuous bloom, perhaps a suggestion for a bit of shrubbery planting, how to make that wall garden a delight or the woods a lovely spot. Consult

EDITH RIPLEY KENNADAY
Studio 22-M 119 East 19th St., New York

Fitchett's Dahlias

Grown in Wisconsin from the best American and European stocks, may be freely shipped to any state.

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The Fitchett Dahlia Gardens
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Euonymus radicans vegetus

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Merely designate the collection you want as follows:

Sutton's Flowers—A	40 different kinds		$5.
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Our Catalogue Tells How

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"Dr. GROZUM"
Supplies the necessary plant food
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A fine hedgerow, some flowering shrubs, climbing vines, roses, a few evergreens, will turn your lawn into a magic carpet, and add to the value of your home.

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Lilies Grow Readily in Tubs or in Pools

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Awarded Silver Medal and 9 cash prizes by Massachusetts Horticultural Society. Delicious flavor. Rich deep red clear to centre. Holds large size to last picking. 14 St. Martins heaped pint basket at 24th picking of season. Undoubtedly the finest all around Strawberry in existence.

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The very rainbow showers
Have turned to blossoms where they fell,
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Between the crosses row on row,
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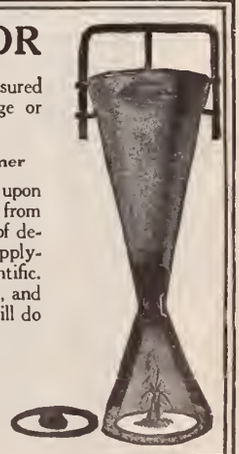

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In **Berries** we have the marvelous **Thornless Grape Vine Blackberry; Everbearing Blackberry Macatawa; New Everbearing Raspberry Leyerle;** and the greatest of all **Everbearing Strawberries Neverfail,** and the wonderful **Pierce Giant Grape.**

Flower and Vegetable Seeds. Select standard and new varieties of greatest merit.

Dahlias, the most wonderful new sorts from all parts of the world.

Gladioli. We claim the largest and finest stocks of these. We grow gladioli by the hundred acres.

Cannas, Irises and other Bulbs. Immense stocks and most superb varieties.

Hardy Plants, in great variety, **Lilies, Phloxes, Peonies, etc.**

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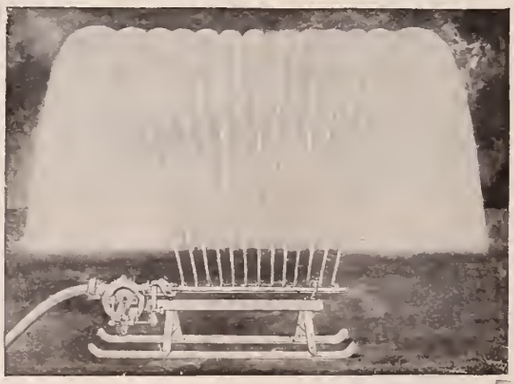
For Lawns, Gardens, Flowers, Seed Beds, Greenhouses and General Irrigation

You can create a gentle, soaking summer shower at will



THIS marvelous machine throws a gentle mistlike, oscillating spray which will thoroughly and quickly water any rectangular space up to 60 by 12 feet. It is instantly adjustable without tools to cover every portion, including corners, of lawn or garden. Cannot wash the soil or injure the most delicate seedling. Can be moved at will without damage to lawn or garden, or wetting of operator. Machine is 21 inches long, weighs but five pounds, and fits any ordinary hose connection. Will wear for years. Satisfaction guaranteed or money refunded.

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CAMPBELL IRRIGATION COMPANY **Woodbury, New Jersey**

Attractive sales opportunity for dealers. Write for details. Also manufacturers of celebrated Turbo and Automatic sprinklers, and furnish all machinery and equipment necessary for complete irrigation installations for farms, gardens, golf courses, etc.

(Continued from page 64)

Spencers. In judging them I have considered not only the quality of the bloom, but the vigor of the plant from its earliest stages to its full development, the amount of bloom produced, and the length of the blooming period. With these considerations in view, therefore, my conclusions were as follows: First, Yarravia, originated in Australia; planted in January; began blooming in April and bloomed until July; plants strong and healthy; bright-rose bloom of good quality. This new early Spencer is a decided acquisition for Southern gardens because of the fact that it begins blooming before the hot weather starts in. Second, Elfrieda Pierson, a huge pale pink; blooming period from May 15th to July; vines extremely vigorous, producing an abundance of duplex flowers. Third, Norvic, a 1914 introduction from an English grower; very vigorous; plants not so floriferous as King White, but the quality of the bloom is slightly superior. Fourth, The President, the brightest Sweet Pea in existence; its color is a glowing scarlet; the plants are stronger in growth than Sterling Sweet or Fiery Cross. Fifth, Jean Ireland, a veritable little fairy; clear primrose, edged rose; the daintiness of the flowers makes it consistent that their size be diminutive; the vines, though prolific, are not tall. Sixth, New Miriam Bauer, a most charming and distinct novelty; the strongest grower of all; a soft shell pink on cream ground; the flowers very large, are nicely placed on the long stems. This choosing of varieties is so much a matter of individual taste that probably no other person's list will include all of these. And I do not say that this sextette is composed of the very best for universal growing, but that it is composed of varieties good for the Southern states.

BUFORD REID, *Arkansas.*

Louise Bonne de Jersey Pear

IF I were to be restricted to one variety of pear, I think it would be Louise Bonne. No, I'd not plant Bartlett because I can get all I want from California all summer and early fall. I'd not choose Clapp's Favorite because it rots at the core. Flemish Beauty bears too many defective, diseased fruits; Seckel, while the highest flavored of all pears, bears too small and too few fruits; Angouleme is too variable in quality and too uncertain a bearer; so is Anjou. But Louise Bonne, while gritty and astringent skinned, is double the size of even large specimens of Seckel. It never rots at the core like Clapp, nor cracks like Flemish Beauty, nor loads down with inferior pears one year and bears a few choice specimens the next like Angouleme. In my experience from boyhood to the present it is, of the several score of varieties I know, the most regular annual bearer of beautiful looking, sound-hearted, good tasting pears. Moreover, for the man with limited space, it does remarkably well as a dwarf.

M. G. KAINS, *New York.*

Anticipating Spring

SPIRAEA sorbifolia or Sorbaria sorbifolia is as interesting as Pussy Willow for, like it, a twig of this shrub will open its buds when placed in a little water and given plenty of sunshine. It deserves a place in every collection for, though it suckers and is a little untidy in its growth, it can be given a subordinate position and with spade and pruning shears easily be kept in check. The twigs properly arranged in a fitting vase have a very decorative effect as the buds first swell, then burst and push forth little leaves that grow quite rapidly. A vase full of them in a sunny window will help that impatient feeling in early spring, as the leaves will start in three weeks.

MELLER, *North Dakota.*

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On Boston Common

A colony of Hodgson Portable Houses sprang up on Boston Common to meet war-workers' needs. Did you see them there? A state food official said in part: "The promptness with which you executed the work and the delightful neatness of your cottages have brought admiration from everybody."

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Colonial Bird House

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Hodgson Houses were in cities and towns about, wherever there was need for good houses in a hurry. Even Belgium boasted a 100-bed Hodgson hospital.

Your Hodgson House should be ordered *now*. They arrive in painted sections ready to set up—skilled workmen unnecessary.

Everything from 10-room cottages to dog houses and bird houses.

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20 Vegetable Varieties for $1.00
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6 Valuable Vegetables for 25 cents

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20 Old-Fashioned Favorites for $1.00

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6 Old-Fashioned Annuals for 25 cents

No. 5. The Sunshine Spencers
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The seeds will possess unusual vigor and vitality when set out of doors. Sodus Humus is a natural silt and leaf mold fertilizer that promotes plant growth and productiveness. Absolutely odorless.

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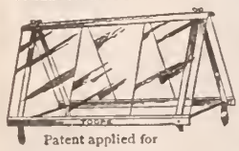

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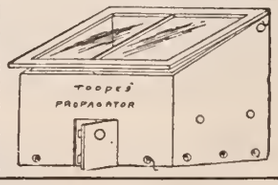

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Collection one plant each variety prepaid, $2.00

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FROM PERSIA, CHINA and JAPAN

Catalogue

A. E. WOHLERT

The Garden Nurseries

Narberth, Montg. Co. Penna.

Fighting the Onion Fly

IN SOME sections it has become almost impossible to grow onions because of the damage caused by the onion fly. This is the same experience that gardeners in some parts of England have gone through in the past. When the onion fly is present in such large numbers as to make outside planting impossible, the only way to grow this vegetable is to start the plants indoors, or in a hotbed. This is not a difficult plan to adopt, and when the plants are set out, they are too tough to be relished by the maggot, so that most of them escape. At the same time, no particular advantage is to be found in the starting of seeds under glass if they can be sown safely in the open ground, unless, indeed, specimens for exhibition purposes are desired. It is well to know, therefore, that the pests can be kept in check if they are not more numerous than in most sections. It has been found that the fly has a special fondness for sweets, and that by using a molasses bait it can be poisoned without difficulty.

The plan usually followed is to mix two ounces of white arsenic in a quart of hot water, and then to add enough molasses to thicken the mixture somewhat. The poison is applied by means of a stick, with which it is thrown upon the leaves, preferably when the plants are four or five inches high. The liquid forms globules where it reaches the leaves, and these globules quickly attract the flies because of the molasses. In this way the pests are fed a fatal dose of arsenic.

In the opinion of some growers, the free use of water is very favorable to the fly. For that reason they do not apply any water to the onion patch while the flies are in evidence, or about the time when they are likely to appear. The experience of some growers has been that when they have watered their onions, either with the hose or by an irrigation system, the fly has been very troublesome, while little damage has been done when water has been withheld.

The onion fly is widely distributed; and is about one third of an inch long. It lays its eggs on the outside of the plant, close to the earth, commonly when the plants are small. As soon as the eggs hatch the young, white maggots eat directly into the heart of the plant. Then the onions begin to die, which is often the first sign which the gardener has that anything is the matter with his crop. If he pulls up the dying plants, he will find the maggot, and possibly four or five in the stalk. Two and perhaps more broods appear each season.

E. I. Farrington, *Massachusetts.*

A Few Reminders

WHEN cauliflowers commence to head, pin three or four of the extreme outside leaves together with a wooden tooth pick. Do this rather loosely—that makes the flower large and heavy. Boil the leaves and serve as cabbage. They make a good substitute for it and eliminate all waste.

Cress makes a nice change for salad. It grows freely and if you cut it, leaving the roots in the ground, it will renew itself and a very small patch will last all summer.

Use climbing cucumbers as that economizes space and they are quite as satisfactory as any others and easy to pick.

The great universal saving in all gardens is not to plant more than you can use, but plant often. In thinning out, do not throw the thinnings away but transplant them, thus giving another crop a little later than the original one.

Emily Halson Rowland, *Connecticut.*

New Annual Mallow

grows 8 to 10 feet high, just like a hollyhock, but grows more in bush form with 6 to 10 giant spikes bearing hundreds of giant single mallow blooms 10 to 12 inches across, in an exquisite pale yellow shade, from July until December. The most spectacular new garden flower.

Seeds in pkts. of 50 seeds 50c per pkt.; 5 pkts. $2.00. Plants in May $3.50 per dozen, $25.00 per 100.

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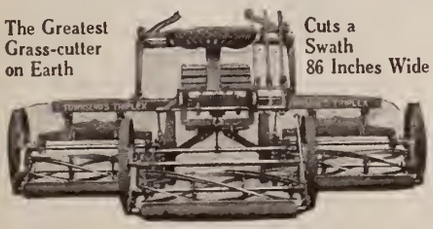

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One each Florentina, Flavescens, Gazelle, Kochii, and Pallida Dalmatica, 50c., postpaid.

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THE WM. J. REILLY NURSERIES **191 Ossian St., Dansville, N. Y.**

How to Treat the Hardy Alyssum

ON THE edge and in a well-drained location I have a four year old root of hardy Alyssum —Alyssum saxatile—commonly called Basket-of-Gold. Last spring when it was in bloom it was a beautiful sight, but when through blossoming quite the opposite, for its long naked arms reached out on all sides crowding over nearby neighbors until they seemed lost, and also almost obstructing the grassy pathway. I thought I would experiment a bit on the plant as I had several of the kind to secure seeds from should this one be lost. These long arms I immediately cut back one-half, at least quite enough out of the way of the neighbors, so the new growth if it came, would fill the gaps. In a very short time the stub ends sent out new tufts along the body of the arms left so that in July it was a mass of fresh gray green leaves, and the plant does honor to its location again. Grass Pinks may be treated in the same way, only very early in the spring—first part of April.

K. K. PERRIGO, *Ill.*

Snapdragons where Cotton Grows

PRIOR to last year Snapdragons were an impossibility in my garden; try as I would I could not make them bloom satisfactorily. I always sowed the seeds in spring at cotton planting time and never had any trouble getting the plants up promptly. They would make a fair growth, too, until hot July came when they turned yellow. If the plants did not die outright, such poor growth was made as to produce only inferior spikes of bloom. Last Autumn I decided to change my method of culture. Near the middle of October I ordered one dozen seedlings from a nurseryman. A few days later the collection including the following varieties arrived: Nelrose, an intermediate soft rose sort; Firebrand, a brilliant half-dwarf kind similar in color to the President Sweet Pea; Purple King, a self color of the tall type; Golden Queen, a bold, cheese-colored flower. I set half of the plants in a frame with some early tulips. The others I planted along a shady border. They were watered and shaded for a few days afterward and soon showed by their vigor and freshness that they were established. The ones in the frame were in bloom by May first the next year, and the border was brightened a week later by flashes of sunset color from Firebrand. Hundreds of spikes were cut from the clumps in the old tulip bed during the summer; even the heat of midsummer did not check their production. The flowers in the border lasted until frost, and were the most satisfactory plants in the entire lot of perennials.

In July when sowing seeds of Delphinium, Veronica, Aquilegia, and Pansy for next year's bloom, I procured a few seeds of a choice strain of Antirrhinum which I planted in a protected part of my garden. The seeds germinated well, and I am going to transplant the seedlings as soon as the season is a little more advanced. I am sure that I can grow Snapdragons in my garden quite as well as anybody, since changing the method of their growing.

BUFORD REID, *Arkansas.*

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YOU read the GARDEN MAGAZINE—you know its value and the need of broadening its influence. To this end, will you send us a list of your friends not now subscribers who are interested in gardening? We will gladly mail sample copies to them and your name will not be used unless you say so. Thank you.

THE GARDEN MAGAZINE, *Garden City, N. Y.*

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will reduce the H. C. L. in your home and give you a great many dollars cash profit besides. This book pictures in colors and fully describes Kellogg Strawberry Gardens, also the world's latest and most wonderful strawberries,—Kellogg's Big Four and Big Late, Kellogg's New-Race and Kellogg's Everbearers.

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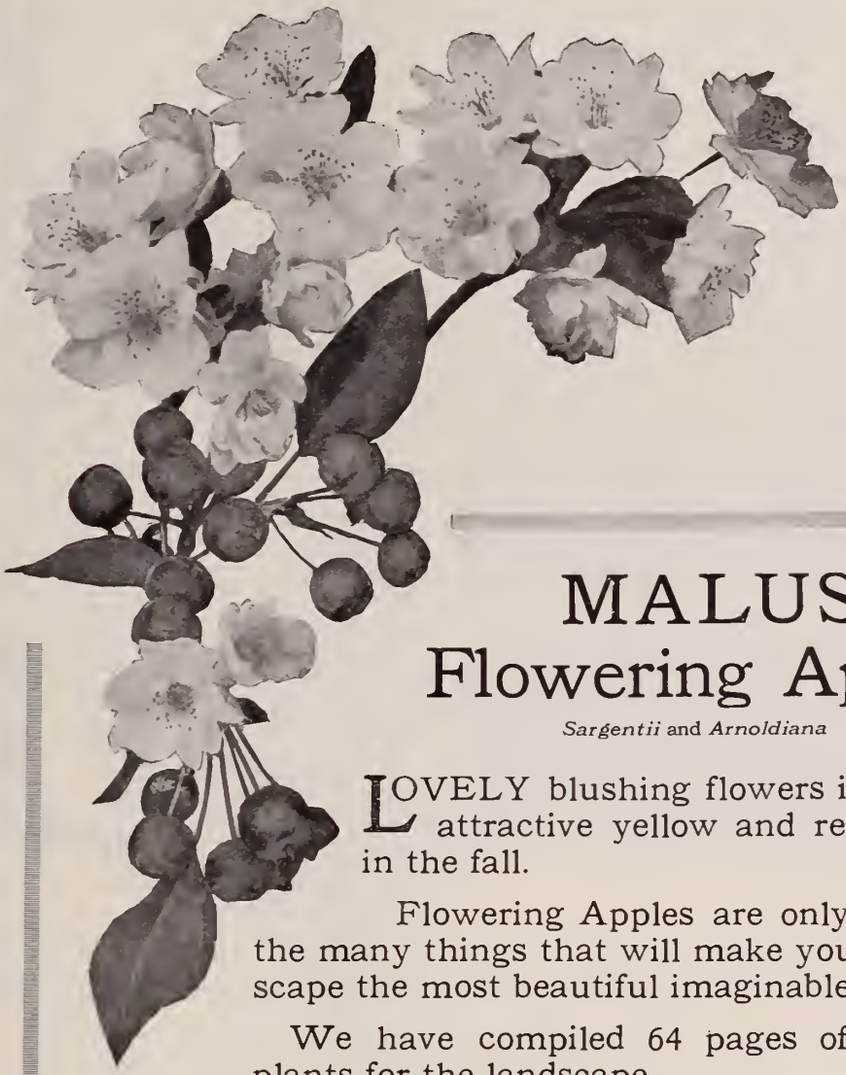

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Farr's Specialties for Early Spring Planting

Year after year the garden increases in charm and value as the shrubs and plants increase in size and blooming power. Early spring is a desirable time for setting most plants, and in my collection at Wyomissing may be found specimens that are suitable for every phase of gardening. A few are here noted—to list all would be impossible:

Japanese and Asiatic Shrubs—Berberis, Flowering Cherries, Enkianthus, Cotoneasters, Corylopsis and others.

French Lilacs, Philadelphus and **Deutzias**—a complete collection of Lemoine's new creations.

Rare Specimen Evergreens for the formal garden, lawn groups and rock gardens.

Hardy Asters, Phloxes Delphiniums, Chrysanthemums and other perennials for spring.

An Emergency Edition of Farr's Hardy Plant Specialties (issued because of the great demand for the sixth edition) will be sent to those who request a copy.

Bertrand H. Farr, 104 Garfield Ave., Wyomissing, Penna.
Wyomissing Nurseries Co.

Iberis Gibraltarica

THE white evergreen hardy Candytuft, Iberis sempervirens, is well known and decidedly popular. It is not, however, nearly so beautiful a subject as the rosy Lilac I. gibraltarica which is a later but much more persistent bloomer. In the rock garden here last summer and fall more visitors admired this colored Candytuft than almost any other plant we had. It is very easily raised from seed and if this is sown during the winter the seedlings will many of them bloom late the following summer. It is a more rapid grower than the white Candytuft and year old plants 12–18 in. across are not at all unusual. These evergreen Candytufts have come through severe winters in good condition although often with very little snow protection and great depth of frost in the ground. The foliage needs covering especially in late winter when frosty winds and sunny skies are liable to burn it. For this purpose a light covering of leaves held in position with pine or spruce boughs will be found effective.

W. N. C., *Mass.*

Honeysuckle Hedges

WE SAW a fine Honeysuckle hedge on a neighbor's place. Nothing would do but that we must have one. We had plenty of the shoots from which an abundance of plants were available. Transplanting was a short job. The plants grew finely. A few stout posts and some heavy wire formed good supports. The plants grew and grew—and kept on growing till they threatened to overrun the whole plantation. It was a constant fight to keep them within bounds. Even the neighbors objected, for the trailing shoots were impartial in their direction of growth. We hadn't counted on such redundancy as this, so we took the bull by the horns and ripped everything out. Had we planted some of the upright or Bush Honeysuckles, we wouldn't have had this trouble. Oh, yes! Honeysuckle makes a fine looking hedge, but other considerations must be taken into account, sometimes.

F. H. V., *N. J.*

Primula Malacoides

ALTHOUGH not usually classed as one of the hardy primroses, European growers have found that this most popular and decorative greenhouse species withstands a considerable amount of cold. To test its hardiness in New England I planted out some seedlings in well drained pockets in a rockery late one summer. These were given a coating of dry leaves after the first sharp freeze, over which some hemlock boughs were laid. When uncovered early the following April all foliage had died away, but new leaves and some flower spikes soon started to push up. Surely this proves that P. malacoides is less tender than many of us had imagined, for during the winter in question we had minimum temperatures here of 15 to 20 degrees below zero and several days during January and February the thermometer did not reach the zero mark.

W. N. Craig, *Mass.*

Babcock-Lasher Formula

IT WILL be recalled that great things were expected from this formula as a remedy for the Rose bug, the combination of fish oil soap and crude carbolic acid being said to be particularly effective (it might well be repugnant to it). Some of our readers have reported its use as unsatisfactory; others state it lives up to the claims made for it. Have any other readers any further report to give?

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About Thinning Fruit

IN READING back through some old GARDEN MAGAZINES I find in an article on p. 284, June, 1917, "apples, quinces and pears should not grow closer than six to ten inches apart." I have two pear trees that are bearing the first time. Each tree has ten or twelve clusters with from four to six or even more pears growing. If I were to remove all but one there will be very few fruits left on those trees. Trees are ten years old. I have been accustomed to thin out the peaches about as recommended, but this year frost killed most of the peach buds and thinning will not need to be resorted to. What do you advise for my pears?

C. D. PECK, *Ohio.*

—In cases of this kind it is necessary to take a more than immediately local view of the cluster. For instance, before my window as I write is an apple tree, with but three apples set on it, and these close together. They all will remain on. The total number of apples on the tree in relation to its size and age, and its probable root area, the total number on the limb with reference to its length from parent branch, its size, its position on the tree, and it's "personal" leaves, also must be taken into account. The rule of three times the diameter of the ripe fruit for distance between is as good as any rule can be, but it will not cover all conditions. If the tree has a fair set of fruit, it is all right; if not, it must be modified. Possibly the number and size of the leaves growing from the stem that holds each fruit should govern, next after the size of the limb itself. To show the importance of these leaves, I will tell you that when cedar rust attacks foliage severely, as for instance the York Imperial and Ben Davis apples in Virginia, its first effect is to stunt and otherwise retard the functions of the bunch of leaves at the base of the growing fruit specimens. *And when this occurs those fruits never get more than half size and never color up,* even though the skin is unblemished. If each of your fruits has a good bunch of leaves, and if the limb can bear the final weight, leave them on; if leaves are lacking or the weight is too much, take them off.

J. R. MATTERN.

A Wild Garlic Eradicator

WILD garlic is found growing from Massachusetts south to Georgia and west to Missouri and Mississippi. In Southern Indiana it has become such a scourge that the Experiment Station in that state has taken up the question, and after several years' work has found a cheap and efficient means of eradicating the pest. And though it is to the farmer, especially the dairyman, that its annoyance is greatest, the gardener likewise finds it a nuisance.

Fall plow the infested land. This encourages the growth of deep buried bulbs. The following spring while the growth is young and tender—before the little bulblets are formed on top of the plants—the field is sprayed with orchard heating oil. In Indiana the most favorable time for this work is the last two weeks in April. Warm, quiet days should be chosen on which to do the work as cold retards the action of the oil and the wind blows it away. Use the oil liberally; at least seventy-five gallons to the acre are required. Although the price of oil fluctuates, the cost of material will probably not run more than four dollars per acre. Having allowed the land to stand idle for three weeks to permit the bulbs to rot, a late crop can be planted. The oil does not in any way injure the soil or prevent plant growth.

HAROLD CLARKE, *Pennsylvania.*

The Modern Gladiolus

THIS is to inform my friends and the expected new customers, who will be my friends, that my new catalogue of gladiolus bulbs is ready and will be sent out to all who send request. I aim to keep up with the procession, and offer all the best tested varieties of this most popular flower, and I offer some new sorts, which are highly recommended, for us to try this year. After cutting out a number of old sorts the list still contains about 125 named ones, besides choice mixtures. Retail only—wholesale list withdrawn.

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Always mention the Garden Magazine

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The "Perfection" Cultivator kills weeds, aërates the soil, conserves moisture. Can be adjusted many ways and anybody can work it. Write for full details to-day.
Satisfaction guaranteed or money refunded
Two sizes
$4.50 each
No. 1, with two discs with 6 inch or 7 inch knives, will work rows 9 to 11 inches wide.
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The last word in Strawberry Hybridization. The wonder Strawberry of the century. Perfect flowering variety The greatest producer known. Pot grown plants. 12—$2.50, 25—$4.50, 50—$8.00, 100—$15.00. Illustration one-fourth actual size.

Beal. Greatest producer under severe conditions. The sensation of last year. 25—$3.00, 50—$5.50, 100—$10.00.

Standard varieties such as **Barrymore, Marshall** and **Sharpless,** 100—$5.00, 1,000—$45.00. Circular on request.

WILLIAM M. HUNT & COMPANY
148 Chambers Street New York, N. Y.

Why Not Grow Fruit in the North?

SO much has been written of the abandoned farm with strong emphasis upon the scenery as its chief asset, that people are coming to think that New Hampshire is good for holidays and summer residents only. I do not dispute the charge that much of the land is run out but I do assert that fruit can be grown, for we have done it.

This "farm" lies in Carroll County where we are sheltered from north and west winds by the lower range of the White Mountains, and here are to be found the conditions that contribute to successful fruit growing in any locality:—a porous well-drained gravelly loam with a subsoil of clay and snows to the depth of from three to five feet which protect the roots from freezing. They lie from November into early April, and in melting saturate the ground to a great depth. The spring season does not open until late April or May which retards a premature burst of fruit buds; and the gradual warming of the earth is followed by a moderately cool summer temperature that allows fruit to mature slowly without burning.

We acquired one of these sites for the sake of its scenery. There were a few old apple trees representing half a dozen varieties of no particular value, and in a neglected state. These were grafted over. Down by the sea coast it had taken a reclaimed orchard twenty years for grafted limbs to bear; but here they began to fruit in five years.

Every year witnessed the setting out of a few new trees: plums, pears, quinces, cherries and even peach trees. The light gravelly loam reinforced with wood ashes and bone dust seemed equally favorable to all, and they are now in full bearing. During these years we have not lost a crop from late spring frosts.

The peach crop begins to ripen by the middle of August, and with early, medium and late varieties continues to bear until late in October. We have had on our table at Thanksgiving fresh peaches from native seedling trees, gathered after the first autumn frosts, and ripened artificially in drawers. These trees began to bear in four or five years; and, instead of dying at the age of ten or twelve years, are going strong twenty-one years later!

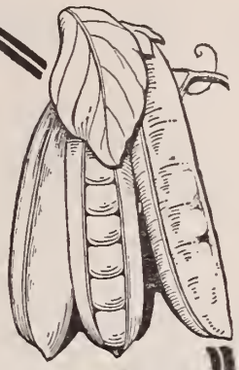
What one man has done for pleasure others might do on a still larger scale for profit. Why go out to Oregon, Idaho, and Wyoming to plant fruit trees when New England has idle cleared land and provides favorable conditions for every variety of fruit, and throws in a home market and civilization to round out the bargain? We feel almost like pioneers in this old settled part of the country; for people stood around and said fruit could not be raised in so stern a climate!

Our plums and pears have a richness of flavor impossible in a hotter climate where fruit makes a rapid coarse growth.

When I reported to the peach expert at Washington, D. C., that our peach trees were not only unhurt during a winter when the thermometer went to 35 to 40 degrees below zero in our vicinity but were actually in bearing, he could scarcely believe it as old and tried orchards throughout the South were ruined, and farther north the fruit buds were injured, though the trees were still alive. He said that Early Crawford, for example, could not withstand 12 degrees below. Our Early Crawfords then in their twenty-second year not only lived to refute the statement, but had the hardihood to bear so heavily that the branches were propped as usual. So much for the advantages of a late cold spring

(Continued on page 78)

It Pays to Plant the Best



It is easy to plan tasty meals when you have an abundance of crisp fresh vegetables right at hand. Give mother and the girls the benefit of an extra good garden this year. Plant it with "Gregory's Honest Seeds;" they can be relied upon to grow and come true to type. All Gregory Seeds are tested for vitality. Many are special strains perfected on our own seed farms.

Send for FREE Seed Book

You'll enjoy looking over our 1920 Seed Book; it's so straightforward and dependable. Each of its 80 pages contains information of value to gardeners and flower lovers. The Planting Table (p. 59) will help you to order just the right amount of each variety.

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cheap enough to use them by the thousands. Send for my Beautiful Free **BOOK, HOW to GROW BIGGER, BETTER and EARLIER CROPS** than you ever had before. It gives you gardening information found in no other publication. It tells you how you can have a garden with flowers in full bloom and vegetables for your table a month earlier than you ever had before. Just drop me a postcard and I'll send you your copy by return mail.

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Try them in your own garden, in a partially shady spot, for they are equally at home in the **Border** or **Rock Garden.**

Wolcott's for Hardy Plants

We are offering a very choice strain of **Japanese Primrose.** Rich crimson blossoms, in whorls, on stems nearly three feet high. The effect is extremely gorgeous. Large, field grown plants, $2.50 per dozen.

Also hosts of other very choice varieties of **Hardy Plants,** unobtainable elsewhere in this country, for both the **Hardy Garden** and **Rockery.**

Catalogue free.

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The Most Beautiful and Rare American Evergreen

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A fine stock of smaller specimens from 1 foot up at my *Boxford Nursery*. Catalogues.

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HARDY AMERICAN PLANTS

GRANT M. OVERTON'S

MERMAID

WHAT the sea brought—and took from the lives of a Long Island coast town. A beautiful love story and a mystery that is sea-deep.

At all bookstores *Net, $1.75*

DOUBLEDAY, PAGE & CO.

(*Continued from page 77*)

climate where nothing starts until the weather is settled.

I hear someone ask: "Do you have all the usual pests?"

Yes, pretty much all of them, if the exact truth be told. No place this side of Labrador is free from them, and the only reason that is exempt is that fruit trees do not flourish there. We do not have San José scale nor the gypsy moth. But it is no great hardship to play a hand sprayer on trees. One must have a legitimate excuse for pottering about out of doors, and pests afford a healthy exercise without hard work.

The best part of an orchard is that it is self-supporting to a large degree. Once planted, occasionally plowed and harrowed, and fertilized from time to time, trees take care of themselves most of the year. They do not have to be bedded down at night, fed three times a day, and carried over six idle months of the year on an expensive diet. They represent a summer crop that leaves you free the remainder of the year after it has been marketed within a few miles of where the fruit farm lies. In our immediate vicinity there are perhaps forty families whose summer homes range in value from $2,500 to $50,000; yet all their fruit is shipped up from Boston markets, and sold at prohibitive prices; and it is largely so all over the State. It is time that the far North began to raise its own fruit, especially peaches; for no fruit suffers so much when picked before it is ripe, and mellowed, not ripened, en route.

H. R. Albee.

A Word About Watering

ONE of the vexing problems that the gardener has to solve during the summer months is the question of watering. When should plants be watered? How much should they be given? Should the applications be small and frequent, or copious and at considerable intervals? While opinions may continue to differ on these points, it will not be amiss for me to give my experience with the wisdom of watering plants in the garden.

I believe I have tried every kind of irrigation that has been devised, and in almost every kind of weather. It would be useless to go over the various experiments. But the conclusions reached have been as follows: Never water in the summer unless the plants show by their foliage that they are sorely in need. . . . Remember that a good dust-mulch, which conserves to the plant the moisture from sources deep in the soil, is better than a surface-watering—that is, a powdered surface, however dry, is preferred to a wet one. . . . A copious watering is the one to be given, and it should be infrequent. . . . Frequent sprinkling invariably inclined the plants to expect moisture from that source; therefore, with something that seems like intelligence, they turned their roots upward. Plants that are not sprinkled will plunge their roots deep for what they seem to know the earth treasures for them. . . . A copious watering must be followed, as soon as the surface has dried sufficiently to be worked, by a careful pulverizing of the soil. . . . Remember to guard against developing plants whose roots have been taught to come toward the surface for life-giving moisture. Such plants, unless watered daily, cannot stand a drought.

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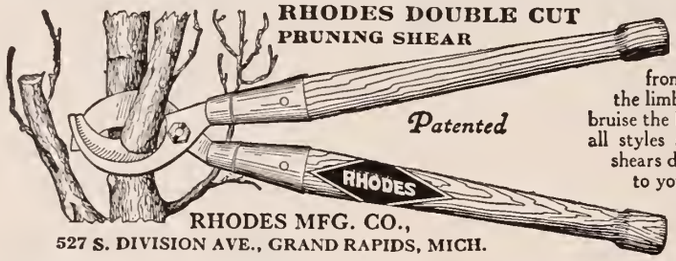

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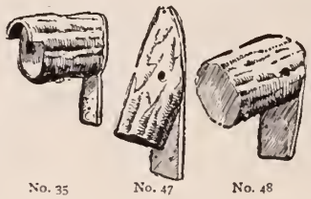

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LEONARD BARRON, Editor

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Hybrid-Tea Rose "LOS ANGELES"

The bulk of our Roses were field grown in 1919; then carefully dug, planted in pots and stored in cold frames. Under this plan the stock is strong and ready to start blooming, and much superior to stock forced by high temperature.

Four Great American Everblooming Hybrid-Tea Roses

LOS ANGELES—By all odds, one of the finest Roses ever introduced. Very vigorous and produces a continuous succession of long-stemmed flowers of a luminous flame-pink, toned with coral and shaded with translucent gold at the base of the petals. In richness of fragrance it equals the finest Marechal Neil. The buds are long and pointed and expand into a flower of mammoth proportions. Price, $1.50 each.

MRS. S. K. RINDGE—Undoubtedly the finest yellow Rose we have. A strong grower and its rich, chrome-yellow flowers as they mature, become suffused with salmon-pink. Price, $3.00 each.

MISS LOLITA ARMOUR—Strong vigorous grower and very free flowering. The unique coloring is a combination of tints difficult to describe, and absolutely distinct from all other varieties. The flowers are of large size, full double, with petals of great substance and delightfully fragrant. As the flowers expand they develop to a deep coral-red with a golden, coppery-red suffusion, the base of the petals a rich golden-yellow with coppery-red sheen. Price, $5.00 each.

WILLIAM F. DREER—For delicacy of coloring, differs entirely from any other variety, reminding one of the delicate tints of some water lilies. The flowers are similar in shape to Los Angeles, and like that variety, beautiful in all stages of development. Soft, silvery shell-pink, the base of the petals a rich golden-yellow which, at certain stages gives a golden suffusion to the entire flower, being particularly brilliant early and late in the season. Price, $5.00 each.

One each of this set of four California introductions for $14.00. All in strong two year old plants for immediate results.

New Rambler Rose

POUGHKEEPSIE—A double flowering "sport" of the popular Rambler Rose Hiawatha from which it has inherited richness of color, a brilliant ruby-carmine with just a touch of white at the centre of each flower, together with strong, vigorous, healthy growth with clean foliage which is immune from mildew. Price, $1.00 each.

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PAUL'S SCARLET CLIMBER—No other Rose in any class can compare with it for brilliancy of color, which is a vivid scarlet maintained without burning or bleaching until the petals fall. Flowers of medium size, semi-double, freely produced in clusters of three to six flowers each on much branched canes, the plants being literally covered with flowers from top to bottom. Strong climbing habit and perfectly hardy. Price, $1.50 each.

The Dreer's Dozen Hardy Everblooming Hybrid-Tea Roses

is revised each year to include the very best Hybrid-Teas for garden culture. This collection will furnish a constant supply of blooms throughout the summer and autumn—the best of every color.

GENERAL MACARTHUR—Flowers of good form, of a warm, rich crimson-scarlet, and delightfully scented.

DUCHESS OF WELLINGTON—Intense saffron-yellow stained with deep crimson, changing to a deep coppery-saffron yellow.

OPHELIA—Delicate tint of salmon-flesh, shaded with rose, very floriferous. Long, stiff stems.

MME. EDOUARD HERRIOT—Coral-red, shaded with yellow at the base, the open flowers of medium size, semi-double, are a superb coral-red, shaded with yellow and bright rosy-scarlet passing to shrimp-red.

LADY URSULA—A delightful tone of flesh-pink, delicately tea-scented.

LADY ALICE STANLEY—A beautiful shade of coral-rose inside of petals shading to flesh-pink.

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CAROLINE TESTOUT—One of the most popular bedders. Bright, satiny-rose, very free and fragrant.

Strong two year old plants for immediate results. $1.00 Each $10.00 per Dozen $75.00 per 100

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Besides illustrating Roses for every purpose, it is the best guide for your Garden. Its articles for both planting and caring for Flowers and Vegetables were written by experts. The varieties listed are dependable in quality and germination. It is quite as much a Garden Book as a catalogue. Free if you mention this publication.

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Gilson Weeder

The greatest boon to make young America enthusiastic gardeners! A five-year old boy can handle it easily, correctly and do lots of good work more quickly than a man can do with an old-fashioned hoe. This is no advertising "catch phrase" but *a fact!* The Gilson Weeder Hoe comes in four widths of blades, with convenient rake on reverse side At reasonable prices at all Gilson Dealers or direct from us.

The Liberty Cultivator Weeder

conquers labor troubles in the garden. Everybody just *loves to push it!* The older children (from ten years up) fight about it. Seven sturdy, scientifically shaped cultivator teeth make short work of weeds. Attached to a frame easily adjusted for height, it is the lightest and yet strongest wheelhoe on the market. Will give years of splendid service at minimum cost and serve as a mighty stimulus to better gardening.

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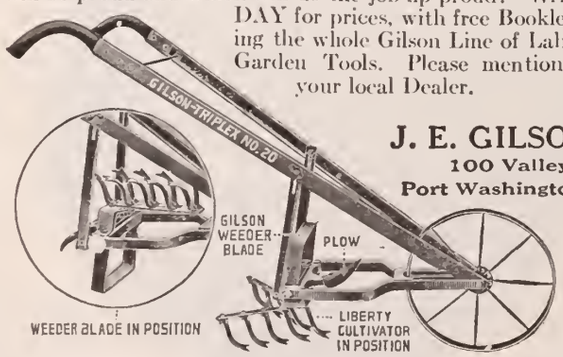
is the combination of the Gilson Weeder Hoe with a nine tooth Liberty Cultivator and a strong plow, all on one pivot axle easily shifted by hand. No tools required, no fussing about with wrench or bolts! Metal construction throughout—a tool of which you will be proud and which will do the job up proud! Write us TODAY for prices, with free Booklet describing the whole Gilson Line of Labor Saving Garden Tools. Please mention name of your local Dealer.



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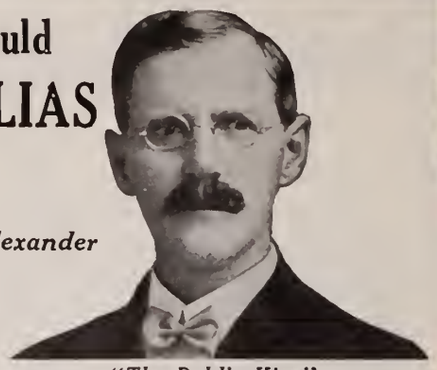
"The Dahlia King"

—By J. K. Alexander

FEW flowers there are which so completely captivate a garden lover's heart as the Dahlia. I speak from experience, for a quarter century of watching and growing and studying this ever-changing wonder of the floral kingdom has seen me learn to almost worship its many-sided charms.

But those of you who, as yet, do not know Dahlias as I do, will want to have some real reasons, some facts instead of fancies, as to why the Dahlia should rule supreme in *every garden*. That, by the way, is only my own view but it absolutely expresses my sincerest conviction.

The greatest charm of the Dahlia is perhaps its almost limitless variation of form, shape and colors. The changes from the old-fashioned stiff and ungainly type to the modern floral wonder we now treasure, have been so rapid, so surprising, so delightful, that even the initiated never fail to gasp at the boldness of nature in expressing her ever changing mood through the Dahlia.

The Peony-flowered type shown in basket below has won the hearts of thousands of gardeners who wouldn't look at a Fancy or Show Dahlia. Its bewitching charms are beyond expression in cold type.

Besides a great variety of forms, shapes, and color, we now have delightful fragrance in some sorts; there are early mid-season and late bloomers; all grow and bloom for anybody with less trouble than it takes to raise potatoes. I could go on singing the praise of my favorite flower for hours, but I would rather invite you to

Try Either or Both of these Collections

They are good ones, I promise, for it is their avowed mission to marshal new forces to the camp of all true Dahlia enthusiasts. Once their charms "get you," no persuasion is needed to hold you in line. Try these —your money back if not satisfied:—

FIVE CHOICE DAHLIAS FOR $1.00 PREPAID

Ella Kramer (Cactus) Rose-pink free-flowering.
J. H. Jackson (Hybrid Cactus) Giant deep maroon.
Mina Burgle (Decorative) Finest scarlet-red, free-flowering.
Queen Wilhelmina (Peony-flowered) Fluffy pure white.
Stradella (Show) Double quilled purple-crimson.

SIX GORGEOUS PEONY-FLOWERED DAHLIAS FOR $2.00 PREPAID

As shown in the basket

Queen Wilhelmina, White.
Dr. Peary, Maroon.
Marie Studholme, Lavender, pink.
John Green, Yellow and scarlet.
Mrs. M. W. Crowell, Orange, yellow.
Madonna, White.

Our Catalogue is Full of Dahlia Lore

Gives notes on history, methods of cultivation; tells when and how to plant Dahlias, how to fertilize, and care for the plants, how to stake, prune, how to gather flowers and display them. Worth any garden lover's time. Your free copy awaits your postcard request.

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Look for this on every board or bundle offered as Cypress. It identifies the TIDE-WATER product, the true "Wood Eternal."

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The Cypress "Pergola-Garage"

Why should a garage be homely? This one isn't. (Is it?)

The man in front is the owner. He looks well satisfied with the fact that he has enhanced the beauty of his grounds at the same time that he has protected his car.

The picture shows how *your* garage may look if you will allow us to send you, with our compliments, and with no obligation at all, the

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including full specifications—enough for any good carpenter to build from. Perhaps you enjoy such work yourself. If so, you can't go wrong.

It might even be possible to remodel your present garage on these lines. If you do so, of course you will know what kind of lumber to buy. "If you build of Cypress you build but once." You know "the Wood Eternal" is the champion pergola lumber—does not tend to shrink, swell or warp like so many woods—takes paint and stain beautifully, but *does not need either*, except for looks—lasts and lasts and lasts and lasts without them. (See U. S. Govt. Rept., reprinted in full in Vol 1, Cypress Pocket Library. Just mention that you'd like this book, also.)

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We know the specific plant material that will accomplish big results at minimum cost. Your money invested in Smith Landscape Service will secure, without extra charge, the benefit of our 30 years' experience of building pictures with plants. An inquiry as to our methods incurs no obligation. We go anywhere for business.

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A Garden Full of Gladioli for $1.50

The Gladiolus is one of the most satisfactory flowers grown and there is no reason why every family cannot enjoy this grand flower—it is as easy to grow as the potato.

Bloom from July to frost if you plant a few bulbs each month from April to July.

For **One Dollar and Fifty Cents** we will send **50 Bulbs** of our **Grand Prize** Mixture, which covers every conceivable shade in the Gladiolus kingdom.

Each year we sell thousands of these bulbs and receive numerous testimonials as to their merits.

Order Your Bulbs Now, so as to have them to plant when you begin making your garden.

Simple cultural directions with every package

Mail this advertisement with Check, Money Order, Cash or Stamps, or present at our store and secure this splendid collection, sent prepaid to any point in the U. S. east of the Mississippi. **For points West and Canada add 25c—($1.75.)**

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There is a real treat in store for the Garden Magazine reader for whom one-hundred days of growing weather and a moderately fertile soil will combine to produce the greatest delicacy known to the connoisseur. Young, fresh thin-skinned limas that will literally melt in your mouth are borne by

Holmes' Green Prolific Pole Lima

So prolific are the plants that a few dozen hills will bear an abundance of large beans of finest flavor,—no exception. Because of the sturdy growth of this variety, we suggest planting only two or three beans per hill so that a pound of seeds will go far enough to provide any home garden. *Price.* Pkt. 10c.; ½ lb. 25c.; *1 lb. together with a packet of Holmes "Green Top" Quality Beet for 50c. postpaid*

Holco Quality

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A modest 96 page book in which we present in absolutely unbiased fashion, the recognized leaders among American vegetables and flowers. In less than a decade, by rendering conscientious service, we have built a reputation on the basis of that quality which Garden Magazine readers seek in all merchandise. The choicest for your garden is awaiting your call here.

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We have all kinds of Hardy Ornamental Nursery Stock—Evergreens, Trees, Shrubs, Vines, Roses and Everything for the Hardy Flower Garden.

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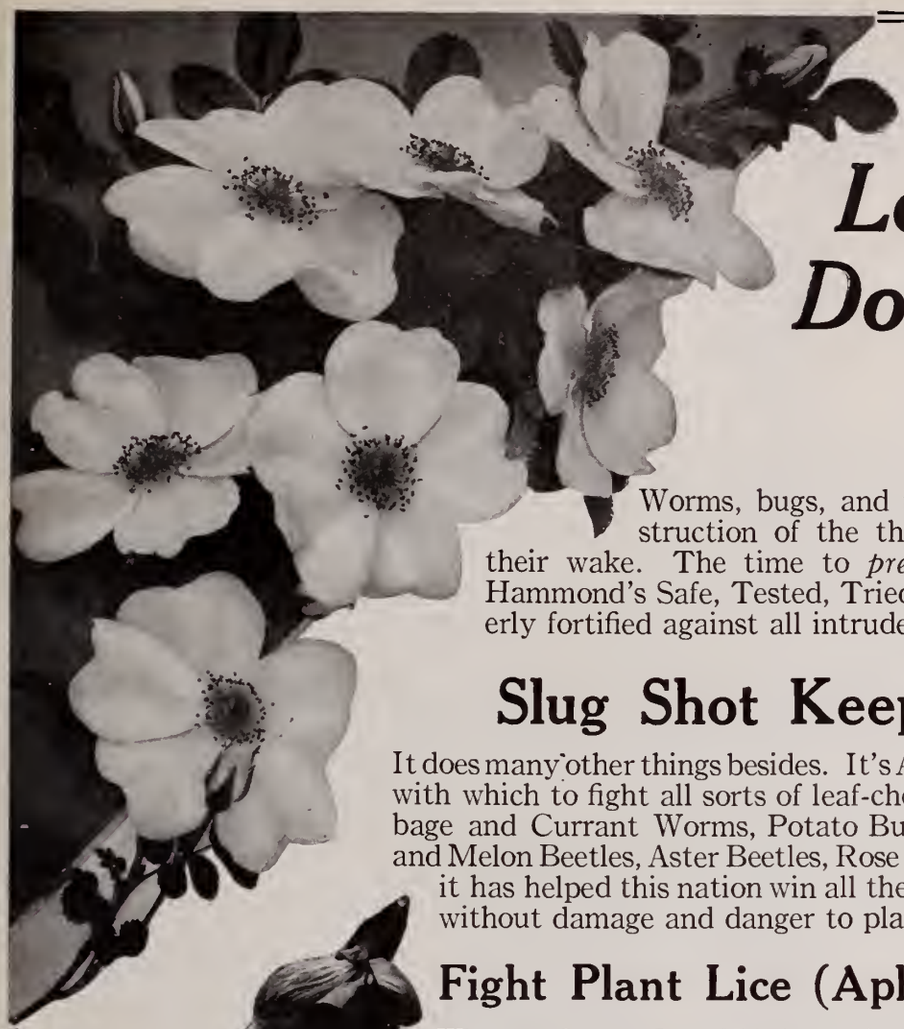
CATALOGUE ON REQUEST

Put Your Garden Problems up to us. It will be a pleasure to assist you in making selections.



Rose Lovers— Don't Give them a Chance!

Worms, bugs, and insects recognize no treaties. Wanton destruction of the things you love best in the garden follow in their wake. The time to *prepare* defense is *NOW*. With the help of Hammond's Safe, Tested, Tried and True Insecticides, your garden is properly fortified against all intruders.

Slug Shot Keeps Off Rose Bugs

It does many other things besides. It's America's foremost remedy with which to fight all sorts of leaf-chewing insects such as Cabbage and Currant Worms, Potato Bugs, the Striped Cucumber and Melon Beetles, Aster Beetles, Rose Bugs, etc., etc. Since 1880 it has helped this nation win all the battles with these pests—without damage and danger to plants, human or animal life.

HAMMOND'S SLUG-SHOT 1880 1911 USED SINCE 1880 AN INSECTICIDE FOR GARDEN USE

Fight Plant Lice (Aphis) with Thrip Juice

Where a *Contact Insecticide* is required to do *quick* work, Thrip Juice No. 2 will fill the bill in one-hundred point fashion. It *penetrates* quickly and effectively, disposes of such pests as Aphis, Red Spider, Mealy Bugs, White Fly, etc., etc. No remedy we know surpasses it in effectiveness among trees, plants, and shrubs, under glass or outdoors. Wherever a contact insecticide is required to bodily kill pests *instantly*—there use Thrip Juice No. 2.

Hammond's *Safe* Remedies used from Ocean to Ocean

The *intrinsic* value of all Hammond Insecticides has been responsible for the fact that, with but little publicity, its use has spread to the farthest corners of this continent. Constantly we have tested and tried new combinations, new ways of disposing of old enemies. Hammond's Slug Shot, Thrip Juice No. 2 and Grape Dust Copper Solution and Concentrated Bordeau are leaders in effectiveness and value.

"Insects and Blights"

now published for thirty-seven consecutive years, is a modest twenty-four page book which has been the standard advisor of American home-gardeners on the subject of fighting blights, bugs, and plant diseases. A thoroughly practical manual, every line of it dictated by experience, it deserves a place in every home garden library. Send for your copy—a post card will do.

Hammond's Paint and Slug Shot Works

Beacon **New York**

Hammond's Famous Gold Medal Insecticides

are sold by seed dealers and merchants throughout the United States and Canada. Ask yours or write us.

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HAMMOND'S GRAPE DUST 1886 1886 A SURE PROTECTION FOR POWDERY MILDEW TRADE MARK

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World's Choicest ROSES Grown In America

Ask for Catalogue

Plant a Garden of Roses

The spot where fragrance, beauty and sentiment reach their climax—where the appeal of the garden is strongest.

American Grown Roses for America

Our formal trial garden contains five thousand bushes in two hundred and fifty varieties, and 50 acres are devoted exclusively to the growing of our vigorous, hardy, homegrown rose bushes of every class, and yet roses are exceedingly scarce, so

Place your Order Immediately

Arrange for the general planting of such items as
EVERGREENS—TREES—SHRUBS—PERENNIALS

We have a most complete collection of all plants.

RUTHERFORD
New Jersey

The Garden MAGAZINE

Vol. XXXI, No. 2 — April, 1920

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Gillies, Photographer

WELCOME IS SUCH SHADE AS THIS AND SUCH A VISTA AFTER THE GLARE OF FULL SUN ON A HOT DAY!

Allowed to evolve naturally and individually, every type of architecture will develop structures that express, in terms more or less rigid according to the function of the structure, its inherent spirit—as witness this unusual pergola in the garden of Mr. J. S. Poole, Detroit, Mich. (A. W. Chittendon, Architect)

APR 5 1920

J. Horace McFarland Co., Photo

A LIVING PILLAR OF FIRE, WITHOUT EXCEPTION THE FINEST ROSE OF ITS TYPE IN THE WORLD—THE CLIMBING ROSE EXCELSA

This superlative achievement of the hybridists' skill is a combination of every good quality of the Crimson Rambler with elimination of its every fault, and justly brought its originator, M. H. Walsh, the first award made of the Mrs. Gardiner Hubbard Medal which is given every five years for the best American Rose produced within that period

Mattie Edwards Hewitt, Photographer

HERE WHERE THE ASCENT IS LOST IN GLOOM OF OVERTOPPING PINES BROODS THE STILL MYSTERY OF A TEMPLE PATH

A motif at Uplands, residence of Mrs. Frank D. Frazier, Manchester, Mass., which invites Japanesque treatment with its cunning art that conceals art in the natural planting of Dwarf Pine, Leucothoë, Xanthorrhiza, Funkia, Kalmia, Rhododendron, Pachysandra, Ferns, and the lovely Lilium regale

PLANT BRIEFS

Crocuses. Among the earliest of the spring bulbs are several of the Mountain Crocuses showing up bravely even though they may sometimes be temporarily downed by a belated snowstorm. Some of the best are C. Sieberi from the mountains of Greece, with flowers of bright lilac diversified with an orange base; C. Susianus, the Cloth of Gold Crocus, a variable species from the Crimea; and C. vernus, a native of the Alps, Pyrenees and other European mountains. Its flowers, even in a wild state, vary from white to purple.

Bulbocodium Vernum the spring Meadow Saffron, is a friendly visitor in the early spring. Found wild in the mountains of Europe and Russian Asia it is inclined to burst into growth before the American spring really opens. It has rosy purple flowers which resemble those of Crocus, and they appear before the leaves, which fact serves to clearly distinguish it because the Crocuses push up their leaves in quick succession to the flower. Its pink color strikes an unusual note early in the season.

Erica Carnea is the Alpine Heath, an evergreen flowering shrub attractive throughout the year. In order to be in good time for the spring opening, it produces its flower buds the preceding fall, and ordinarily, if fairly favorable weather prevails, they open about the middle of March. The flowers are red in the type but there are several varieties, including one with white flowers. Erica carnea is one of the hardiest of the Heaths and quite easy to grow. It is not particular as to soil, providing it is free from lime, but prefers a sandy loam containing a good proportion of decayed leaf soil. It can be propagated easily by dividing old plants immediately after flowering, or by seeds and cuttings. As soon as the plants have finished blooming the flowering stems should be clipped off to prevent them from becoming straggly, and to promote floriferousness.

"The Best" of anything must always remain more or less a matter of individual judgment based on personal preference; and governed by the extent of the judge's acquaintance with related plants—to say nothing of a special point of view. None-the-less it is always of interest to consider the standards as set up by those who have the right from experience, to speak. Hence it will be worth while to go over the list of the "best 12 varieties of hardy plants" as given by the late Mr. Perry of England, well known the world over both as a connoisseur and dealer in herbaceous plants. Because of Mr. Perry's rather frequent comment that the plant in evidence was "one of the best 12 varieties of hardy plants," an enquiry was addressed to him by Mr. Frank H. Presby of Montclair, N. J., asking for the complete dozen. Here it is: Arenaria plantaginea gigantea; Chrysanthemum Robinsoni; Erigeron intermedium; Eryngium Oliverinum superbum; Helenium pumilum magnificum; Heuchera sanguinea Walker's variety; Galega Duchess of Bedford; Geum coccincum pictum; Gypsophila paniculata plena; Phlox canadensis Perry's variety; Scabiosa caucasica; Veronica longifolia subsessilis. Some of these or their practical counterparts are quite popular in our gardens, while some are possibly quite unknown and now cannot be introduced by direct importation. This list was made up some few years ago, and might be subject to some changes now, it is true; yet the list holds up well to-day indeed, and, at any rate is interesting as a starting point for a possible discussion.

Morus Acidosa is a new Chinese Mulberry introduced in 1908 by E. H. Wilson. It differs from the popularly known members of the family in being a bush of a somewhat straggling nature some six feet high. The fruit is not large but is freely produced and its sub-acid briskness is welcome on a hot day in July. This newcomer is likely to become a really popular plant wonder the next few years and it is being offered already by some nurserymen. As a fruit tree for the children and for the birds Morus acidosa makes a strong appeal; it is quite hardy in the north, and has no strong preferences as to soil.

Cultivated Blueberries are not as yet widely grown because the supply is sharply limited although selected plants are being offered in some catalogues this year; and again few people appreciate the differences between the improved and wild forms. Yet a moment's consideration will lead any one to realize the great saving of labor in gathering large berries instead of small ones. Fifty dollars was offered for a Blueberry or Huckleberry bush with berries as large as a cent ($\frac{3}{4}$ inch) in diameter, the plants being needed to cross with others already in hand in New Jersey. No berry of the required size was sent in last year we are informed, but $25 was paid for a plant from Quebec with berries of $\frac{5}{8}$ inch diameter. Any one interested in hunting for the prize plant may address Miss Elizabeth C. White, New Lisbon, N. J.

Tausendschoen Rose is likely to hold its own as a climber for both garden and greenhouse culture for some time to come—indeed there is not a rival in sight. Not the least attractive quality is the many shades of color that the buds and flowers simultaneously display. In the heat of your garden in mid-summer this range of color is not seen usually, because of the bleaching by the sun's light and heat, but when grown as a pot plant for indoor forcing earlier in the season, with less heat and more shade the rich variety of color from the practically white fully expanded flower to bright crimson in the youngest bud is fantastically beautiful. Outdoors something of this may be approached when the long canes are trained over cross pieces of some pergola or arbor and the opening blooms in the partial shade take on the richer hue.

Leiophyllum Buxifolium is one of our native dwarf evergreens that would seem to have sufficiently attractive qualities to be more generally brought into cultivation. It has been used to some extent by one or two landscape architects in search of a dwarf hardy evergreen for light sandy soils in places on the eastern seaboard exposed to the full strength of the sun. Collected plants from the pine barrens of New Jersey (whence it extends southward to Florida) being their reliance. It is known also as Dendrium buxifolium, or popularly as Sand Myrtle. The plant varies greatly in height—from six inches up to three feet, but generally around $1\frac{1}{2}$ to 2 feet. It is really a charming subject having smooth shiny foliage all the year while in spring it is covered with small white flowers. The plant bears a strong resemblance to a small-leafed Dwarf Box but somewhat less compact. As an edging shrub for evergreen plantations, or for introduction into rockeries it has distinct value. So long as the soil is free from lime the Sand Myrtle will grow in peat, sand or loam and it is accommodating as to exposure, growing in both sun and shade.

John Cook of Baltimore whose achievements in productions for either greenhouse or garden alone would have made him famous. But he did both

ROSES REMADE FOR AMERICA

J. HORACE McFARLAND
Editor, *American Rose Annual*

And the Men to Whose Skill We are Indebted for the Romantic Outcrop of Home Introductions Which Have Reached a Climax and Become Available at the Very Moment That Foreign Sources of Supply are Cut Off

"Gurney" Hill, of Richmond, Indiana, originator of this year's lovely prize Rose Columbia and the man who tests commercially every Rose produced

TRULY American Roses have not been "popular," or in general use, in America until recently. The native species, growing wild in lovely luxuriance in their natural haunts, are less well known to the average American than such exotics as the Chinese rugosa and Crimson Rambler, the Japanese multiflora and wichuraiana. The garden forms, too, have been prominently of foreign origin, as witness the 1917 official list of the National Rose Society of England (long the standard of reference in America), which lists but 19 American varieties in a total of 429, all of which, together with at least 500 more French, German, English, and Irish Roses, are in American commerce. We have taken our rose fashions, as well as our dress fashions, from abroad.

Not only has this been true as to the varieties of Roses for American gardens; but the very plants themselves have been extensively from abroad, being mainly "made in Holland," from which country there were imported in the six years of 1913-18 a total of 10,335,187 plants or more than 75 per cent. of the total of 13,736,292 from all foreign sources.

The much-disliked Quarantine Order No. 37 of the Federal Horticultural Board put a stop to this importation of Rose plants, save for an inconsiderable percentage permitted to trickle through difficult regulations "for trial and propagation purposes." America must now depend on her own resources for setting the scenery of the annual court of the Queen of Flowers, held outdoors in the eastern, middle and north Atlantic states from mid-May until mid-October, with the "grand entrée" in the June month of Roses.

This dependence on home production of varieties may not prove an unmixed disadvantage, for it ought to force us to produce Roses better suited to American climatic conditions than those coming from Europe. Our needs in this direction are made manifest constantly in the correspondence of this office. Within one recent week, a letter from Texas and another letter from Kansas have urged the establishment in the semi-arid regions of the United States of such a Rose test-garden as would determine the real value there of Roses in commerce. We must not lose sight of the fact that the people of the hot plains, where dry farming is of necessity practised, have inherent in them exactly the same love of and desire for Roses as that which characterizes those who do the farming and plan the gardens in the relatively humid East and in the fortunate Oregon corner of the far Northwest, where the Rose seems most at home in America.

FOR five years a sedulous endeavor has been made to discover and record the name, parentage, year of introduction and name of introducer of every Rose of American origin, and the resulting list has been published in the successive issues of the *American Rose Annual*, issued by the American Rose Society. It is believed that this list is now, thanks to the untiring efforts of Mr. C. E. F. Gersdorff, of Washington, quite complete, including as it does the Rose results of more than a century in America. The 1919 list covered 428 names, a considerable number of which were mere "sports" of foreign varieties, or climbing forms of doubtful permanence. Of this number—not 10 per cent. of the European introductions of a single century—barely 150 varieties of American origin have survived long enough to be now in commerce, and the Roses of real importance among them will hardly equal the "threescore and ten" years of life assigned to even a rose-growing man.

Yet the American Roses that have "caught on," and especially those being originated and introduced now that the European Roses are hard to come at, are of notable value for America. Indeed, some of them are the admiration of our foreign friends, as I had witness a few days ago when

THE CLIMBING AMERICAN BEAUTY IS ALMOST TOO GOOD TO BE TRUE!

Of this Rose it is said that no matter how many you cut just as many seem to remain—and its hardiness is unquestioned

a letter from the Secretary of the National Rose Society of England carried a particular commendation of Excelsa, referring especially to a lantern-slide forwarded with others in fraternal greeting to the 1920 annual meeting of the English society by their American friends.

Certain men of America have done great work, and are continuing that work, in providing us with American Roses for America. This work is generally a labor of love, for while the producer of a variety that finds acceptance for cut-flower growing in greenhouses may obtain a moderate financial reward for his successes (I do not mention his failures), the hybridizer of garden Roses has to be content with deposits in the Bank of Glory, checks drawn on which do not pass current for food, shelter or clothing!

ALEXANDER W. MONTGOMERY, JR.

Of the second generation of craftsmen he deals especially with greenhouse Roses and is the producer of Hadley and Mrs. Charles Russell

THE American Rose Society, which is the national Rose organization of the land, and which is growing in breadth and vigor after twenty years of endeavor, has established a registration method for preventing the duplication of Rose names, so that the man who grows a new Rose can be protected to that extent in his property. Recently it has appeared that through the parallel thinking of Anglo-Saxon minds, American Rose names have been duplicated in England. For example, the Rose Victory was registered in the United States in 1918, in innocent ignorance of which the National Rose Society of England has, in 1919, permitted the same name to be attached to a very excellent Rose now going into commerce. It was because of this duplication that upon a recent application to register a Rose as General John Pershing, the Executive Committee of the American Rose Society postponed such registration until by correspondence it could be ascertained that no English or French Rose had been recorded with the same world-popular name. Out of this has grown a proposition to work out international coöperation in the direction of avoidance of duplication.

The Medals of the American Rose Society are the highest honors obtainable in America, and are cherished in consequence. Gold and Silver Medals and Certificates of Merit are awarded annually by the Society itself as marks of distinction and quality upon a difficult scale of points, of which it takes not less than 95 to merit the guerdon of gold and 85 to attain to the silver reward. Medals are also supplied to affiliated local societies, so that the opportunity to obtain this cherished honor is just as widespread as the occurrence of the Rose organization, which ought to be found in every progressive city in the union.

Once in each five years the Society awards the supreme honor, the Gertrude M. Hubbard Gold Medal, to "the raiser or originator of the best American Rose introduced within the five years previous." The Rose Excelsa, already referred to as being ad-

THE BEAUTIFUL, FRAGRANT, DARK RED HADLEY

Form of petal as well as of the entire Rose, texture, quality of stem, and quality of leafage, all must be considered and compared in judging

A NEW CONTRIBUTION TO CLIMBERS

Strikingly lovely are the dark red semi-single flowers of Dr. Huey, produced by an amateur and named for a distinguished pioneer amateur

The salmon hued Rose that came out of the West and is named for its native city, Los Angeles

A silver medal went to Radiance, which enjoys prominence in both the garden and the greenhouse

Of intricate ancestry is Mrs. Charles Russell and of great popularity as a cut flower

Distinguished by bearing the name of Dr. W. Van Fleet the most notable American hybridizer

mired in England, took this super-honor in 1914. It is a glorified and brightened Crimson Rambler, of better parentage, and growth and it has climbed its way right into the esteem of out-door-Rose America.

Excelsa is the product of M. H. Walsh, a half-century veteran who says, "Roses were my first love, and I still cherish them and am happy in growing and experimenting with them." To his credit are other notable hardy climbers that are better than the best Europe can send us: Hiawatha, Evangeline, Milky Way, Paradise, and many others. Particularly must be mentioned Mrs. M. H. Walsh, a lovely double white trailer which deserved and obtained a Gold Medal in 1911, and Lady Gay, which shares honors with Dorothy Perkins as being the best of the double pink Ramblers, at home and abroad.

A VERY different type of hardy Climbing Rose is notably exemplified in Climbing American Beauty (and the name is properly descriptive), Christine Wright, and Purity — the latter again a perfect, descriptive name. These large-flowered Roses have been sent out by Hoopes, Bros. & Thomas, and are the result of the vision of a famous botanist and nurseryman, Josiah Hoopes, who died in 1904, leaving in James A. Farrell an apt pupil to carry out his dream of better Climbing Roses. These Roses are a memorial, in consequence, to a great and lovable personality, and they are sturdily American. Both Climbing American Beauty and Purity have been given Silver Medals by the American Rose Society.

CAPT. GEO. C. THOMAS, JR.

His contributions as an amateur bid fair to produce something sensational

Another unique personality who is no longer with us has left his living, glowing memorials in our gardens, though all too few of us know and grow them. In my own collection of climbers, I get more deep pleasure, I think, from the early morning contemplation of the Sargent Rose than from any other. It is a Rose, and yet it is an apple blossom, raised to a higher power of dainty beauty. Jackson Dawson, who was for well on to two generations the uncannily successful propagator of all sorts and conditions of plants and trees from all over the world, as their roots, cuttings, or seeds were received at the Arnold Arboretum, believed he had done the best work of his life on the Rose which he named for his great chief, Prof. Charles Sprague Sargent—great enough as to man and Rose to be known by just one name—Sargent. By those men and women who look upon a Rose or any other flower without conventional prejudice and can consequently scan its beauty free from bias, Sargent has been repeatedly called "the most beautiful Rose originated in America." Of Dawson's other excellent roses, I might name the climber W. C. Egan, also named for a cherished and worth-while friend, and Arnold, a vivid crimson single flower which is completely distinct.

All the foreign Rose catalogues of to-day are sure to list American Pillar as a good hardy climber, with single flowers of unusual charm. I remember seeing the trial plant of it on the grounds of its introducers a dozen years ago, and then exclaiming at its combination of boldness and delicacy. Closer acquaintance has only in-

TO BE CHRISTENED IN JUNE

This Rose of Capt. Thomas is now designated simply as "4A" and is regarded as the possible forerunner of a new race from which great things may develop

M. H. WALSH
The man whose climbing Rose Excelsa was winner of the super-honor of the Rose world five years ago

creased my regard for its fine qualities, not the least of which is its peculiar blend of the East and the West in parentage—for it is a cross of the Japanese native Rosa wichuraiana with the American native R. setigera. This splendid and substantial Rose is the work of the most notable American hybridizer of the day, Dr. W. Van Fleet, now officially "plant physiologist" of the Bureau of Plant Industry in the Federal Department of Agriculture, but actually the potential Rose wizard of the western world.

This shy, retiring scientist won't talk about himself, or tell of his work of more than forty years as editor, investigator and plant breeder, but he will "open up" on Gladiolus, Chestnuts, and Roses, if you are the right sort of interlocutor. The Gladiolus has benefited by his skill, and he becomes really enthusiastic when he shows you the 85 per cent. blight-resistant Chestnut seedlings he has bred at his laboratory of plant wonders between Baltimore and Washington. Of course he will succeed in putting the Chestnut back into our forests, for he is only 15 per cent. from success now. And what has Burbank done in comparison to that!

But the Rose causes Dr. Van Fleet to smile—a slow smile of pleasure, of vision. He has under his hands now crosses with all the virile West China Rose species collected by the late F. N. Meyer, or brought in by E. H. Wilson and by him discussed in The Garden Magazine for June, 1913, and he is each year producing here in polyglot America Roses that are absolutely and hopefully new in parentage, flower, and foliage. They are "on the way" to the eventual true American hardy garden Rose, which must of course be a cosmopolitan Rose, made up just as we are of the best—and some of the worst—of all the lands under the sun.

In each succeeding *American Rose Annual* since 1916 have appeared Dr. Van Fleet's "Rose-Breeding Notes," which have much of the peculiarly fascinating quality so characteristic of the writings of E. H. Wilson. In the 1920 *Annual* are illustrated several of the wonderful new forms produced by Dr. Van Fleet, and he tells of the Hugonis and Moyesi and Soulieana crosses.

The officers of the American Rose Society are now making an effort to secure a means of distribution for Dr. Van Fleet's Rose originations which will more quickly and completely make them generally available. The conventional method of distribution by the Bureau of Plant Industry involves the propagation of a few plants which may or may not be applied for by those to whom the bulletins of this Bureau are sent. It is hoped now so to arrange that a larger propagation may be accomplished, that tests may be made in all of the recognized Rose test-gardens of the country, and that therefore progressive Rose-growing firms may have opportunity to obtain sufficient propagating material, as an exclusive possession, for a long enough term to permit the development and disposition of a large stock at prices only sufficient to cover the cost of distribution, plus a reasonable business profit.

Silver Moon (another properly descriptive name!), Alida Lovett, Bess Lovett, and the exquisite Rose named by the introducer for the originator, are all fine Van Fleet climbers. His work with the Rugosa type has also been valuable, as evidenced in New Century, Sir Thomas Lipton, and several other good sorts.

A HARDY climber that will bloom continually or repeatedly —an "everblooming" climber—has long been earnestly desired. I know of one electrical engineer who has set himself the task, as recreation from volts and amperes and watts, of producing it. While he has been working toward it, another very earnest, capable and persistent worker has seemingly attained the goal. Captain George C. Thomas, Jr., who for many years has tested, hybridized and discarded thousands of Rose-crosses, presents in the 1920 *Rose Annual* details and illustrations (several in full color) of certain Roses of semi-climbing habit, vigorous growth, good foliage and attractive single and semi-double flowers, which have bloomed on the wood arising from the previous year's growth, as with the conventional climbers, and also on wood of the current year, right up to the frost stop of late fall. It is the more pleasing that these Roses should be announced now, after their trial at Captain Thomas's superb gardens during his absence "flying in France" with the American Expeditionary Force. It is his belief that these varieties are the forerunners of a race as susceptible of development as have been other distinct classes or "breaks" in the Rose family. One of these Roses, "4A," received a Silver Medal in the tests at the well-managed Portland Rose-Test Garden in Oregon, as well as a special prize of the Portland Rose Society for "the best Rose for outdoor cultivation produced by an amateur." It will be formally named at the Portland Rose Festival in June. Another, Dr. Huey, not an everbloomer, is an exquisitely lovely dark red single beauty.

Captain Thomas has undoubtedly made a most important contribution of American Roses for America, and his critical work is continuing.

APPROPRIATELY NAMED PURITY
This lovely white Climbing Rose is a worthy memorial to its producer, the late Josiah Hoopes who gave us also the superb Climbing American Beauty

IN THE Tea and Hybrid-tea classes, particularly for the important use of all-year-round growing for cut-flowers, American hybridizers have, I believe, surpassed the European workers. With John Cook's first American Hybrid-tea Rose, Souvenir of Wootton, produced in 1888, there began an increasing procession of Roses on the way to the wonderful productions of the present. Cornelia Cook was a valuable "forcing" Rose, and Mr. Cook's other hybrids have proved very much worth while, several of them becoming great garden varieties. Radiance, which took a Silver Medal in 1914, has pervaded the gardens of the East, to their great advantage. To see five-foot bushes of it, as well shaped as a Spirea, laden with the lovely flowers it produces continually in the climate of its nativity—the vicinity of Washington and Baltimore—is to realize that it is a distinct asset to America. Following it came Panama, also taking a Silver Medal in 1915, and in the same group are the standard varieties like Francis Scott Key and My Maryland. Mr. Cook's "Glorified La France" was so named by reason of my burst of enthusiasm when I saw it in its home. Mrs. John Cook, a very beautiful white Rose is just now being sent out by a noted introducer. For sixty years of steady endeavor has John Cook continued in his work, differing from that of many foreign hybridizers in the significant restraint which has caused him to discard scores of seedlings which abroad would have been sent out.

In 1914 the notable qualities of the red Rose Hadley won for its originator, Alexander W. Montgomery, Jr., the American Rose Society's Gold Medal, and Hadley yet holds a very high place. Among the commercial men another Montgomery Rose, Mrs. Charles Russell, has a notable vogue, and is advantageously grown by the hundred thousand. It is interesting to read of its intricate parentage: "Mad. Abel Chatenay, Marquise Litta de Breteuil, Caroline Testout, Mrs. W. J. Grant, General MacArthur and three seedlings resulting from these crosses, are all combined to produce Mrs. Charles Russell," writes Mr. Montgomery. Just now coming through the quantity production stage for plants are two new originations of this grower — Pilgrim and Crusader—in which he has obviously yielded to the demand for heavier Roses, those with more petals, more "substance" than the heretofore popular Ophelia type. Crusader, an opulent, full, red Rose, is illustrated in the 1920 *American Rose Annual.*

© Ernest Crandall
DR. WALTER VAN FLEET
The Rose wizard of the western world

THE AMERICAN PILLAR ROSE
A blend of the East and West, this is one of the finest Climbers and shows wonderful delicacy as well as boldness

It is interesting to note the trend toward Roses of more substance. For awhile the informal beauty of the Roses with 20 to 30 petals appealed to those who bought them, and particularly pleased the florists, who found them to open more quickly and sometimes to produce more abundantly. Gradually, however, the taste is veering toward the more solid and substantial Rose with from 50 to 80 petals. It opens more slowly, to be sure, but there is more of it when it does open, and the open flower itself is, as in the case of Crusader, a glorious thing.

Milady is a preferred Rose by many cut-flower growers, and is the production of Edward Towill, who has other good Roses to his credit, as well as the idea of keeping on with hybridization. Mrs. Henry Winnett is a red Rose of merit, coming from John H. Dunlop, a Canadian grower. Hoosier Beauty, a standard red Hybrid-tea, comes from the state of poets and novelists as the work of Mr. Dorner. There are other incidental productions and many "sports" which show discrimination in selection, to the credit of American rose-growers. I have tried to touch the high spots only!

A PARAGRAPH is due to the Rose which came out of the West, captured the admiration of the garden makers of the American East, and, crossing the Atlantic, took the highest French honor in 1918, in the shape of the Gold Medal awarded for the best Rose growing outdoors in the famous Bagatelle gardens, near Paris. Los Angeles is the name, and Los Angeles the home point, of this notable Rose, the production of Fred H. Howard, a far-seeing and energetic hybridizer. The rich salmon-orange tints of the Pernetiana type are combined with softer hues, and with a delightful result in Los Angeles. Mr. Howard has other good Roses in commerce and coming, and it is well to keep an eye on the southern part of California, not only for new varieties but for the vast quantities of Rose plants which we may expect to be there produced.

The shut-off by Quarantine No. 37 has caused the Rose growers in the vinicity of San José to bestir themselves, and millions of cuttings and other millions of rooted plants are now in the ground in this favorable location. The whole of the Pacific Coast deals kindly with the Rose, from the obviously favorable conditions in the south of California to the inexplicably favorable conditions of Oregon. It is not yet certain that California can successfully provide varieties or plants particularly adapted to eastern United States. The climate along the western Pacific slope is far more nearly akin to that of the south of Europe than to that of the east of America. This is mentioned in reasonable caution, but in no sense in derogation of the vigorous American-

ism that lies back of the great Rose propagation movement now going on.

ONE name stands out preëminently among American rosarians. E. G. Hill, or "Gurney" Hill as his friends hail him, has lived with Roses most of his seventy-odd years, and he looks it! In his astonishing place at Richmond, Indiana, as he takes the interested visitor through what seem like literal forests of Roses, he fits the situation. It was Dean Hole who wrote, "He who would have beautiful Roses in his garden must have beautiful Roses in his heart," and no one who sees Columbia, Premier, Mad. Butterfly, Mary Hill and their yet unnamed sisters in the company of the creator of these varieties can have any doubt about the accuracy of the statement.

For a generation or more Mr. Hill has bought and tried all the Roses of all the world that seemed to him to have possibilities. He is known and loved in England, Ireland, and France among the brethren of the Rose, and his "scouting" has been as welcome as it was keen. In 1912 he saw in the Paul establishment at Waltham Cross, England, not only the beautiful bloom of the then just introduced Ophelia, but also its possibilities, wherefore he bought all he could get of it, and by his own methods and on his own high reputation put that great Rose to work for the Rose-raisers of America who grow the many millions of cut blooms annually demanded.

Then he took up Ophelia as the parent of a new race of Roses. With General MacArthur, Mrs. Theodore Roosevelt, Richmond, Rhea Reid, Robin Hood and other good Roses very much to his credit, with a ruthless discarding of seedlings having the least lack in his scale of points of perfection, he had experience, standards and ideals with which to use what has proved to be a peculiarly potent parent in that same Ophelia. With Mrs. George Shawyer it gave him Columbia; with an Ophelia seedling and Mrs. Charles Russell there resulted Premier. In each of these two notable Roses there was created a higher standard of sturdiness, color, beauty of form, petalage, foliage, endurance and prolificacy for the greenhouse Rose raisers.

Their success has been phenomenal; an inquiry of a hundred large growers producing annually an average of more than a million blooms each, showed that though introduced only three years ago, Columbia led all other varieties, and that Premier was quite important. Columbia has been awarded the Hubbard Gold Medal by the American Rose Society, marking for it the highest honors. Columbia, too, has broken through the greenhouse glass, and, as is fit and proper for her name, taken place as a great garden Rose. So this review of the producers of American Roses for America may fittingly close with the story of the Rose which, up to date, stands first and highest among all raised in our land, and a proper memorial to the sweet spirit and the genius of the man whom we all delight to honor!

THE RECIPIENT OF HIGHEST HONORS
Happily named is Columbia, the Rose that brings the medal of crowning achievement over a period of five years to Mr. "Gurney" Hill

THE LATE JACKSON DAWSON
Whose work at the Arnold Arboretum covered two generations and from whose hands many wonderful hybrids came

FRAGRANCE IN ROSES

From an article by Dr. Van Fleet in the *American Rose Annual* for 1919

AGREEABLE fragrance is one of the most valued attributes of the perfect Rose, though many indispensable species and varieties do not possess it in marked degree, and not a few are either odorless or even distasteful to the sense of smell.

The wild Roses of North Europe mostly have faint fragrance or are scentless and the same may be said of our Middle West and Pacific Coast species, though there are a few exceptions in the extreme Northwest. R. setigera, the scentless Prairie Rose, is a characteristic example of the lack of fragrance of the Rose species of our interior country.

The violet-like odor of R. Banksiae may be mentioned. It is faint, but it will be recognized when thousands of blooms are expanded at the same time. The cinnamon odor ascribed to R. cinnamomea and kindred species has never materialized in the blooms or foliage of any of the plants I am familiar with. The cinnamon idea is rather associated with the color of the twigs.

The Rose varieties used for the purpose in all the countries concerned in perfume production are, mostly hybrids of R. centifolia and R. gallica, the former predominating where quality, and the latter where quantity is most highly appreciated.

The fragrance of our garden and exhibition Roses, comes from the hybridization of R. chinensis, a species naturally of faint fragrance, with R. gallica, of Europe, giving rise to the deliciously scented Hybrid Perpetuals of old gardens, and, by the crossing of these with R. odorata, to the immensely popular Hybrid Teas, some of which are intensely fragrant. Tea Roses themselves have their own characteristic fragrance, and this blends well with heavier centifolia odor, rising occasionally to the highest pitch of pungent sweetness. The blend of tea-scent with muskiness in some of the dwarf Polyanthas is agreeable, but the centifolia fragrance is rarely brought out in hybrids between R. multiflora and those carrying centifolia odors.

YOUR PRIVET HEDGE AND ITS SHAPING

CHARLES CLARK

Entirely Dependent Upon Your Knowing How to Prune It
This Feature Will Become Just What You Yourself Make It

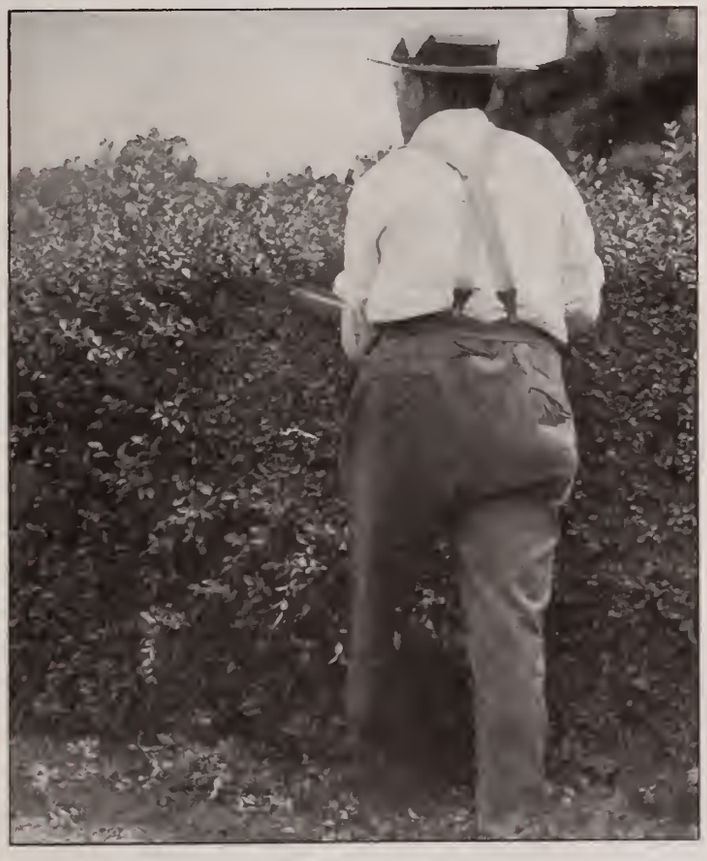
THE object of pruning a hedge is twofold—to give it the proper shape and size, and to increase the number of twigs that bear leaves. Hedges that are permitted to grow too fast do not have enough leaf-bearing twigs. A Privet plant growing alone and untrimmed soon loses the bottom limbs and foliage, and forms a bushy top. The reason is that the top gets more light and air. When a hedge is made of Privet—or any other plant—this tendency to run to top must be overcome. Foiled by severe pruning in its attempt to run to top a plant is forced to make bottom growth; and thus a hedge properly pruned throws out limbs at the bottom.

This is the only feature of growing a good hedge that offers any difficulty. Bottom limbs are to be encouraged; but they should not be permitted to grow long else they will shade out and check the growth of other shoots coming from within the hedge. When their pliant and willowy ends are cut off, they tend to spring upward, and this permits inferior shoots—especially those struggling to emerge from the interior—to get more light and air. Hence constant pruning encourages the weaker shoots to come out to the surface of the hedge, where they are needed to bear leaves.

IT WILL thus be seen that constant pruning removes from the face of the hedge a certain amount of foliage which threatens the limbs below with its shade. Moreover vigorous shoots are always tending to dwarf the less vigorous ones by growing at their expense. Pruning equalizes this; and when a limb is cut on the face of the hedge the buds below the cut shoot out, forming a fork, and thus more leaf-bearing twigs are provided—which is precisely what we want. For we need an enormous number of small twigs at the surface of the hedge to bear the dense crop of leaves there which make a fine, close texture. Frequent pruning is absolutely the only way in which we can get these little twigs.

Another argument for pruning when the wood is small and soft is that it can be done so rapidly, while cutting off branches the size of a lead pencil is slow, hard work. If, on account of a long rainy spell, a hedge runs away and makes a tremendous top growth, *all* this new growth should come off! Such severe pruning will make it look queer unquestionably for a few days, but new growth will hide the nakedness with astonishing rapidity.

Never trim the sides of a hedge to a true perpendicular. In this form the base is bound to be injured by shade, whereas if the hedge is trimmed A-shaped—that is, with sloping sides—the base gets the sunlight and air that are so necessary to dense leaf growth.



WHERE PRUNING TAKES ON THE CHARACTER OF SCULPTURE

It is a man with shears who represents to a hedge that divinity which shapes the end—but rough-hewn it assuredly will be unless he uses brain as enthusiastically as he uses the aforesaid implement!

TO GROW a hedge in a shady situation, two things are necessary:—heavy fertilization, and *very severe* pruning. Such a hedge is slow to make a satisfactory base, and the top must simply be cut back until such a base is formed. It requires a longer time therefore to grow such a hedge—and the owner must exercise patience as well as the pruning shears. Similarly, since it is difficult to grow on an east-west hedge an equally dense base on the north side away from the sunlight and on the south where it shines continually, such a one should be pruned with considerable slope to the sides; and the base on the north side should be carefully watched.

If you have a hedge that is all top and leggy below, first mulch it heavily with manure in the fall or early winter; then in the spring cut it down to within four inches of the ground, and start it all over again. You will be astonished at the rapid growth it will make, for old established roots grow a new top with amazing speed. Prune early and often to keep the bottom dense and shape it up well right from the start. And never allow your hedge to grow too thick. A hedge four feet tall should never be thicker than two and a half feet at the base.

When a tree grows near a hedge and stunts its growth, dig a trench two feet deep about three feet from the hedge, cut off all roots of the tree that are encountered and set plank edgewise in the trench to keep out new tree roots. Fill the trench to within 6 inches of the top with stable manure, covering with earth. If it is desirable to grow a flower border close to a hedge, a similar plank barrier may be sunk close to the hedge to keep out the roots, providing it is done while the latter is small.

STOP pruning, or shearing for the season in time to let the last growth "ripen" before frost comes—soft unripened "wood" is tender, and tender growth winter kills every time! To be *quite* safe, the latter part of August should see the last pruning, but the exact time will vary with the soil, site, and season.

Finally, a word about the shears for hedge pruning. Don't sharpen them to a flat cutting edge, like ordinary scissors. They should be rounded up to a sharp, knife-like edge. If you do not understand, go to a dealer, and ask to be shown a new pair, and notice the manner in which the cutting edges are shaped.

FLIGHTS AND FRIVOLS OF THE APHIDS

EDITH M. PATCH

Entomologist, Maine Agricultural Experiment Station

The Seasonal Migrations of Hosts of "Green Fly" Bothers the Gardener Who Wonders "Where They Come From." Strange Stories of Alternating Habitations

WE ARE all familiar with at least the main facts concerning the seasonal travels of certain animals. The purple martin, rejoicing in his return to the north with a triumphant, "I'm *here!* I'm *here!*", and that annual first Penobscot River salmon, caught in the pool below the falls and sent as a gift to the President of the United States, are as surely obvious hints that the movements of animal life are calendared as the coral tassels of the Maple, or—in those few haunts where ruthless depredators have not yet completed its destined extermination!—springtime's sweetest token, the fragrance of Arbutus.

That insects have a share in the itinerary of the seasons is not so generally known, though now and then a northern countryman stops in late summer to admire a gathering of Monarch Butterflies flocking bird-like about some low tree and taking brief hovering flights while biding the long flutter to the southland. It is not, however, journeys from cold climate to warm with which the seasonal flight of the aphid has concern; but round trips of a mile more or less, from one sort of food plant to another with stop-over privilege. For the migratory aphid requires a change of conditions entailing a new diet in the spring or early summer, and again in the fall in order properly to complete the life cycle of the species.

Little as is generally known about the habits of these marvelous insects, the aphids themselves are recognized by everyone who has much acquaintance with plants; for they are numerous in species and abundant in individuals, and common enough to attract attention even while the secrets of their lives are hidden from all except the detective who has patience enough to follow the clue.

Familiar to all observers of the American Elm are terminal clusters of leaves bunched into rosettes at the tip of the branch (see illustration). Such a deformation constitutes a shelter for a family of aphids during their spring residence there. The mother of the colony is a plump insect of dark complexion, though by virtue of a coat of powder she appears much paler. She passed the winter in the egg stage hidden in the crevices of the Elm bark. In the spring, hatching from the egg just as the leaves are unfolding, she sought a suitable tip, punctured it with her beak and by simply remaining and feeding caused it to form the protective habitation for herself and her young. These, unlike their mother, are born alive instead of being hatched from an egg.

HER progeny are all females. Upon attaining their growth these give birth in turn to living young, also all females. All the descendants of the original aphid or "stem-mother" as she is called, ordinarily remain in the same cluster of leaves, which become much distorted in consequence and crowded with the numerous family. As each individual casts its skin several times in the process of its growth, and as the discharge of honeydew is abundant, the rosette after a time contains considerable waste matter which causes it to look untidy within. Conditions are kept remarkably sanitary, however, by the aid of the waxy secretions of the aphids, particles of which cover the honeydew so that the liquid rolls about in white coated pellets without drenching the insect. A further protection is afforded also by the waxy powder which remains upon their bodies rendering them impervious to moisture.

The earlier members of the family, including the stem-mother, are all wingless. In June, however, comes a generation that with maturity develops wings! These late individuals, or "spring migrants" as they are called, resemble the apterous generations previously mentioned in being all females, but they are smaller bodied and differ in various structures as well as in having wings. And instead of remaining in the leaf cluster with their relatives, they take flight, seeking fresh vegetation for the establishment of the summer colonies. They are strong on the wing and probably fly to distances of at least a mile if they do not find a suitable location nearer at hand. And when they desert the Elm leaf which has furnished sap for their development, they are "instinctively" led to an entirely different habitat, namely the Apple tree, the Hawthorn, or the Mountain Ash (all Pyrus species).

Finding one of these trees, the migrant alights on a leaf, crawls to the underside and remains there quietly while giving birth to young which seek some tender place on the branch or, by preference, a "water sprout" before settling to feed. And these summer colonies of our aphid of Elm and Apple, like their spring antecedents, are composed only of females; and the immediate progeny of the migrants are wingless and have their bodies whitened by the secretions of the wax glands. These fine waxy filaments now fluff out in a white mass about the insects, however, whence they are commonly known at this period as the "woolly aphids of the apple," —in many parts of the world the worst pest with which the orchardist has to contend. It is not, however, the economic significance of this insect with which the present discussion is concerned, but its life history with reference to the remarkable migration from Elm to Apple and return. For late in the season a generation of winged females is developed on the Apple. These are the "fall migrants," in appearance very much like the spring migrants; and they in turn

SUMMER AND WINTER RESIDENCES OF SOME OF OUR BEST KNOWN AND MOST UNPOPULAR PLANT LICE

PRIMARY HOST PLANT	SECONDARY HOST PLANT	NAME OF APHID
Elm (Ulmus americana)	Apple, Hawthorn, Mountain Ash	Schizoneura lanigera
Elm (Ulmus americana)	Juneberry (Amelanchier)	Schizoneura americana
Elm (Ulmus campestris)	Currant, Gooseberry (Rihes)	Schizoneura ulmi
Elm (Ulmus americana)	Grass (Aira and Agrostis)	Tetraneura graminis
Elm (Ulmus montana)	Grass (Echinochloa)	Tetraneura ulmi
Maple (Acer saccharum)	Alder (Alnus incana)	Prociphilus tessellata
Ash (Fraxinus pennsylvanica)	Fir (Abies balsamea)	Prociphilus venafuscus
Cottonwood (Populus sp.)	Beets (Beta vulgaris)	Pemphigus betae
Poplar (Populus deltoides)	Lettuce (Lactuca)	Pemphigus bursarius
Poplar (Populus occidentalis)	Buttercup (Ranunculus)	Thecabius populicondupliifolius
Skunk-bush (Rhus trilobata)	Wheat, Oats, Barley, etc.	Rhopalosiphum rhois
Currant (Ribes aureum)	Lettuce, Sow Thistle (Sonchus)	Rhopalosiphum lactucae
Russian Olive (Elaeagnus)	Persicaria	Rhopalosiphum hippophae
Plum (Prunus)	Arrow-head (Sagittaria)	Rhopalosiphum nymphaeae
Russian Olive (Elaeagnus)	Canada Thistle (Cirsium arvense)	Myzus braggii
Peach, Plum, Cherry	Potato, Cabbage, and others	Myzus persicae
Willow (Salix)	Parsnip	Aphis saliceti
Apple (Pyrus)	Rib Grass (Plantago)	Aphis malifoliae
Apple (Pyrus)	Oats, Wheat, etc.	Aphis avenae
Choke Cherry (Prunus)	Oats, Barley, etc.	Aphis pseudoavenae
Apple (Pyrus)	Clover (Trifolium)	Aphis bakeri
Hawthorn (Crataegus)	Clover (Trifolium)	Aphis crataegifoliae
Plum (Prunus)	Grass (Panicum, Setaria)	Aphis setariae
Plum (Prunus)	Thistle (Cirsium lanceolatum)	Aphis cardui
Spindle Tree (Evonymus)	Bean, other plants	Aphis rumicis
Plum (Prunus)	Hop (Humulus)	Phorodon humuli
Plum (Prunus)	Grass	Hyalopterus arundinis
Rose (Rosa)	Potato and others.	Macrosiphum solanifolii
Rose (Rosa)	Oats, Wheat	Macrosiphum granaria
Rose (Rosa)	Grain	Macrosiphum dirhodum
Black Haw (Viburnum)	Grape (Vitis)	Macrosiphum illinoiensis
Currant (Ribes)	Lettuce, Endive, etc.	Macrosiphum lactucae

APPLE APHIS ON THE ELM

The "spring migrants" move into summer quarters on the Apple

leave the summer food plant and take flight—back to some American Elm.

Alighting on the bark, they seek a convenient crevice and give birth to minute young, part of which are egg-laying females and part males—this being the only time in the life cycle of this insect that either of these forms is produced. These tiny "true sexes" have no functional mouth parts and do not eat, their chapter in the life history being concerned merely with mating and providing for the deposition of the over-wintering egg. Each female lays but one of these, the single egg nearly filling her small body.

This egg is the closing page of the life cycle for the fall, and the opening one in the spring; because it is from this over-wintering egg that the stem-mother hatches at the time of the bursting leaf buds, in season to form the rosette of Elm leaves for the spring habitation of herself and her numerous progeny. And startling as this life-round may seem, it is no isolated example, for the histories of many species of this family of insects are most dramatic!

TAKE that Elm leaf with a rolled-under edge, for instance, hanging on the branch not far from the rosette just discussed. That leaf holds a story as interesting as the one just told and much like it, except that its spring migrant seeks, instead of the Apple or Hawthorn, the Juneberry or Shad-bush, on the underground stems of which its summer colonies dwell. And the similar rolled-under leaf of the English Elm shelters an aphid that migrates to the Currant to pass the heated term.

Nor are the Elms alone in serving as winter and early spring residence for aphids who spend their summers in other parts. Among the common spring leaf-feeding aphids which winter in the egg stage on the Apple, for instance, the migrant of one takes flight to Oats and certain other grasses, where it has to be reckoned with as one of the most serious of our grain pests. Another species uses the Clover as a summer resort—and for a change in diet—after having wrecked the leaves of the orchard it has inhabited early in the season. The insect famous in economic literature as the Hop aphid or Hop-plant louse winters on the garden Plum, as does a second species which migrates to Thistles, and a third which eschews the country for the greater refreshment of a watering place during the hot months — in other words a residence aboard an Arrow-head or certain other succulent plants (See THE GARDEN MAGAZINE, December, 1917) where it enjoys a more or less complete change of scene and diet.

SO THE man who innocently plants Lettuce near his or his neighbor's Currant bushes is simply making matters convenient for one of the aphids migrating from Ribes to members of the Compositae — and correspondingly difficult for the person who washes the salad, for the leaf-green bodies of the apterous summer forms of this species blend so well with the color of the Lettuce that detection is almost impossible—and the insects cling moreover, amazingly.

All this considered, it is small wonder that the gardener exclaims, "*where* do these insects come from?" upon seeing aphid colonies thriving where a few days before there were none; and the question has as many answers as there are migratory species. Which may seem distracting, though the knowledge is an advantage, for reference to the accompanying table will suggest that not infrequently the dual personality of these remarkable insects gives a double chance at their control; while with certain of them, on the other hand, their opportunities of escape are twofold because of added difficulties presented by their complex existence.

WHEN SUMMER COMES

A colony of woolly aphis that left the Elm and is established in its summer home on the Apple

GROWING LIMAS THAT ARE FIT FOR LUCULLUS

Not so Much a Matter of Which Particular Kind or Type, but Rather of Giving Right Conditions, and Picking and Using at the Right Time

Famous for its quality and heavy yield—Carpinteria Lima

I. HIGHEST QUALITY AMONG LIMA BEANS

ADOLPH KRUHM

IN ONE respect the two great American vegetables, Corn and Lima Beans, are alike—you *must grow them yourself*, gather them when "just right," and prepare promptly, or the elusive "quality" will not be there at mealtime. The rich, marrow-like, peculiarly characteristic flavor of Lima Beans cannot be canned, captured by drying, or gotten hold of in any other way than via the home garden.

Both the tall or climbing, and dwarf or Bush Limas are of specific usefulness. The dwarf sorts are unquestionably the earlier, but the very much longer branches of the tall sorts bear more pods, and consequently their yield is greater; and notwithstanding the introduction of very large-podded dwarf sorts, the Pole Limas generally surpass in size both of pods and shelled beans. Where garden space is limited and poles are not available, Pole Limas may be grown along fences or trellises, thus serving the treble purpose of creating shade, hiding unsightly objects, and yielding food.

As to difference in flavor between Bush and Pole Limas I can truthfully say there is none. A great deal depends at what stage of development the pods are picked and how soon after picking the beans are shelled and cooked. Thirty minutes of cooking may bring out the flavor to perfection while forty-five minutes may neutralize it. Still, a great leeway is possible in connection with these various factors if you press into service pedigreed quality kinds of proven behavior; and it is in the endeavor to introduce you to Limas that *always behave*, that I first mention:

The Quality Trio Among Bush Varieties

TWELVE years ago a young son of one of the largest Lima Bean seed specialists in California (where, incidentally, nearly the entire crop of all Limas is produced) walked through a field of King of the Garden Pole Limas and discovered, notwithstanding the field had been "rogued" before, two "sports" of true bush habit, with pods every bit as large as those of the King of the Garden Pole variety. These two mutations or "sports" carried pods of entirely different types; and there isn't a gardener to-day who has not heard of Fordhook and Burpee-Improved as the most up-to-the-minute quality Bush Limas available.

Fordhook Bush Lima is the largest podded form of the old-fashioned "fat" or Potato Lima. The pods average 5 inches long, are borne in pairs or double pairs and contain on an average four large, thick, green-skinned beans that truly have no superior in flavor. (Incidentally, here is a "tip": whenever you see a green-skinned Lima, make up your mind that it is far superior in flavor to the white or yellow-skinned bean). A week to ten days after Fordhook has yielded its first picking, the Burpee-Improved brings us its large, flat pods equal in size to any pole variety. The pods average 5½ inches long and contain on an average 5 beans which, in the green stage, are as large as those of the largest Pole Limas.

The introduction of these two sorts marked the dawn of a new era in Bush Limas for, popular as old Burpee's Bush Lima,

Quarter Century, or Wonder Bush are to-day, both Fordhook and Burpee-Improved are bound to supersede as soon as seeds can be produced in sufficient quantity. The third of the really pedigreed Bush Limas is Extra Early Wilson or Extra Early Giant Bush, a comparatively new comer which is the product of persistent selection for earliness. Its pods do not average any larger than those of Fordhook, and contain flat beans which bulk less, but they are ready for picking from 5 days to a week before any other bush variety with the exception of the old Wood's Prolific. This however is fairly obsolete.

The Worth While Tall or Climbing Sorts

AS IN the case of Bush Limas, the Pole varieties started to make most rapid strides in popular favor after a new variety some twenty years ago almost revolutionized Lima Bean growing. Up to 1900, Large White Lima and its improved form, King of the Garden, were the recognized leaders among Pole Limas. They required such a long season, however, that in most sections growers had to be satisfied with gathering about half the pods set, for the frost would gather the other half. Then came Henderson's Leviathan, marking the first forward step toward shorter seasons of development for Pole Limas. Its pods are not so large as those of the older kinds, nor are the beans, but within 100 days Leviathan perfects a good portion of the pods that set early, and, where frost stays away for four months, it is a most prodigious yielder of handsome pods, borne in large clusters.

About eight years ago a specialist on the Pacific Coast started to experiment in selecting pods bearing a majority of green-tinted beans. And four years of constant effort in one direction produced highly gratifying results. In honor of its birthplace, which is the home of all that is good in Limas, the new variety was called Carpinteria; and in Carpinteria Lima we have unquestionably the very highest quality Pole Lima in cultivation to-day. In general character of pods or bearing qualities it does not differ greatly from Leviathan except that the shelled beans are more elongated and that all of them have the desirable green tint. In season of bearing it will prove slightly earlier than Leviathan, yielding the second picking when Leviathan is just perfecting its first pods.

Truly the leader of them all for size, Burpee's Giant Podded is actually what its name implies. Monstrous pods 6 to 8 inches long, containing from 5 to 7 beans an inch or more in diameter, are ready to please those who look for size. And notwithstanding these extraordinary dimensions, the young green beans are quite thin-skinned and tender. Where long growing seasons prevail and size is wanted this Giant-Podded form will find a ready welcome.

II. THE BEST CULTURE FOR LIMAS

ARCHIBALD RUTLEDGE

FOR superlative quality the seed of Lima Beans should first be superlative. In my own experience I have found this of vital importance and by carefully selecting Giant Pole Lima over a period of six or seven years, with a view to improving the strain I have accomplished gratifying results. My method has been to select the largest and most perfect pods on the most vigorous vines and permit these to ripen. From the beans thus gathered, only the largest and the most perfectly shaped are used in planting; and the insignificant amount of care and patience required for this performance is out of all proportion to the abundant crops of luscious Limas which it insures. But the matter of seed is, of course, not all.

The soil is important though Limas are tolerant in this respect and can be successfully grown on tough clays or light sands. There must be friability, however, and that texture which encourages fine growth, and there must be the proper amount of enrichment and humus. I have grown them in tough clay and mellow loam with about equal success, but it takes more work to grow them in the clay for a more thorough preparation is required. I spade each type of soil very deeply in the fall, letting it lie in the rough over winter for the action of freezing and thawing to pulverize the surface. In the spring the loam is merely raked over and "fined" by surface working, but the clay is again turned under and carefully pulverized.

Unquestionably the largest in pod and bean—Giant-Podded Pole Lima

After seed and soil, the next consideration is the kind and the amount of fertilizer to use. Good stable manure may be applied very heavily, either in the fall or spring, turned under, and mixed thoroughly with the soil. If it is old enough to be more like humus than active fertilizer, it would be hard to use too much. And dig it in as deeply as possible! This with leaf-mold, old compost and chicken manure supplies all they need. They thrive on somewhat liberal applications of the latter, scattered on the surface of the ground about the roots when the Beans are flowering and setting their first pods, and again when they begin their second general flowering.

The question of supports for Limas is, of course, confined to the pole varieties. Unquestionably, the tall Limas are more productive; and, bearing their fruit as they do high off the ground, fewer pods are liable to mold and mildew. I like the Bush Limas in some ways, but I have confined my experiments almost wholly to the Pole Limas, hence can speak from exper-

ience only of these. I prefer a wire fence to anything else for their support and I like to get the vines up high so that they may get plenty of light and air. My fence is 5½ feet high, but this is too low so uprights are nailed to the posts, with single wires strung through staples a foot apart in them. This increases the height to 9 feet. The beans are planted on *both* sides of the fence and the whole trellis is covered during the summer with a dense screen of vines, heavily laden with big pods. Any kind of a fence will of course support Limas, and suburban dwellers who have long fences could perfectly well utilize them for the purpose. Single poles upright, sunk deep so that the eventual weight of the vines will not make them sag, are good, but a better method of growing is to plant them along a permanent lattice-work arbor such as grapevines commonly grow on—and, in addition to being ideally supported by such a structure they form a very pretty avenue of shade as well.

One further consideration remains. This is the planting itself. And it is this which causes the average gardener to fail with Lima Beans. In the first place beans of all kinds are very tender; and they positively will not sprout in damp, chilly soil. In middle latitudes it is rarely worth while planting them until May first. In planting, the seeds should be pressed two inches into the soil with the eye down (the bean being held edgeways). This work should be done by hand. If the soil is hard, cover each seed with a handful of finely crumbled earth, which may be firmed down well over the planted seed. If heavy rains fall on a tough soil between the planting and the breaking through the ground of the seed, the surface must be worked—but very lightly and carefully to avoid injuring the brittle stems which are trying to push their way through the earth. As regards watering, Limas do not suffer greatly from drought for their roots are deep-plunging and their foliage affords shade. But sometimes watering seems advisable. Never water at the top however. My own method is to sink tin cans, perforated at the bottom, between every two plants if along the fence, or a can by each bean-pole. When drought comes I fill these cans once a week and the water is slowly and evenly distributed to the roots.

INTELLIGENT USE OF FERTILIZERS

Avoiding Mixing Things That Waste Each Other

TIMELY, intelligent use of fertilizers in the garden before we plant cannot possibly be duplicated by means of top-dressings, liquid manures and other late season stimuli no matter how valuable and effective they may be.

The wise and forehanded gardener will have already done much by planting a cover, or green manure, crop last fall—rye and vetch, clover, peas and oats. Perhaps, previous to that a dressing of manure was turned under and some lime raked in later during the winter, and manure spread ready for the spring plowing. If so well and good; if not here is the programme to follow as closely as possible, beginning immediately.

Wherever possible get stable manure and have it spread six inches deep all over the garden plot. Try to get well rotted manure including both cow and horse droppings, but if it is mostly the latter see that it is not burned out or "firefanged," as indicated by a white, dusty, lifeless appearance.

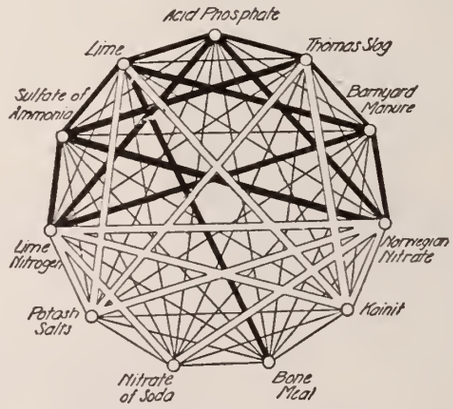
At the right moment have this plowed or dug under, depending on the size of the garden. In either case make the job a good deep one. What the "right moment" is for your particular soil and location, only experience can tell; it is when the soil is moist but not wet, friable and loose but not dry and dusty.

On the upturned furrows strew some form of lime unless you know from past seasons' experience that the soil is not sour; in that case better use a good dressing of bone meal. Rake or harrow this application in; and then (if you really want abundant, soul-satisfying crops) rake in a dressing of some well-balanced, all-round garden fertilizer. Save your nitrate of soda, sulphate of ammonia or other favorite "tonics" until your crops are up and really growing, and able to digest, enjoy and benefit from them. As to cautions:—note in the accompanying diagram which kinds of plant foods should not be applied together. This is of special importance when you mix your own fertilizers, and worth considering even when you buy commercial plant food and also use manures, lime, or wood ashes.

If you apply "a little fertilizer" at seed planting time, as some advocate, mix the soil and fertilizer first and do not sow the seed directly in the dry fertilizer. Why not? Because plant food is taken into the roots in solution; fertilizers are dry and especially "thirsty" and will absorb the first moisture they can get. If this happens to be in a germinating seed or a lusty root-hair with which they are in contact, the fertilizer will play the vampire, the seed will be sucked dry (or as we usually say "burned").

The most valuable fertilizers are the most soluble ones; and so are the ones most likely to be picked up by the water in the soil, which, if the soil be sandy, rapidly leaches through and out. This, then is the reason for delaying the application of the highly soluble forms until the plants are old enough to snatch the "soil soup" as it trickles past their feeding roots.

As to lime, the more the average soil chemist learns about it, the less he is generally willing to affirm as to its true relation to soil fertility and plant feeding. It does appear certain, however, that it helps put in usable form the plant food that already exists in the soil, and that so long as we keep our ground reasonably well supplied with the elements essential to plant growth, we can safely work in some form of lime whenever the opportunity offers to do so without conflicting with other fertilizing practices. Look at the adjoining diagram.



TO MIX, OR NOT TO MIX?

The materials formed by the white bands may be mixed and applied together, but not for storage. The thin black lines join materials that can be mixed at any time. Do not mix, nor apply together the substances joined by heavy black lines, as they re-act destructively on each other

A NEW DISCOVERY FOR THE LILY LOVER

Easter Lilies can be Raised to Flowering Size in an Ordinary Greenhouse in as Short Time as the Common Perennials for the Open Border

THOUSANDS of enthusiastic gardeners whose greenhouses flourish with Easter Lilies, regularly buy imported bulbs that they might just as well have had all the satisfaction of growing. In gardening circles it has been so long tacitly accepted that Easter Lilies could only be grown from imported bulbs that we have become accustomed to rely on the outputs from Formosa for the type (Lilium longiflorum) or from Bermuda whence comes the very popular Lilium Harrisi (variety eximium). But this recognized "fact," like a good many others of a limiting nature, could not stand against real gardening enthusiasm; and it has been shown that the Lilies can be raised from seed in this country.

Of late years Lilies have become increasingly popular and while maintaining all their predominance at Easter time they have also become a very general all-the-year favorite. But as their popularity has increased it has been noticed with apprehension that the imported stock became more and more prone to disease.

The discovery and proof that the Easter Lily can be grown from seed in this country is therefore a very significant event, especially as the home grown plants are more healthy and stronger than their imported rivals.

The first effort at home production was made some years ago by Mr. George W. Oliver in the Department of Agriculture greenhouses at Washington. Recently the work has been taken up by the Department of Floriculture at Cornell, Mr. C. L. Chien and Mr. A. R. Betchel carrying out some very exact investigations under the direction of Professor E. A. White, with the result that now we can have Lilies whenever we want them.

IN BLOOM FOR THE SECOND TIME IN EIGHTEEN MONTHS FROM SEED

Few attempts to raise bulbous plants from seed are ever made by the amateur, yet few things will yield returns as substantial within a year and a half as these five great fragrant blossoms topping the sturdy stalk

THE little seedling Lilies are grown on under just the same cultural conditions as when Lilies are grown commercially. The flowers are hand pollinated and cross fertilization is essential. When the stigma is fertilized by pollen from the same flower the resulting seeds are not only few in number but those that are obtained are weak and the plants sickly. Of all plants in the garden none are more easily hand pollinated than Lilies because the parts are so large and conspicuous. Pods mature in about two months. Seeds are sown in October in a soil to give good drainage—one-third garden loam, one-third leaf mold, and one-third sharp sand—in well drained flats. The seeds are covered lightly with a mixture of leaf mold and sand and the flats covered with glass and set in a temperature of 55 degrees.

In six weeks there will be a vigorous crop of seedlings and in three months they may be potted off into two and one-half inch pots in a mixture of one-half finely sifted garden loam, and one-half leaf mold. The plants are kept cool and somewhat shaded during the spring and summer when growth is slow. A bulb forms during the summer, and during the periods of experimenting at Cornell they were twice repotted so that by October they were in six-inch pots. At that time a few actually began to flower—one flower to a stem. These were cut and the plants repotted. New growth immediately starts, and another flower stalk by April bears three or four flowers, strong and sturdy—sometimes five and six flowers. And after all eighteen months is not a long time from seed to such a crop of flowers.

Easter Lilies Are Hardy!

IN ADDITION to the Cornell experiments that show us that we can have Lilies indoors whenever we want them, there are being carried on at Washington investigations that promise information and opportunities of even greater value and significance. Already they have led Mr. David Griffith of the Department of Agriculture, who is in charge of the work, to declare that as outdoor garden flowers Easter Lilies "go through both our severely cold and severely warm winters perfectly; and that when properly handled there is no more danger from winter injury than there is with Tulips, Narcissus, or Hyacinths."

The most important single feature of this proper handling is

apparently the time when the bulbs are planted. "What we need to do," says Mr. Griffith, "is to plant early enough for the bulbs to get a good hold on the ground, but late enough so that they do not reach the surface before spring." This is made necessary by the fact that so long as favorable moisture and temperature conditions obtain the plants will not become dormant but will go right on growing and producing shoots, which, of course, are readily susceptible to injury.

As to depth, it was first advised that eight inches was necessary to insure protection, but subsequent knowledge has led to the recommendation that four inches is plenty deep if the time of planting is carefully chosen. Heavy feeding is essential and can well consist of generous applications of commercial fertilizer worked into the soil *before* the bulbs are planted, supplemented by a mulch of strawy but well-rotted manure. The thorough tillage of the bed or border should also be completed before planting time as cultivation or weed destruction by means of implements later on is almost certain to cause trouble by injuring the thick growth of surface roots sent out by the bulbs. Weed prevention and also the condition of "cool feet" which all Lilies appreciate are best accomplished, in Mr. Griffith's opinion, by planting thick enough so that the plants shade the ground almost completely and by maintaining a mulch throughout the season. Such weeds as then appear are best removed by hand.

After the first season, when the time at which the bulbs were planted largely determines their ability to go through the winter safely, danger of winter injury is practically eliminated by a remarkable ability exhibited by the plants to adapt and adjust themselves to climatic conditions. In other words, "if the stems which have flowered are allowed to function until cut down by frost the growth of the new bulb for next year's production is very much delayed," sufficiently, in most cases, so that the resulting stem or shoot will not appear above ground until the following spring.

This has, in fact, been the condition in Mr. Griffith's home border at Takoma Park, near Washington, where Easter Lilies have been growing since the fall of 1916 undisturbed except that on one occasion they were dug up late and immediately reset in order to thin out the superfluous bulbs produced by natural propagation. Even last winter when the unusual mildness brought about considerable top growth in February and March, a late cold spell during which the temperature fell to 22 degrees did not injure the plants.

A PAN OF LILY SEEDLINGS THREE MONTHS OLD

Doubtless it is frivolous to call them Lili-putians at this time, but it is a name that seems to suit them!

WITH ALL THE AIRS AND GRACES OF MATURITY THIS IS STILL A BENCH OF SEEDLINGS

As yearlings many will produce a single blossom and from the very beginning plants raised here from seed are stronger and healthier than the imported bulbs

MR. GRIFFITH recommends the growing of Lilies for outdoor as well as indoor use from seeds rather than bulbs. The slight delay involved is more than overbalanced by considerations of economy, freedom from disease and increased interest—or should be in the case of most of us. To this end seed obtained from pollinations made about Easter time (or purchased as the case may be) are planted in flats in mid-January and the seedlings are moved to two-inch pots in March and out into the field in late April or May. Here, according to the Washington experiments, they will begin to flower in late July and will continue to bloom scatteringly until stopped by frost. They may either be left as a permanent planting or taken up, potted and flowered indoors during the winter. In the case of some of the 9,000 seedlings so handled at Washington, plants dug up and potted in December after a temperature of 15 degrees had been recorded soon began to develop new, vigorous growth; while others, taken in a short time before, when nothing colder than 26 degrees had been experienced, went right on growing, developing buds and opening those already formed as though nothing had happened.

That these Lilies may come to occupy a place in the garden commensurate with their loveliness seems within the probabilities, if disease-resistant plants can be produced. Persistent raising of them here, from seed under conditions more favorable for one reason or another than those prevailing in the warmer sections to which we have always looked for our bulbs, may bring about this highly desirable result—now that we know how reliably hardy the Easter Lily really is. All Lilies lend themselves preëminently to naturalistic planting and this variety is of course no exception. And though we have a white Lily already somewhat common in our gardens (Lilium speciosum album) another will not be unwelcome.

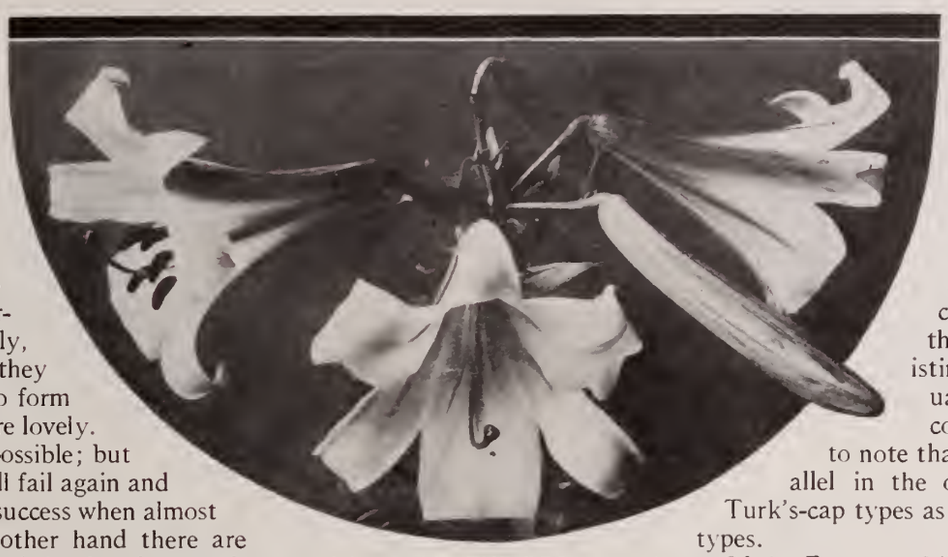
It is perhaps not amiss to say in passing that the Easter Lily of commerce is not the true Madonna Lily. The latter is Lilium candidum, native to southern Europe and southwest Asia—the flower which tradition says is the true Lily of the Bible. This is variously known as Lent Lily, Madonna Lily, Bourbon Lily, Annunciation Lily, and St. Joseph's Lily; and it too is a hardy and beautiful species, though not so large-flowered as the more commonly grown Lilium longiflorum or Easter Lily of the florists—and of this story of raising the plant from seed. As a matter of fact almost any of the Lilies will grow readily from seed.

LILIES MADE TO ORDER

HOWARD ELLSWORTH GILKEY
Horticultural Dept., University of California

The Magic Spell of the Lily that has Captured Every Great Hybridist Still Offers a Rich Field for Experiment in Everyman's Garden

THE Lily is lovely enough as it is." Perhaps! But is the family hardy enough in all its members? Is it sufficiently fragrant? Does it carry enough blossoms? There are lots of excellent qualities present in the different members of the family, and it is possible that they might be recombined to form something infinitely more lovely. Lily crossing is not impossible; but often a certain cross will fail again and again—only to prove a success when almost despaired of! On the other hand there are several crosses which result in abundant seed. All the Lilies that we grow in any quantity are true original species. It is surprising that there are so few hybrids in a family of plants so replete with distinct and charming species.



QUEEN OF ALL—THE REGAL LILY

Pure glistening white melting to pure lemon in the depths of the throat

For the amateur would-be hybridist the Lily family has decided attractions because the large size of the parts of the flower makes the necessary manipulation quite easy. Perhaps some others will find this family as alluring as I have. The first time I ever made any Lily hybrids, I had neither parent of the cross I proposed to make, but a friend was the proud possessor of a fine bed of Leopard Lilies, growing right in the open in full sunlight and he allowed me to make use of his plants. The other parent was L. Parryii. Cut flowers were sent from the mountains and had to be expressed seventy-five miles.

It took four years for those hybrid seedlings to bloom; but it doesn't take a great stock of patience to wait that long, when you have plenty of other garden treasure to care for. When the hybrids blossomed, they proved to be great, golden-yellow, sweet-scented Leopard Lilies remarkably uniform and seemingly a perfect blend of the two parent species. The segments curved back at the tips less than in L. pardalinum, and much of the trumpet shape of L. Parryii was retained; their glory was their wonderful fragrance.

Lilies are all natives of the Northern Hemisphere, and fall readily into two groups, those native to the Old World, and those native to the New World. These groups may again be subdivided roughly into European and Asian, and Eastern and Western American divisions respectively. Of course there are intergradations and occasions where an Asian Lily, for example L. tenuifolium, has more real affinity for its European relatives than for its Asian allies, but in general the affinities for crossing are almost within geographical limits. An evolutionist would say that all the forms common to one region were descended from one common ancestor, and had arisen as mutations from the common source; hence the degree of affinity existing between the individuals native to the same country. It is interesting to note that each form has a parallel in the other group; all have Turk's-cap types as well as trumpet-shaped types.

EMASCULATING THE UNOPENED BUDS

In the lower flowers, treated several days earlier and since opened, the absence of the anthers is plainly discernible

Of the European Lilies, we really grow but one, the Madonna Lily (Lilium candidum). The Turk's-cap Lily (L. martagon), and its beautiful white variety, album; the brilliant L. chalcedonicum, the reddest of the big Lilies; and the graceful little Siberian Coral Lily (L. tenuifolium) are among the most alluring. Raise the last from seed. It will bloom in from one to two years. The Nankeen Lily (L. testaceum), reputed to be a natural cross between L. martagon and L. chalcedonicum is perhaps the rarest as to color and should prove almost as hardy as the Madonna Lily. The cross has never been repeated. Someone should try to duplicate it.

Lilium marhan, a hybrid between L. martagon and L. Hansonii, is becoming more common, but the cross should be easy to duplicate. And perhaps you may get something quite distinct, for the same cross does not always result in the same way! L. tenuifolium var. Golden Gleam would scarcely be recognized as a hybrid. Yet according to the records it came from seeds produced by pollinating L. tenuifolium with L. martagon. It may be that the gardener in the east has a good opportunity, right at his own door, for experimenting with the Lilies native to his own locality. With such a variety as is afforded by L. superbum, L. carolinianum, L. philadelphicum, L. canadense and L. Grayii there should be results worth trying for; that is, if seeds can be had from the trials.

The Lilies of Western America form an interesting and charming group. The majority of them thrive in our gardens, if stable manure is kept away from them. For barbaric splendor plant the Leopard Lily (L. pardalinum), and the Humboldt Lily. Their warmth of gold and copper and vermilion give a dash of color and life to a shaded, somber hillside that is worth any effort. If you have a bit of cañon, plant them both.

Pardalinum can be obtained in some deep vermilion and crimson shades that are extremely beautiful. It may be that one of these will some day prove to be the source of the big red Lily the world is looking for. When ordering L. Humboldtii be sure to specify the variety magnificum as it is a sure bloomer and a vigorous grower; the flower, heavily blotched with orange and vermilion over a gold background, is hardly so beautiful as the chaste, clear orange blossom of the type, but you are certain to have flowers when you plant it.

Several of the Pacific Coast Lilies excel any other group in the genus for grace, delicacy of coloring, and exquisite fragrance. L. washingtonianum, the Redwood Lily (L. rubescens), and L. Parryii, are a beautiful trio of shade-lovers. Give them plenty of leaf-mold and good drainage—but give them lots of water, too. All three are deliciously fragrant. Lilium Parryii may well rank as one of the sweetest of all flowers. The Washington Lily and the Redwood Lily are tall growers with regular whorls of leaves arising at uniform intervals along the stalks. Both are trumpet-shaped, opening white or pinkish and fading to a wine-purple with age. The latter has segments recurving more closely at the tips, and fades to a deeper wine-color. The Mountain Lemon-lily (L. Parryii), is more rare, shorter, and does not bear a great number of flowers like the others. It is a true trumpet shape, and in color a beautiful glowing lemon, often unsullied by a single tinge of foreign color, and yet again faintly spotted with brown.

Other California Lilies worth mentioning are L. parvum from the Sierras with tubular erect flowers in orange or yellow, and L. Roezlii, a good yellow Turk's-cap. The long-lost L. Kelloggii is a gem, like a miniature Leopard Lily, but with a ground color of blush-white dotted lightly with crimson. I have seen it but once, but I shall always remember it as among the daintiest flowers.

California Lilies normally produce excellent crops of seed and hybridize readily. The Leopard Lily a good seed bearer, crosses readily with the Humboldt Lily, and the progeny is very vigorous and free-flowering. This would be a good cross for any one to start with in plant hybridizing.

Taken as a whole, the Lilies of Japan and China comprise among their number the largest, the hardiest, and the most beautiful of the entire genus and seem to offer the most promising field to the hybridist. The immense, waxy, fragrant flowers of the Gold-banded Lily have won for it great popularity among Lilies. But it does not usually last more than two or three years in cultivation. Still, I love it well enough to invest in a case of new bulbs every year. L. speciosum (the lancifolium of the florists) is a universal favorite on account of its vigor and beauty. The Tiger Lily comes from the Far East, also. Among the best known of the large trumpet-shaped Lilies is the Easter Lily (L. longiflorum) and all its varieties. L. Ukeyur a reputed hybrid is as a matter of fact one of the many forms of longiflorum like the Easter Lily.

Lilium Henryii is probably the hardiest Lily in the world, and the most resistant to the Lily disease. It bears great quantities of seeds, which germinate quickly and bloom in three years. It multiplies rapidly by means of bulblets along the stem below the surface of the ground. It will grow in any kind of soil, and in sun or shade. It is a tall grower. I have seen it nine feet high bearing more than thirty blossoms with a bulb four pounds in weight and twenty-two inches in circumference. The foliage is dark and leathery in texture, able to withstand insects, wind, and disease. The petals are recurved of medium size, and a delightful light orange in color. This Lily was discovered in 1888 by Dr. Henry in the province of Ichang, growing at a great elevation in great masses drooping characteristically over the brink of a steep limestone gorge, with myriads of interlaced golden blossoms. This was only the forerunner of other notable discoveries in China and our stock of desirable hardy plants has been greatly enriched within very recent years by the introduction of two Lilies which at once became popular. These are Lilium regale and L. Sargentiae.

With the advent of these and the older L. Henryii, a new era dawned in Lily culture. Here is a trio of Lilies which thrive in ordinary loam, with full exposure to the sun. They seed freely and abundantly. The Regal Lily, well named indeed (Lilium regale) threatens to take rank as the "Queen of All Lilies." It has a long trumpet, which flares widely. The broad face of the segments expands a pure glistening white that melts almost imperceptibly to a beautiful light lemon deep in the throat, which is devoid of the objectionable green seen in longiflorum.

Lilium Sargentiae is much like L. Brownii, but it is stronger and taller. The blossom is narrower than in regale, white inside with purplish streaks overlaying white on the outside. It is not heavily scented. In leaves and habit it approaches L. Henryii and also produces bulblets in the axils of its leaves.

May we not look to these Lilies to produce hybrids that combine beauty and vigor? With the idea of combining the greatest beauty with the greatest vigor, for the last five years I have tried to secure a cross between L. Henryii and L. auratum. I haven't succeeded yet, but I am prompted to continue from the fact that I get an encouraging growth in the capsules at the start. However, after attaining a certain size, they stop growing and shrivel. Some one in a different locality may be more successful.

The cross with Lilium Henryii which produced L. kewense should be tried in every garden. L. Brownii was the other parent. An unlikely result one would think, but with plants "you never can tell." L. speciosum is so much like L. Henryii that the latter is often called the "yellow speciosum," yet I have tried to cross the two again and again, without even the slightest swelling of a capsule to encourage me.

There is a tradition of a cross between L. auratum and L. speciosum, made away back in the 'sixties when auratum was first introduced. It is unfortunately extinct, but is said to have been a magnificent flower. Will some enterprising enthusiast try to replace this long-lost treasure?

[Some remarks on the actual work of "crossing" will be found on page 138 of this issue.]

THE PLACE OF THE LILY IN THE GARDEN

Surroundings that are naturalistic as this Clematis hung wall in the garden of Mr. Hugh D. Auchincloss at Newport, R. I., emphasize the rich beauty of all the great Lily tribe and are their proper environment

WHY THE HOUSEKEEPER GARDENS

SARAH M. McCOLLOM

Her Personal Interest in, and Attention to, the Garden Alone Will Insure that Full Return Which, as "General Manager" of the Business of Home, as Well as Chief of Commissary, She Demands

LIME SHOULD BE APPLIED LIGHTLY AND OFTEN AND MANURE SHOULD BE WELL WORKED OVER

The annual use of enough lime to whiten the ground without actually covering it, as shown at the left, is best; while such forking over and mixing as the compost heap at the right is undergoing assures its prime condition for application to the ground

THE one big factor that causes disappointment and subsequent failure in garden making is lack of interest. For lack of interest and neglect travel together. That was always the trouble between my garden and me, and I suppose it would still be the same if I had not suddenly awakened to the fact that I had really a commercial enterprise out there in the back yard. Whereupon I was interested—since I have the "commercial instinct" I fear; and becoming interested, I began to give attention to the garden—real attention—with what were, to me at any rate, amazing results. For I had never really believed in the kitchen garden; it had seemed just a fad to be somewhat indulgently regarded, until the war set everyone to talking about it seriously.

Of course all these results went into my accounting pages; and of course I am going to draw on these to prove my thesis—not in wearisome detail but in round numbers. Our particular garden plot is approximately fifty feet square. For this the seeds cost $5.90, plants (early Cabbage, Cauliflower, Big Boston Lettuce, Tomatoes, Eggplant, Peppers and Celery) were $2.45, and manure, labels, poles, pea brush and two bags of hydrated lime were $13.55, giving a total outlay of $21.90 which I am going to call $23, inasmuch as there were some further trifles such as raffia for tying things up and tobacco dust and such—not amounting to a dollar all told, however.

The plan of the garden speaks for itself, and shows the amount planted of each thing. The quantity gathered of each vegetable and the number of weeks of their bearing are shown in the accompanying table.

What Was Gathered, and When

Radish	May 17th to July 1st	24 bunches
Spinach	June 1st to July 10th	12 pecks
Onions	June 6th to July 31st	22 bunches
Lettuce	June 8th to Oct. 15th	149 heads
Swiss Chard	June 15th to Oct. 15th	14 pecks
Peas	June 23rd to Aug. 10th	58 quarts
Parsley	June 23rd to Oct. 15th	60 bunches
Carrots	July 1st to Oct. 15th	41 doz.
Beets	July 4th to Oct. 15th	37 doz.
String Beans	July 5th to Oct. 15th	73 quarts
Cabbage early	July 10th to Aug. 10th	22 heads
Spinach, New Zealand	July 10th to Oct. 15th	40 pecks
Corn	July 28th to Oct. 6th	34 doz.
Tomatoes	July 29th to Oct. 15th	65 quarts
Lima Beans	Aug. 2nd to Oct. 6th	36 pecks
Eggplant	Aug. 11th to Oct. 6th	11 doz.
Peppers	Aug. 22nd to Oct. 15th	10 doz.
Cauliflower (late)	Sept. 17th to Oct. 15th	15 heads

The Following Were Canned or Stored for Winter

30 cans Tomatoes	2 bushels Ruta-bagas
15 cans Beans	1 bushel Onions
12 cans Lima Beans	1 bushel Carrots
6 cans Beets	36 heads Cabbage
12 cans Succotash	¾ bushel Beets
8 cans Spinach	1 bushel of Parsnips
12 bundles of Parsley and Herbs	80 heads Celery
	1½ bushels Tomatoes

To produce the foregoing the following quantities of seeds and plants were used:—

1 pint Bush Beans, Black Valentine; 1 pint Pole Beans, King of Garden; 4 oz. Beets, Electric; 1 oz. Swiss Chard; 2 oz. Carrots, Guerande; 1 qt. Corn, Golden Bantam; 1 oz. Lettuce, Big Boston; 1 oz. Lettuce, Ideal; 2 oz. Onions, Yellow Danvers; 1 qt. Onions (sets) white; 1 pkt. Parsnip, Hollow Crown; 1 qt. Peas, Gradus; 1 pint Peas, Champion of England; 4 oz. Radish, French Breakfast; 4 oz. Spinach, Long Standing; 1 pkt. Spinach, New Zealand; 1 oz. Rutabaga, Purple Top; 1 pkt. Cabbage, Flat Dutch; 1 pkt. Cauliflower, Snowball; 1 pkt. Parsley, Moss Curled; 1 pkt. Thyme; 1 pkt. Sage; 1 pkt. Sweet Majoram.

Plants: 2 dozen early Cabbage; 2 dozen Early Cauliflower; 3 dozen Big Boston Lettuce; 3 dozen Tomatoes, large fruited; 6 Eggplant; 6 Peppers; 5 dozen Celery.

It was on May 17th that we had our first returns. Radishes—and we had them occasionally until July 1st. By that time they were so strong we threw out the balance. June 1st brought the first Spinach, and it does not need an expert to tell that the first is the best. We had it until July 10th, when we started cutting New Zealand Spinach which lasted through the season so we were never without abundance of greens until frost. On June 6th we started to pick green Onions from the sets, and when the seedling Onions were large enough we thinned these and used the "thinnings" for green Onions. And in fall we had about a bushel of full grown bulbs to put away.

On June 8th we gathered the first head of Lettuce. Peas were rather late, but that was a general condition, and the quality was wonderful when they did mature. We had these *every day* from June 23rd until July 20th and then practically every other day until August 1st when they succumbed to mildew. Carrots we started to use July 1st, Beets July 4th, String Beans July 5th, and of these vegetables we had a continuous supply throughout the summer. Corn was ready July 28 and our supply lasted until October 6th. Of course we did not have this

every day during all that time, but all the supply for a family of five came from our garden (I defy any one to use the "store kind" after tasting his own!). Lima Beans we started using on August 2nd and had quantities right up to frost.

The last of the Tomatoes were gathered, wrapped in paper and placed in the cellar; and we had fresh tomatoes for Thanksgiving, Christmas and New Years! The Parsley and herbs were tied in bundles and hung up to dry and then rolled, the wood removed and the leaf powder put away in boxes for use. Parsley was made available outdoors until late in the winter, however, by covering the outside rows with leaves and boards, Celery was left where it grew and covered thoroughly with leaves, corn stalks and soil. The Cabbage was trenched in the earth upside down and covered with leaves and dirt, the Rutabagas and Parsnip were stored in outside trenches, and the Carrots and Beets were put into boxes with sand in the cellar.

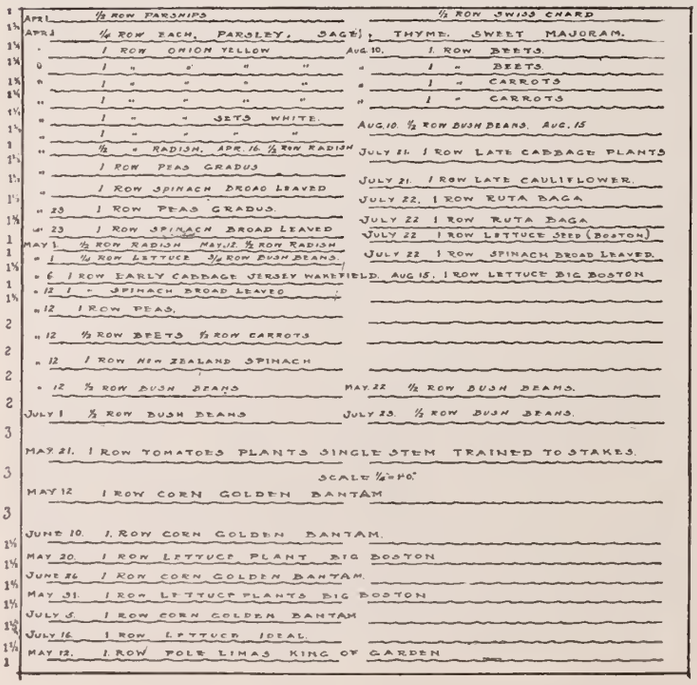
Although the returns are not here accompanied by the market prices, since a sufficient quantity to supply my family abundantly was my standard instead of monetary profits, it would hardly take an expert accountant to discover which sheet the balance is on. And in addition to the vegetables there are on the south side of the space a few Raspberries which I did not include in my bookkeeping. There are also five young Pear trees on the west side and five Plums on the north, planted just outside the fence. On the east side (which faces an avenue) are some shrubs that discreetly hide our activities when these are untimely or unbecomingly energetic.

NOT INCLUDED IN THE BOOKEEPING

But assuredly included in the assets are the Raspberries which form an attractive border planting as well as yield delicious fruit

FOR WET GARDENS

One energetic trenching attack will rout the enemy permanently and redeem wet land



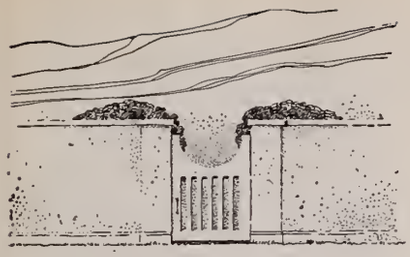
1	APR 1 ½ ROW PARSNIPS		½ ROW SWISS CHARD
1½	APR 1 ¼ ROW EACH, PARSLEY, SAGE		THYME, SWEET MAJORAM.
1½	" 1 ROW ONION YELLOW	AUG 10.	1 ROW BEETS.
1½	" 1 " " " "	"	1 " BEETS
1½	" 1 " " " "	"	1 " CARROTS
1¾	" 1 " " " "	"	1 " CARROTS
1½	" 1 " " SETS WHITE.	AUG. 10.	½ ROW BUSH BEANS. AUG. 15
1½	" 1 " " " "		
1	" ½ " RADISH. APR. 16.		½ ROW RADISH
1½	" 1 ROW PEAS GRADUS	JULY 21.	1 ROW LATE CABBAGE PLANTS
1½	" 1 ROW SPINACH BROAD LEAVED	JULY 21.	1 ROW LATE CAULIFLOWER.
1½	" 23 1 ROW PEAS GRADUS.	JULY 22.	1 ROW RUTA BAGA
1½	" 23 1 ROW SPINACH BROAD LEAVED	JULY 22	1 ROW RUTA BAGA
1	MAY 1 ½ ROW RADISH MAY 12.		½ ROW RADISH
1	" 1 ½ ROW LETTUCE	JULY 22	1 ROW LETTUCE SEED (BOSTON)
1½		JULY 22	1 ROW SPINACH BROAD LEAVED.
1	" 6 1 ROW EARLY CABBAGE JERSEY WAKEFIELD.	AUG 15.	1 ROW LETTUCE BIG BOSTON
1½	" 12 1 " SPINACH BROAD LEAVED		
2	" 12 1 ROW PEAS.		
2	" 12 ½ ROW BEETS ½ ROW CARROTS		
2	" 12 1 ROW NEW ZEALAND SPINACH		
2	" 12 ½ ROW BUSH BEANS	MAY 22	½ ROW BUSH BEANS.
2	JULY 1 ½ ROW BUSH BEANS	JULY 23.	½ ROW BUSH BEANS.
3	MAY 21. 1 ROW TOMATOES PLANTS SINGLE STEM TRAINED TO STAKES.		
3	SCALE ⅛" = 1'0"		
	MAY 12 1 ROW CORN GOLDEN BANTAM		
3			
1½	JUNE 10. 1 ROW CORN GOLDEN BANTAM.		
1½	MAY 20. 1 ROW LETTUCE PLANT BIG BOSTON		
1½	JUNE 26 1 ROW CORN GOLDEN BANTAM.		
1½	MAY 31. 1 ROW LETTUCE PLANTS BIG BOSTON		
1½	JULY 5. 1 ROW CORN GOLDEN BANTAM		
1½	JULY 16 1 ROW LETTUCE IDEAL.		
1½	MAY 13. 1 ROW POLE LIMAS KING OF GARDEN		
1			

THE CHART OF THE GARDEN AS DEVELOPED

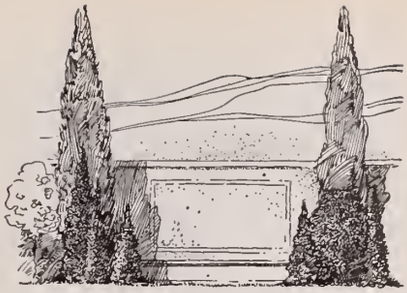
The distances between rows in feet is given at the left, while dates of sowing are lettered on the row

SPADE WELL AND DEEPLY

Manure should be worked well into the ground, as well as thoroughly mixed with the soil



A LANDSCAPE PLAN FOR A COMPLETE PLACE



COMPRISING SIX GARDENS WITHIN ONE

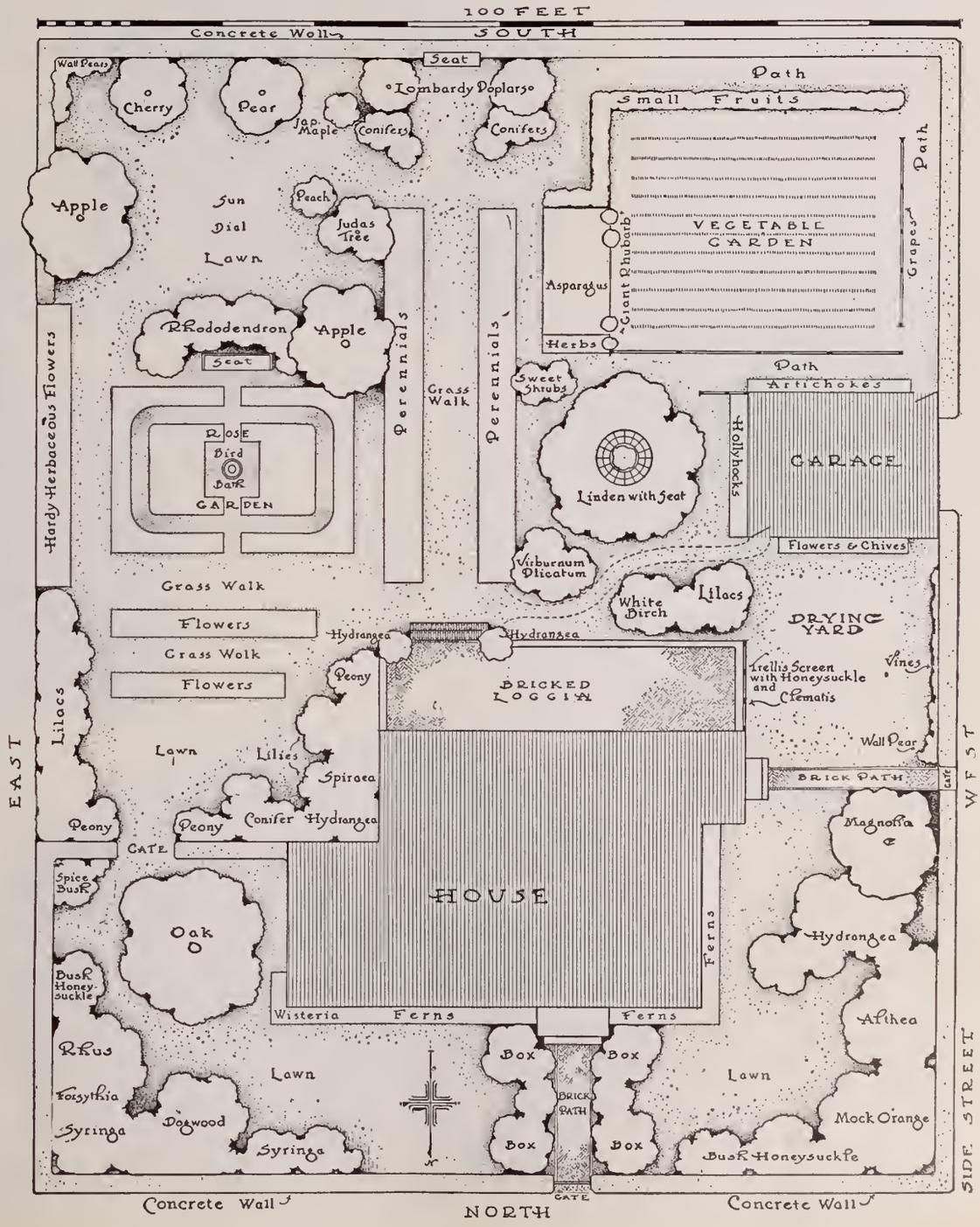
THE ENTRANCE GATE

AND GARDEN SEAT

DESIGNED BY J. M. ROSE

THE arrangement which this second in the series of four garden layouts shows is a development of the ground when the house is set on a corner plot close to the sidewalk. The house wall is continued into the garden wall, giving long lines and great privacy to a place that, located as it is on a corner, would otherwise be uncomfortably exposed. Behind the walls a succession of gardens of different types opening one into the other distinguishes this plan. There are two front gardens, chiefly lawn and shrubbery, with tree box edging the brick path. A wicket gate leads from the one on the east back into an old-fashioned flower garden, with precise Rose beds about a stone bird bath. Beyond this is a stretch of sun-dial lawn bounded by fruit trees. To the west is a long, perennial-bordered path from the loggia and beyond it the vegetable garden, with wall-trained Pear trees, while next the garage is a scented garden with a seat built about a central Linden tree.

The first plan in this series appeared in the March issue. The two remaining will be given during the summer months



SELECTIONS FROM THE NOVELTY OFFERINGS OF THE SEASON

Looking Over the More Important New or Little Known Plants Available for This Year's Flower Garden

IT MAY be true, as the proverb runs, that old friends are best; yet that does not prevent the making of new friends, which is one of life's pleasures. It is the same with the friends of the garden as with those which mark our human companionships. While treasuring many of the old-fashioned flowers, delight is also found each season in welcoming newcomers.

Naturally enough the supply of novelties this season is limited. During the war propagators were largely concerned with other things, and conditions since the war have not favored either the creation or the introduction of new plants. Still we find a few new species and varieties which seem decidedly worthwhile. Among them is Adonis aleppica, the so-called Syrian Floss Adonis, an annual which was described long ago in a few botanical works, and by some authorities considered as a synonym of A. fulgens, but has never before been introduced to American gardens. This new comer is described as three or four times as large as the common well known Floss Adonis and the color a shining deep, dark blood-red. As the plant grows only sixteen to twenty inches high, it can be used for bedding as well as for borders, and should also have value as a pot plant. It seems reasonable to suppose that it will make an excellent flower for cutting.

Another annual novelty which is being offered by a number of seedsmen is the Blue Laceflower. As a matter of fact it is simply a variety of the common Queen Anne's Lace, which though a weed is greatly admired and often used for house decoration. The flowers of this new variety are light blue in color and the finely laced foliage is similar in character to that of the ordinary Wild Carrot. Whether this annual will merit continued garden culture remains to be seen, but there are none too many good blue flowers.

Of late years few annuals have received more attention from hybridizers than the Sunflower. Mrs. Cockerell of Colorado gave us the Red Sunflower (and gave account of its origin in the GARDEN MAGAZINE for July, 1914), thereby accomplishing what plant breeders across the sea had long failed to achieve. In a year or two it was followed by the Pink Sunflower; and now comes another new variety called Dazzler which is receiving considerable attention from seedsmen this season. It is a sport of the cucumerifolius type and its flowers are rich chestnut in color but tipped with orange. In many ways these flowers resemble the Gaillardias, but undoubtedly can be grown in gardens where the Gaillardia is usually a failure. This new Sunflower is not a coarse creation and it grows only three or four feet high, making it a most excellent plant to use for filling vacant spaces in the ordinary border. Quite presumably it will seed itself, but not to an extent which will be objectionable. Another Sunflower, a selected development of some native Helianthus is being offered under the queer name "questifolius." Whatever its name may be the plant itself is a vigorous subject for late fall effect, flowering in profuse abundance of golden yellow till frost stops it. The plant grows six feet tall and flowers throughout its height.

For some time English Dahlia growers have been featuring Dahlias of the miniature type which can be used for bedding. These are now finding a market in this country. Several varieties are being put out, one of them, under the name of Peter Pan makes plants only two feet high and blooms freely when half that height. The small, anemone-shaped flowers appear in a variety of colors and are charming for bedding or to mass along a walk or drive.

Several of the coarser flowers have been given the attention of hybridizers in an attempt to make them more refined and elegant. Apparently the Zinnia has proved a popular subject for several interesting new varieties have been produced. One of them put out last year and grown only in a limited way is the Conical Zinnia which is cone shaped, as its name suggests, and calls to mind a miniature inverted bonnet. This year we have a dahlia-flowered Zinnia, with petals fluted like those of a Show Dahlia and so similar to a Dahlia that if the two flowers are placed together they can hardly be told apart. Then there are the new Victory Zinnias which resemble Anemones, and promise to be a marked addition to annuals for the multitudes.

The Double Cosmos is not wholly new, as different forms have been on the market for several years; these have been improved, however, so that those now offered are well worth growing.

Although comparatively new itself the splendid Verbena Helen Willmott, which came to this country from England has now been improved upon in the hybrid Rose Queen. This has aroused much interest among gardeners across the sea and it will be interesting to learn if it is received with as much favor here. The flowers are a lovely but delicate rose and somewhat lighter in shade than those of Helen Willmott.

No finer plants for flower boxes exist than the Petunias, and a remarkably handsome new kind with deep rose pink flowers is called Erskine Park Belle. It will bloom all season if the seed pods are kept removed and is excellent for beds and borders. Then there is the velvety, violet-blue Petunia which has been grown extensively in Europe for use in window boxes. Seeds of this Petunia had just begun to be disseminated in this country before the war broke out. The stock was very limited and only a few people had the plants, but more seed is now obtainable.

For years the Annual Mallow has been a satisfactory garden plant but now comes a new Mallow of quite different habit. It is called Sunburst, and grows so tall that it very much resembles the Hollyhock in appearance, this aspect being accentuated by the large size of the flowers. Unlike the Hollyhock, however, it blooms extensively from July until November. As with many strong growing annuals it is desirable to sow seeds in the house or in a hotbed.

The Central Experimental Farm in Ottawa has been giving much attention to the newer varieties of annual and perennial flowers, and it has just put out a list of those which have proved especially desirable. Among the most interesting is Didiscus caeruleus, a delightful annual with pale lavender flowers and growing about eight inches high. It blooms in late summer, and the flowers are recommended for cutting. This has been spoken of in the GARDEN MAGAZINE in recent volumes.

Another annual novelty which is described as of value is Ageratum Mauve Beauty, likable because of its very deep blue flowers. In common with other Ageratums it blooms from July until frost and is excellent for a ground cover in borders.

Anchusa Annual Blue has proven an excellent novelty, with flowers about the same shade and with the same intense hue as those of the popular Dropmore variety of the perennial A. italica.

Coming to perennials we find the list of novelties limited, indeed, especially if we want started plants. Judging from what has been said in the English papers the new hardy Carnation being put on the market is likely to meet a real need in

NEW CLAIMANTS FOR A PLACE IN THE GARDEN

This decorative Dahlia, Mrs. Grace Beebe, in lavender and white is representative of the type of bloom that is in popular favor

Quite remarkable in the greatly increased size of flower, the newer Montbretias are things apart. Star of the East is orange-scarlet, three inches across

The name Cambridge Scarlet commemorates the place of origin and the color of a bright flowered Bee-balm

For brilliant yellow in fall, repeating the color effect of Forsythia in spring the new six-foot tall Sunflower will be welcome (Helianthus questifolius)

An old-time annual from Aleppo but not before offered for garden use is this brilliant scarlet Adonis aleppica. The flowers are three inches across

From Canada comes this rich rose pink Rose Frank W. Dunlop, seedling from Mrs. Charles Russell

As a greenhouse Rose for cut flowers it has been tried out and has shown many good qualities already

town gardens as well as proving an addition to garden borders in the country. This was obtained by crossing a hothouse Carnation of the ever-blooming type with a hardy garden Pink. It is said that six years of this work, crossing and re-crossing, were necessary to fix the type. As now grown this Carnation has a delicious perfume and blooms practically all summer. Just how hardy it will prove in the North remains to be seen. Let us hope that it will turn out to be all that is claimed for it, for if so it will become a most important acquisition.

It would be a fine thing for gardens in general if their owners would banish the old fashioned Veronica or Speedwell, for it never was much better than a weed, and now that such splendid sorts as Veronica longifolia subsessilis can be obtained there is no excuse for growing inferior ones. A new variety fully equal if not superior to V. subsessilis is called Blue Ridge, having flowers of the deepest blue and a free blooming habit. With Amethystina in the spring and Blue Ridge in the fall, no other Speedwell will be needed in the garden.

Although it has been possible for a year or two to obtain seeds of Lychnis Arkwrightii, few if any plants have been offered in previous seasons. A small plant bloomed in the garden last year and it seemed to be all that is claimed for it. It is a cross between L. chalcedonica and L. Haageana and the flowers have deep, rich shades.

Then there is the new Oswego Tea (Monarda) Cambridge Scarlet, a plant with bright, deep red flowers which are fully as brilliant as those of the Cardinal Flower. Those who like brilliant scarlets in the garden will prize this plant.

Blue is considered a more refined garden color, and the list of good flowers having this color is rapidly being increased. A spurless Columbine catalogued sometimes as an Anemone-flowered Aquilegia, is being again offered—it is not new by any means, but is not well known. The blossoms always attract attention because of the missing spurs and the color is an attractive light blue. It will bloom very early if seeds are started under glass in the spring. Then there are some new Aquilegias known as Erskine Park hybrids, getting the name from the fact that they were originated at Erskine Park, a famous estate at Lenox, Mass. They are the result of repeated crosses made between the best American and European varieties. They, too, will flower the first year from seeds sown indoors in March, but probably the better plan will be to start them in a coldframe in June and transplant them in the fall to bloom the following year. The colors include blues, lavenders, whites, yellows, scarlets, and pinks.

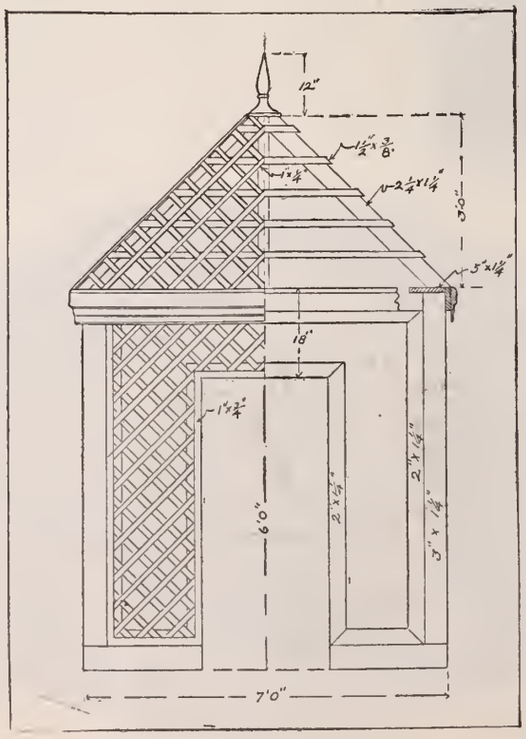
It has long seemed strange that more generous use has not been made of Montbretias and that hybridizers have not secured greater development in the matter of size. Few bulbous plants are more satisfactory for fall flowering. They make a splendid addition to the hardy border and are unexcelled for cutting. It is a matter for congratulation that a magnificent new type has at last been put out. Probably this is the forerunner of still greater improvement. Star of the East is a magnificent flower and will prove a revelation to people who know Montbretias of only the common type. Mr. George Davis, a famous hybridizer, is responsible for the remarkable advance in these plants. He has obtained several hybrids of great merit, but the one mentioned is among the finest because of its strong growth and the size of its blooms, which may measure three inches across, putting them in a class with Gladiolus. The color is an attractive bright orange with a lemon-yellow throat. Quite naturally the price is high, but there are other new giant flowered Montbretias which are much cheaper and yet which are far ahead of the old fashioned flowers.

A LATTICE GARDEN SHELTER SEEN IN FRANCE

E. C. STILES
Landscape Architect

DESIGNING suitable summer houses or garden shelters for private gardens, where the erection of large stone or heavy frame shelters would be altogether out of place, has taxed to the utmost the ingenuity of architects and garden designers, and has given rise to many curious and complicated little structures which are often entirely at variance with the architecture of the house, the size of the owners' pocket book, and the general treatment of the grounds.

The accompanying illustration offers a design which is simple in character, moderate in cost, and easy of construction. The design was taken from a little garden in the suburbs of Angers while the author was en route to America. The floor plan is square and all four sides are similar to the front elevation, with the exception of the doorway, which appears only on the front side. The construction is light



yet strong, as may be attested by the fact that the original has withstood the rainy climate of France for a considerable period of years without any evidence of repair, painting and other upkeep. Constructed of cypress and given two or three coats of good lead paint such a structure will endure for many years in our climate without further attention.

THE materials may be secured as per this sketch upon consultation with any mill working establishment, for be it noted that the stock involved is all simple and of standard size, except the turned ornament at the top of the roof and the moulding or trim where the roof joins the upright.

A small structure of this type will harmonize with any form of architecture and will be suitable in scale to the suburban garden, and at the same time not out of place in a larger area.

THE ROMANCE OF OUR TREES—
VII. THE BEECHES

ERNEST H. WILSON
Assistant-Director, Arnold Arboretum of Harvard University

A Modern Tree as Trees Go, and the Clean-limbed Beauty of the Species Suggests Youth and the Athlete Though the Oldest Specimens Are as Ruggedly Ancient in Appearance, and Actually, as Any Trees We Have

AMONG the familiar trees of the northern forests none is more stately and beautiful than the European or Common Beech (Fagus sylvatica). A clean looking tree and the epitome of vigor, it has been aptly termed the Hercules and the Adonis of European forests. There is something peculiarly attractive about this tree at all seasons. In winter the pale gray, smooth bark and the delicate tracery of myriad branches suggest a light, white mist hovering in and about the trees; in spring its clear green mantle of foliage is exquisitely delicate, yet it soon assumes a darker hue and forms a dense and cooling shade in the summer heat; and in autumn its warm yellow- to russet-brown tints and the long persistence of the dead leaves on the branches make it a bright note in the chill landscape.

Again, the ground beneath Beech trees is generally dry and free from weeds and is inviting to sit and rest upon. Their crowns are broad and far-spreading; the middle and upper branches are sharply ascending, the lower spread horizontally, often downward to midway of their length but are upturned at their extremities—though there are famous trees, like the Newbattle Beech near Dalkeith, some eight miles from Edinburgh, in which the lower branches lying on the ground have taken root and developed into independent trees. The branches of the Beech are very numerous and crowded and, having a smooth bark, are particularly liable to cross and grow into each other and, as it were, inosculate. Hence, according to some old authorities, it was this tree that first gave the idea of grafting.

CLAD IN SNUG GRAY SATIN IS THE AMERICAN BEECH
Which is broidered with the lenticels of the bark and accented by the sharp shadows which the delicate branches cast under a winter sun

GEOLOGICALLY the Beech is not ancient, having apparently first appeared in Tertiary times; it is in fact an aggressive, modern type of tree. Lyell in his "Antiquity of Man" speaks of it as follows:—"In the time of the Romans the Danish Isles were covered as now with magnificent Beech forests. Nowhere in the world does this tree flourish more luxuriantly than in Denmark, and eighteen centuries seem to have done little or nothing toward modifying the character of the forest vegetation. Yet in the antecedent bronze period there were no Beech trees, or at most but a few stragglers, the country being then covered with Oak. The Scots Pine buried in the oldest peat in Denmark gave place at length to the Oak; and the Oak after flourishing for ages, yields in its turn to the Beech; the periods when these three forest trees predominated in succession tallying pretty nearly with the ages of stone, bronze, and iron in Denmark."

Fossil remains of the Beech have been found in neolithic deposits in the Fen district and elsewhere in England, and in the preglacial deposits in the Cromer forests bed. Julius Caesar stated that Fagus did not occur in England; but apparently the tree he meant was the Chestnut (Castanea). Yet the mistake is a curious one, for the Roman, Pliny, described as Fagus a tree which cannot be anything else than the Common Beech. However, the Fagus of the old Greek philosopher, Theophrastus, was undoubtedly the Chestnut; and Virgil's statement that *Castanea* by grafting would produce *fagos* seems to indicate that the name Fagus was in common use among the Romans for the Chestnut.

IN ALL there are ten species of Beech now recognized, eight of which are growing in the Arnold Arboretum—and it is doubtful if any other garden is so fortunate. And though we are here primarily concerned with the Common Beech, it is not out of place to say a word or two about the other species. They all have the same general appearance and cannot be mistaken for any other tree. All have the same sort of thin, firm, smooth, light gray bark, and the leafage and the character of the branches and their disposition is much the same. They differ one from another in the shape and character of their fruits, and in the habit of the bole.

In the Common Beech the bole or trunk is single, and this obtains in one Japanese species (F. japonica) and one Chinese (F. lucida). In another Japanese species (F. Sieboldii) and a

GROWN IN THE OPEN THE COMMON BEECH BECOMES A MAGNIFICENT GREEN SPHERE

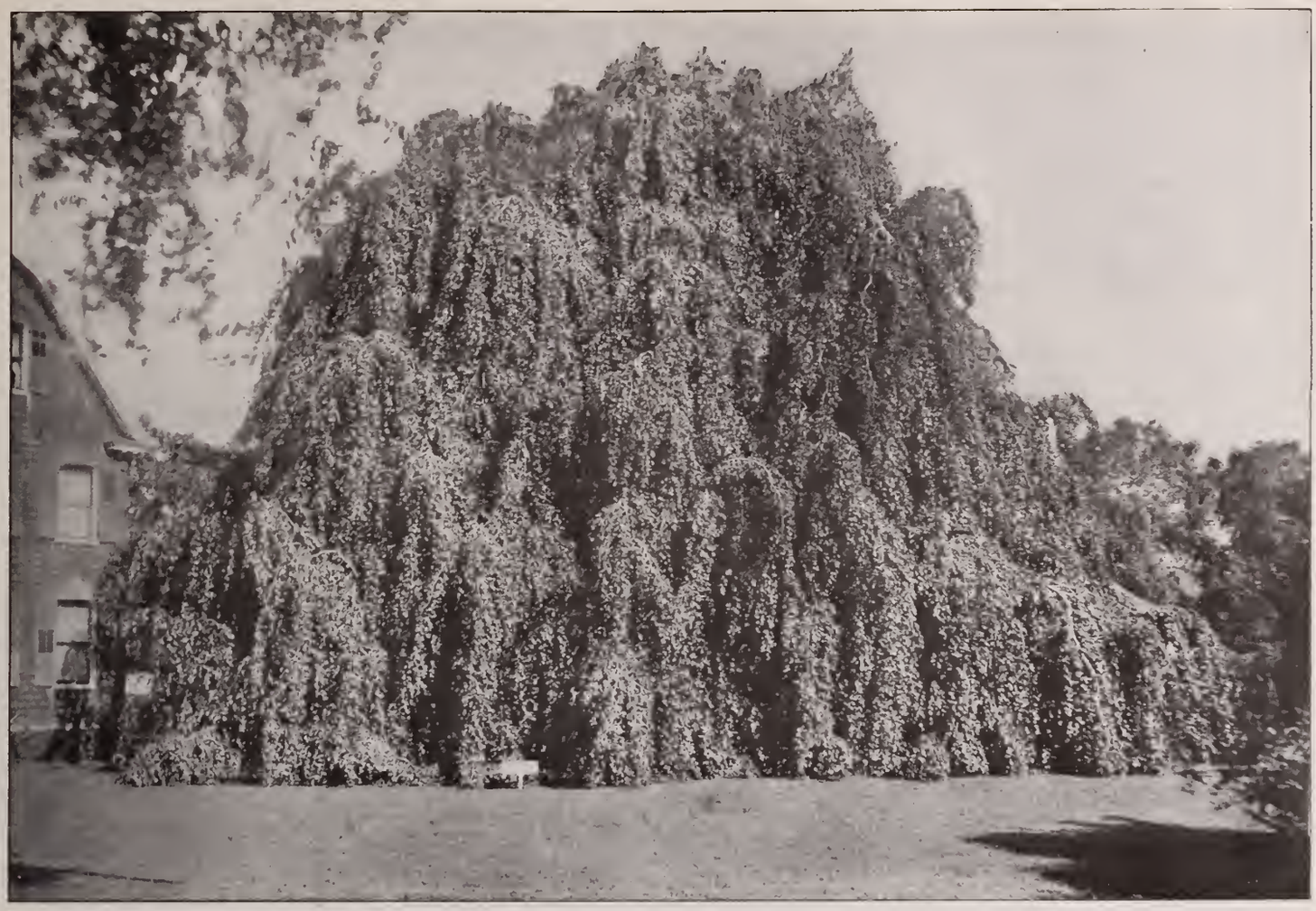
This species (Fagus sylvatica) which is as much at home here where it is very generally planted, as it is in its native British soil, is one of the finest of low-spreading shade trees available and too many of them can never be used

Chinese (F. Engleriana) the trunk divides at or near the base into few or many stems. In the Dagelet Island F. multinervis and the Chinese F. longipetiolata the trunk is usually single, but often divides near the base into several stems. The habit of the rare Formosan F. Hayatae is unknown, also that of the Caucasian F. orientalis, though from an account I have read of the latter it would appear to have many stems like the Japanese F. Sieboldii and the Chinese F. Engleriana. The American Beech (F. grandifolia) exhibits even greater diversity in habit. Normally it has a solitary trunk, but in pastures and places where the roots get near the surface and are consequently exposed and damaged, a multitude of suckers (sprouts) are developed which grow into trees and form a dense copse. Near the foot of the Hemlock Hill, by the collection of Arborvitae and Yews in the Arnold Arboretum, there is a splendid example of this type of growth of American Beech.

THE distribution of the various species of Beech is remarkable, and is a good illustration of the isolation of members of a genus to which I referred in the first article of this series. The Common Beech is indigenous in England and in western Europe generally, as far east as about the old Russian frontier from Norway and Sweden south to the Mediterranean; and it reappears in the Crimea. It is absent from Portugal and is not considered to be wild in Ireland or Scotland though it probably is in the southernmost parts of the latter country. Commonly it forms pure forests of considerable extent, some of the finest of which grow on the northern slopes of the Balkans from their base to 4,000 feet altitude. The American Beech is distributed from Nova Scotia to the northern shores of Lake Huron and northern Wisconsin; south to western Florida; west to southeastern Missouri and Trinity River, Texas. It grows mixed with other trees and occasionally, with yellow Birch, makes nearly pure woods. Outside of America it has not proved amenable to cultivation and in Europe only a few small examples exist.

In Japan Fagus Sieboldii grows from the southern end of Hokkaido, through Hondo, the main island, Shikoku to Kirishima in the south of Kyushu, and in places forms pure woods, though usually it is merely the dominant tree in the mixed forests of certain zones on the mountains. The other Japanese Beech (F. japonica) is more rare and I have seen it only in the Nikko region, where it grows mixed with Siebold's Beech and other trees, at from 3,500 to 5,000 ft. altitude. On the tiny Dagelet Island, a lonely spot in the Japan Sea some fifty miles from the east coast of central Korea, grows an endemic Beech (F. multinervis) recently discovered. It is quite plentiful in forests of mixed broad-leaf trees on volcanic soil. I collected a number of small plants but the time was early in June and I failed to get them to America in a living condition.

NO BEECH grows in Korea, Manchuria, eastern Siberia nor in China until the central provinces are reached. But there, in Hupeh, Szechuan, Kuichau and Yunnan three species have been found; in fact in Yunnan, at about Lat. 23° N. the Beech finds its southern limit. In eastern Hupeh and ad-



FINEST WEEPING BEECH IN AMERICA AND REMINISCENT OF AN EARLY NURSERY
This magnificent tree, in its youth one of the specimens of the old Parsons Nursery which occupied thissection, stands on what is now Washington Place, Flushing, Long Island—and is worthy a long pilgrimage to see

joining parts of Szechuan the three species grow together, though F. longipetiolata is the more common and occurs at the lowest altitude.

These three Beeches sorely puzzled me (though really they are as distinct as they possibly could be) and it was not until the eleventh and last year of my travels in China that I was able clearly to distinguish them. They were successfully transported to the Arnold Arboretum, and I am happy to say they are all growing there to-day. The Formosan Beech (F. Hayatae) is known only from a mountain in the heart of the savage country, where I was not allowed to visit. No Beech has been found on the vast Himalayan range, and this is rather curious since so many Chinese types find their western limits in Sikkim and Nepal. The tenth and last species known—F. orientalis—is found on the Caucasus, in Asia Minor and in north Persia, the Caucasus being its centre of distribution. Of these ten Beeches Fagus multinervis of Dagelet Island and Fagus Hayatae, the Formosan species, are the only ones not growing in the Arnold Arboretum.

The Common Beech is the only kind whose merit as a planted tree is properly known, and this is one of the very few European trees that thrives in eastern North America. It will grow on almost any soil except pure peat and heavy wet clay, but prefers dry soil and attains its greatest perfection on calcareous land or on deep sandy loam. On light sandy soil the bark often splits longitudinally and the trunks singularly resemble those of Hornbeam (Carpinus). At its best it is a magnificent tree a hundred and more feet tall with a trunk full twenty feet in girth. When grown close together the trunks are straight and free of branches for 30 to 50 feet from the ground or even more, but commonly the unbranched trunk is not more than 20 feet high. On old trees, and especially on those that have been pollarded as in Epping forest or the famous Burnham Beeches, huge gnarled burrs develop on the trunk and arrest attention. It is a gregarious species and its branches are so numerous and dense that few plants will grow beneath its shade.

WHEN the Beech is planted to form pure groves the effect is perfect. It is an excellent avenue tree also provided it be planted thickly; but it is perhaps best of all as a screen tree. Owing to its dense branching habit it makes a splendid tall narrow hedge, an additional advantage being that it carries its leaves, whose russet brown gives a sense of warmth, through the winter. Properly clipped, Beech hedges last for centuries, are impenetrable to man and beast, and the finest of windbreaks.

In Europe, and especially in Belgium and England, Beech hedges are common. The most famous, however, is probably that of Meikleour in Perthshire, Scotland. It is claimed that this hedge was planted in 1745, and that the men who were planting it left their work to fight at the battle of Culloden, hiding their tools under the hedge—and never returned to claim them. It is 580 yards long and is composed of tall, straight stems set about eighteen inches apart on centres and now almost touching at their base. The average height is about 95 feet and it is branched from the ground up. This hedge is cut periodically, the work being done by men standing on a long ladder from which they are able to reach with shears to about 60 ft.

There is also a beech-hedge at Achnacarry, on the estate of Cameron of Lochiel, whose history is even more remarkable. Here in 1715 the trees were laid in slantingly preparatory to planting when the men were called away to take part in the

rebellion of that year. The trees were never touched subsequently and have grown up close together in the slanting position just as they were left.

Very many forms of the Common Beech are recognized—the Purple, Copper, Fern-leaf and Weeping being the best known. As a matter of fact the Beech is more prolific in varying forms than any other broad-leaf tree. And all the Beeches are lovely trees in their native haunts. Their wood is similar and makes excellent fuel but is not much esteemed otherwise. It is more used in France perhaps than in other countries, though in parts of Buckinghamshire, England, the manufacture of Beechwood furniture constitutes a local industry of some importance.

THERE are in England many fine Beech woods celebrated in song and story, the most famous perhaps being that known as the Burnham Beeches. This is situated some 25 miles west of London and a few miles from the royal borough of Windsor, and is a remnant of vast forest which once stretched right across England from the Thames to the Severn. It covers now about 226 acres. In 1879 it was purchased by the Corporation of London, and is a worthy memorial to the wise discretion and public spirit of the city fathers of the time. The age of these venerable Beeches is unknown. They are pollarded trees with huge, burled boles and far-spreading, umbrageous crowns. 'Neath their shade the poet Gray, author of the immortal "Elegy," was wont to sit and read his Virgil. Tradition has it that the pollarding was done by Cromwell's soldiers, but much more likely it was the overt act of some greedy lord of the manor at a more remote period, for purposes of temporary gain. But, by whomsoever the act was committed, the effect has been remarkable in presenting a spectacle which, taken as a whole, has no parallel elsewhere. In picturesque beauty the Burnham Beeches are unique and no tree lover should miss a pilgrimage when opportunity offers. It is nearly a quarter of a century since I paid my humble tribute to this shrine, but the memory of that glorious Saturday afternoon is vivid and undimmed notwithstanding that I have since seen the forest glories of half the world.

None of Britain's many famous specimen Beech trees are finer than those in Ashridge Park, Buckinghamshire, where stands the majestic Queen Beech, full 135 feet tall, with a trunk straight and branchless for about 80 feet. Except for certain Elms this is the tallest deciduous tree in Great Britain. Incidental mention has been made of the self-layered Beech at Newbattle Abbey. This tree is about 105 feet high and 21½ feet in girth of trunk at five feet from the ground, and has a total circumference of about 400 feet. In Windsor Park, the royal domain, are many magnificent Beech trees, one near the Ascot Gate being a venerable old pollard 30 ft. in girth which is said to be 800 years old. Of "inosculated" Beeches perhaps the finest is that at Castle Menzies, Perthshire, Scotland, which is 95 feet high. A little above the ground it is forked and then grown together again leaving an opening through which a youth might pass.

THE Purple Beech (var. purpurea) is in my opinion the only tree with colored leaves worth planting. One, possibly two —but not more—properly placed near the house or buildings, with plenty of open space around, will add effective dignity. Unfortunately, however, the use of this tree is all too frequently abused. The Purple Beech is a natural variety of the common kind and so far as is known all of them in cultivation have been derived from a single tree discovered in the 18th century (and still living) in the Hanleiter forest near Sondershausen in Thuringia, central Germany. Propagation has been effected chiefly by grafting. It is also carried on by seeds but only a percentage of the seedlings come purple. This tree grows to as great a size as the parent form, and there are specimens in England nearly 100 feet tall.

It is popularly supposed that the Thuringian tree is the only wild Purple Beech known, but this is not true, neither is that tree the oldest of which records exist; but it is the mother tree of those cultivated in this country and elsewhere. Trees of the Purple Beech grow wild in the Tyrol, and at Buch, a village in the Canton Zurich, Switzerland, three specimens that grow among a mixture of the common green-leafed type with Oaks and other trees have been written about since 1680. At one time there were five of these trees and the tradition is that five brothers having murdered each other on this spot, five blood besprinkled Beech trees sprang up as righteous testimony from God and lasting witness to so horrible a deed. The armorial shield of the village bears a picture of a Purple Beech and the probability is that its name of Buch, which is the German for Beech, was derived from these trees.

The Copper Beech (var. cuprea) is a seedling form of the Purple kind, with leaves and shoots of a lighter color. It originated about a century ago, presumably in England where there are specimens full 90 feet tall and 15 feet in girth of trunk. In the sunshine and when the leaves are ruffled by a gentle breeze this tree is strikingly handsome. There is also a variety purpurea-pendula, a weeping form of slow growth, another (atropurpurea) with leaves darker than those of the typical Purple Beech, also a third (tricolor) with leaves dark purplish-green, spotted with bright pink and shaded with white.

The Fern-leaf Beech (var. heterophylla) has relatively small, variously cut green leaves and the twigs are often hairy. Its origin is unknown. At Newport, R. I., there are fine specimens of this distinctly beautiful tree. In England it is known to have been in cultivation for a century. There are forms of this Beech designated by such names as asplenifolia, comptoniaefolia, incisa, laciniata, and salicifolia which indicate the degrees of laciniation obtaining. Also there is a form (atropurpurea Rohanii) with incised leaves of the same hue as those of the Copper Beech.

THE Oak-leaf Beech (var. quercoides) has long stalked leaves pointed at the base, with long-drawn-out apex and deeply incised margins with the individual segments pointed. Other forms with green leaves are the Crested-leaf Beech (var. cristata or crispa) a curious small tree with small, short-stalked leaves crowded into dense tufts which are scattered at intervals on the branches; var. macrophylla, with very large leaves; var. rotundifolia, with small round leaves; var. grandidentata, with conspicuously toothed leaves and several others.

The Weeping Beech (var. pendula) has the main branch very irregularly disposed and often the outline is rugged. Trees of this Beech may be tall and slender, or low and broad, or quite irregular according to the direction of the larger branches, which may grow outward or upward or in almost any direction; the smaller branches only are uniformly pendulous. The Weeping Beech is a natural variety and has been found wild in the forest of Brotonne, in Seine-Inferieure, France. Other forms of pendulous habit are var. borneyensis which was found wild in the forest of Borney, near Metz, and is said to have all the lateral and subsiding branches weeping; var. pagnyensis found in the forest of Pagny, Meurthe-et-Moselle, France; var. remillyensis from the forest of Remilly, near Metz; and var. miltonensis with only moderately pendulous branches, found wild in Milton Park Northamptonshire, England.

The Parasol Beech (var. tortuosa) is of French origin, having been found in the forest of Verzy, near Rheims and elsewhere. This form has a short twisted trunk and hemispherical crown, with all the branches directed downward and often touching the ground. It is seldom more than 10 ft. high and is more curious than beautiful. A similar form was discovered in Ireland some thirty-five years ago. The Fastigiate Beech (var. Dawyckii) is a remarkable variety with all the branches erect. The original tree grows at Dawyck, Peebleshire, Scotland, on the estate of Mr. F. R. S. Balfour, Esquire.

Finally, there are variously variegated-leafed forms of no particular merit, and the Golden Beech so-called (var. zlatia)

discovered in Serbia and introduced to gardens about a quarter of a century ago. I have by no means mentioned all the known forms, however; but enough has been said to show the adaptable and precocious character of the common Beech. The fruit of the Beech is a stalked capsule clothed with simple pliant prickles. When ripe this opens at the apex into four divisions, and sheds the two nuts that each contains. The nut is sharply 3-angled, is rich in oil, and of pleasant flavor. In France, more especially in former times, the oil is expressed and used for culinary and illuminating purposes. The nuts are greedily eaten by wild pigeons and other birds, and by squirrels, deer, wild pigs, and other animals.

THE common Morel (Morchella esculenta), a mushroom-like fungus much used in culinary art for flavoring, grows in Beech woods. It is always found in the spring and in France and Germany the gathering of Morels is quite an industry among the peasantry. But more esteemed by the gourmet is the Truffle (Tuber cibarium) which grows on the roots of the Beech. This Fungus is subterranean in habit and never appears above the ground. It is black, of irregular shape, about the size of a hen's egg, covered with warty excrescences and possesses a very strong but agreeable odor. It matures in the month of October and the flesh is brown, veined with white. It is generally found by pigs and dogs trained to search for it. Though it is by no means confined thereto, France supplies commercially the bulk of the Truffles of the world.

Finally it may not be amiss to mention the fact that the firm, close, smooth pale gray bark, "its glossy rind," seems to have proved from early times an irresistible attraction to love-sick swains, sentimental adolescents and other irresponsibles. Everywhere one sees lovely Beech trunks disfigured by letters and symbols cut into the bark, some many, many years ago. No other tree indeed, suffers to the same extent from this particular form of egotistical vandalism.

THE FAMOUS BURNHAM BEECHES

This remnant of a vast forest once extending across England and doubtless a thousand years old when William the Conqueror invaded the land, is now a three-hundred-acre public playground acquired during the present generation by the Corporation of the City of London

"Gardens may boast a tempting show
Of nectarines, grapes and peaches,
But daintiest truffles lurk below
The boughs of Burnham Beeches."

ROSES THAT CLIMB ARE ADAPTABLE

SHERMAN DUFFY

Conditions of Soil Mean Little to This Class, Wherefore They Will Never Fail You If You Give Them a Fair Start

IF I were about to start a garden absolutely new and without a plant in it, I believe I'd start with a Rose! And it should be a Climbing Rose—Climbing American Beauty, I think, if I could lay hands upon one; for this seems to be the most durable, weather-proof, sure-to-bloom, big-blossoms-wafting-fragrance-all-about-its-locality of all—and with a purer and better color than the famous cabbage-on-a-stick from which it takes its name. There are to be sure some two hundred odd things in the way of diseases and insects that can happen to a Rose; and if some of these do not transpire, it sometimes will just "up and die" for no apparent reason!

Nevertheless, as I was saying, I'd start with a Rose—a Climbing Rose. And the reason I would choose a Climbing Rose is because these are sure to grow in any soil in which they are placed, while other classes of Rose are by no means so certain. I have broken out with the Rose fever time and again despite hostile soil, struggled along for a season or so with Hybrid Teas—which were seized with pernicious anaemia as soon as they landed in said soil—only to give up at last; and then after a bit be tempted beyond my strength, and start all over again! For I have always wanted to grow Roses, but never have been favored with friendly soil. Consequently I always had poor results, until a curious chance set me going in the right direction—that is, with Climbers.

The chance was a bargain in steel! I grabbed at a dairy-barn fire-sale all that another bargain fiend didn't of steel hay-carrier track and had it straightened and cut into lengths which made, when set in concrete, sixteen eight-foot posts and six ten-foot posts. I placed two at each end of five long narrow flower beds running the length of my garden, the central bed having the ten-foot posts. The two extra ones of these served for an entrance arch at the side. And there was the making of Rose arches for which I had yearned many a year—in fact every time I had seen any—at a total cost of $12! (I never expect to duplicate this bargain in steel, let me say right now.)

BY WAY OF EVIDENCE

It takes a little time, of course, really to clothe a frame with Climbing Roses, and the first year's growth is but an earnest of things to come

It was reproductions of photographs in THE GARDEN MAGAZINE that gave me the inspiration to switch from the Clematis bower idea with which I had bought the steel posts, to Climbing Roses—or at least turned my strong inclination to make one more try at Roses into a resolve. For I had one Crimson Rambler that had persistently hung on in a bone-dry situation under the eaves, and another old-fashioned Prairie Queen that flourished because nobody particularly cared whether it did or not apparently. So, with pillars for twenty-two Roses, I already had two!

I promptly annexed the other twenty—ten pairs of Climbing American Beauty, American Pillar, Aviateur Bleriot, Thousand Beauties, Hiawatha, Excelsa, Christine Wright, Dorothy Perkins, Dr. W. Van Fleet, and Silver Moon. I bought two-year-old plants—fine husky bushes cut back to about five feet—at sixty cents apiece. [Happy days!—ED.] Every one grew, and all gave a few blossoms the first season, so I had a chance to see what they were like. And American Beauty with its big, fragrant, rose-colored blooms, Dr. Van Fleet with delicate pink "regular" Roses, and the big semi-double creamy-white Silver Moon were my favorites of the lot at once.

These Roses have averaged twelve foot canes a season, and one of the Silver Moons reached eighteen feet. The least rampant of the lot is Thousand Beauties and Dorothy Perkins is the most ambitious. They did not make this luxuriant growth unaided, however, by any means. The soil was in general a light sandy terrain and none too good, though one end of the garden is of fairly good texture. The other end is extra dry and inclined to be clayey. I dug in a liberal supply of pulverized sheep manure when they were planted, and after the buds showed gave them liquid manure once a week until the last of August, when it seemed desirable to ripen the growth rather than to encourage any more. I alternated liquid hen manure with sheep manure and an occasional balanced commercial liquid fertilizer. They all responded nobly.

Their first winter was a test and I went to the trouble of laying down the canes and covering them. I have not done so since. There were some disappointments when spring rolled around. American Pillar was the worst. It made the sturdiest canes, as thick as a finger and looking vigorous enough to withstand almost anything, but they killed back almost to the ground. It still continues to be disappointing to some degree, although it retains enough wood to give a fine show of its great clusters of single, wild-rose-pink white-centred blooms. I have an idea that it has not properly ripened its wood, as it seems later in making canes than some of the others. In this trying climate of northern Illinois where even the ubiquitous Dorothy Perkins and the omnipresent Crimson Rambler kill back, Climbing American Beauty is the one Rose that always comes through in fine style and I certainly am strong for it. Aviateur Bleriot has the finest foliage of the lot—waxy, dark green, with clusters of medium sized buff buds that open to creamy little double Roses. It has a tea scent, and is inclined to be tender unless the wood is thoroughly ripened.

ROSES IN THE TEMPERAMENTAL ZONES

C. L. MELLER
Superintendent of Parks, Fargo, N. D.

Proving Themselves More Reliable Than Some of the Most Common Things They May Provide the Entire Planting of the Garden

WHERE the winter is long and weeks of zero weather are a certainty, where spring comes with a rush, where late frost nips the early buds and early frost the late ones, and where July and August are very apt to be hot and dry, as in the great Northwest, Roses are available nevertheless for almost every need of a well balanced planting design.

To begin with, there are the Wild Roses, ready at hand almost everywhere and willing and able to bloom almost anywhere, from the Wild Rose of the prairies, low and almost herbaceous with shoots seldom reaching a height of more than two feet from a spreading woody rhizome, to the taller woodland Roses which are just the shrubs for poor soil on which only the meanest weeds endure. I have grown these on a bank that is nothing more than a conglomerate of old Cedar blocks and manure with less than two feet of clay covering. Here, planted thickly, they fought and hid the weeds, and gave it a very tidy —and while in bloom, very joyous—appearance, as well. Warm and bright too in winter against the sparkling snow are the heps of the Wild Rose while in spring some of the early migrants among the birds, hard pressed for food, are glad of them. Wild Roses can be transplanted at any season of the year providing the bushes are cut back about one half if they are in leaf. It is well also to take as much soil as possible with the roots, the one essential to success being that the roots do not dry out.

In the Austrian Briars, such as Harison's and Persian Yellow, we have foliage of a darker green with the vigor and hardiness of the Wild Rose. These likewise require no protection. The Moss Roses, too, are hardy and though their foliage is more or less subject to mildew, their exquisite buds seem to justify the use of a few bushes at least in every planting. They are the better for pruning and because of this they can be used for a low clipped hedge.

THE Rose par excellence for a hedge in a severe climate however is Rosa rugosa. How hardy it is surely every gardener knows and happily some of the newer double forms appear to equal the old-fashioned single type in this respect. Being of comparatively low growth it can be planted in front of the taller Rose bushes and further held down as low as desired by pruning. The old-fashioned Blush Rose, or Maiden's Blush to give it its proper title—the double pink form of Rosa alba—has distinct value as a shrub and is very satisfactory as well. The Cinnamon Rose also is available, and that "most spiny," as the botanists have dubbed it, the Scotch, Rosa spinosissima, should also be added to the list of shrubby Roses. The fragrant foliaged Sweetbriar may be included, too, if some killing back of the bushes be not considered too great a fault, for actually it is hardy at root.

These are for the background, or the framework so to speak of the Rose planting. But the planter even in a most hostile climate need not confine the scheme of his garden to these alone. For among the Hybrid Perpetuals there are a great many and as a start I would suggest Paul Neyron, Marshall P. Wilder, Anne de Diesbach, Gen. Jacqueminot, John Hopper, Magna Charta, Fisher Holmes, Mme. Gabrielle Luizet, Clio, Margaret Dickson, Frau Karl Druschki, and Marchioness of Londonderry. This list includes red, crimson, pink and white—and there is no reason, obviously why one should not add newcomers as they meet one's fancy. The American Beauty Rose even can be carried through our severest winter, though it is not ordinarily grown in the garden as it is much finer under glass.

OPINION still is current that the most a garden in colder regions can hope for is a few Hybrid Perpetuals; but the writer's experience with Gruss an Teplitz points to the Hybrid Tea as the Rose for climates where some of the "hardy" Lilies are *not* hardy; where "hardy" herbaceous perennials fail to reappear in spring; and where so rugged a shrub as Spiraea Van Houttei is killed back extensively in many a winter. The Hybrid Perpetuals are a little the hardier sure enough, yet to make them a safe investment they require winter protection; and as the Hybrid Teas ask no more, why give the former any preference? I find that two-year dormant field-grown stock set out in spring gives the best results.

As to Cultural Attentions

DURING the dry weather of summer, if there be small chance to water copiously, a constant stirring of the surface into a dust mulch will serve perfectly. For winter protection the bushes should be hilled up as one would hill up potatoes, covering the branches to a little higher than they are to be pruned back in the spring. This should be done just before the ground freezes in the fall; and it is well to bring the soil for making the hills from other parts of the garden and fill it on about each bush. The bushes may be brought indoors through the winter, if extraordinary precaution seems advisable, and laid down under about a foot of soil, or another way is to prune back in the fall to about a foot in height and cover completely with earth.

One may also have Climbing Roses in a severe climate in spite of the cold—not perhaps in that same profusion that milder climates are favored with, since they must be so grown that the canes can be laid down and covered in fall. The full length of each season's growth can be carried through each succeeding winter however underneath a foot of soil firmly packed over the canes. So do not hesitate to plant any climber that in vigor and hardihood approaches the Crimson Rambler, the Memorial Rose, or the Climbing American Beauty.

WILD ROSES MAKE AN IDEAL SHRUBBERY WHEN MASSED

Sure to grow in the climate to which they are native, here is a class that furnishes great delicacy of bloom in summer, and rich color of fruit and branch in winter

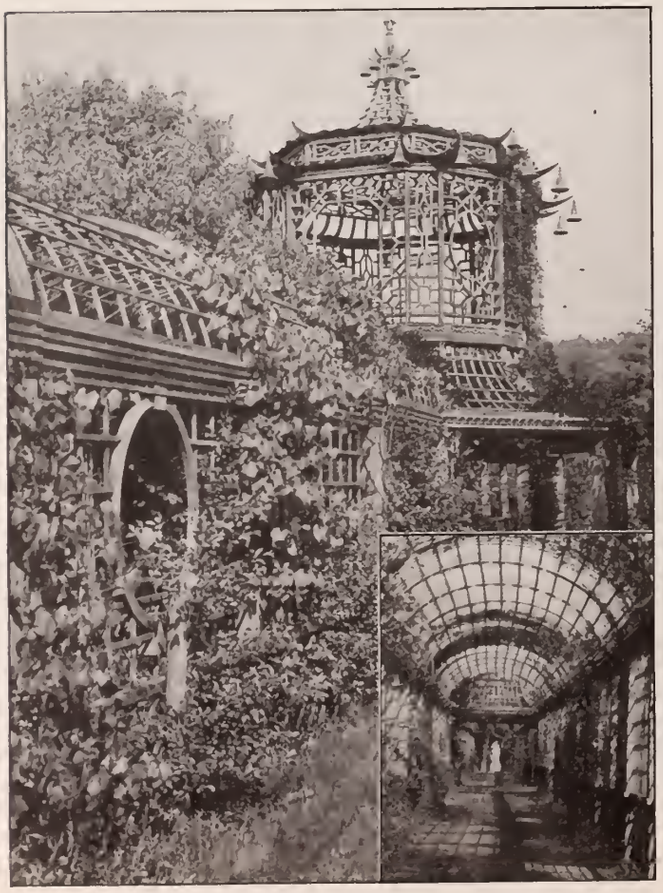
Motionless under the spell seemingly of some woodland god lies the lake reflecting the classic temple, the entire conception being rich in that static perfection which distinguishes Greek art

An engaging little crew are the

Some Views in the

Estate of Mr. Larz Anderson,

WHILE this garden, perhaps the finest and most famous in America, all things considered, is familiar to everyone in certain of its aspects, its great diversity is altogether unsuspected by the many owing to lack of reference thereto when it



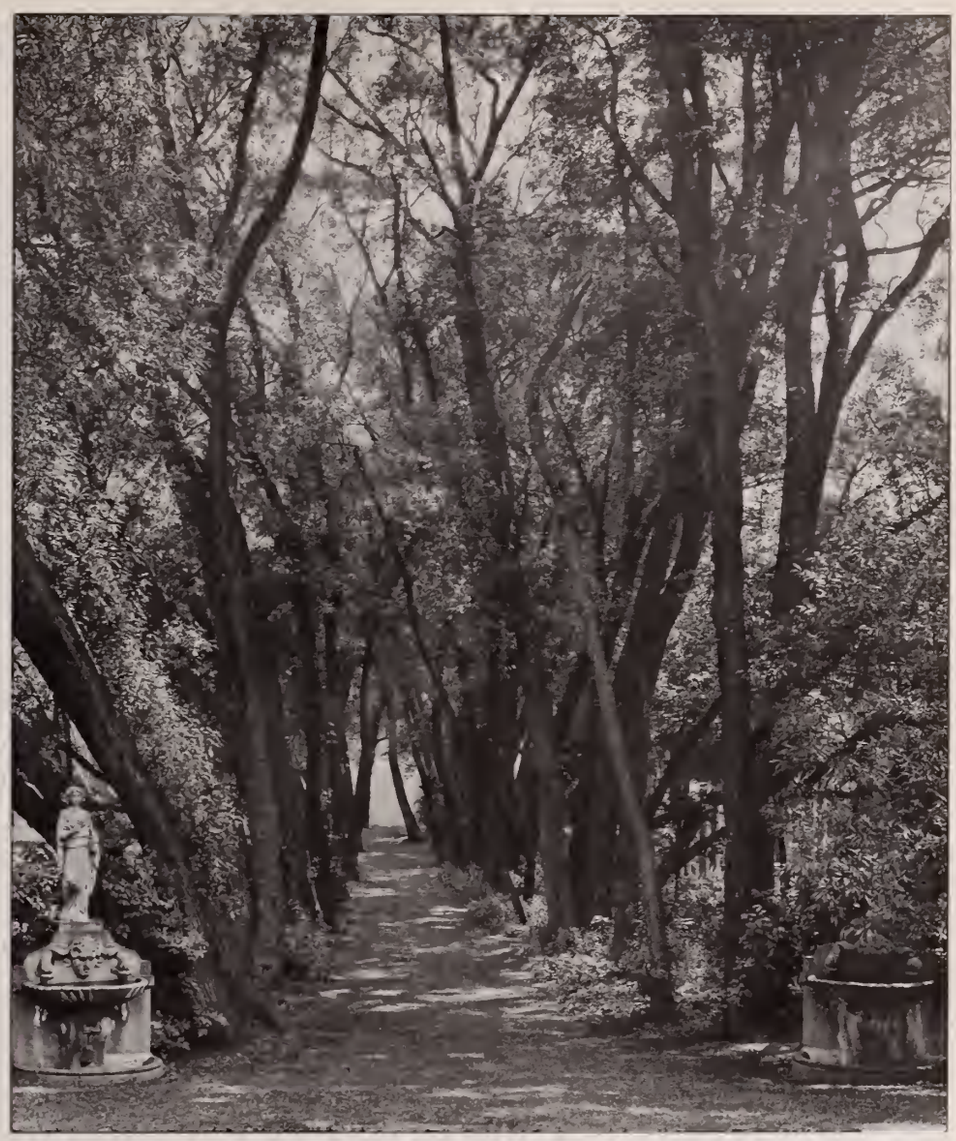
Direct from the Chinese comes inspiration for the ornate delicacy of the lofty arbor at the left; while the little secluded corner above carries imagination to Japan and its miniature landscapes

int Pixies of the woods of Weld

Garden of Weld

at Brookline, Massachusetts

has been the subject of illustration. To suggest something of its range of mood and inspiration the present assemblage of widely differing vistas and features is offered, not as an adequate presentation but rather as an interpretative hint.



An avenue of shade and receding tree trunks here suitably developed with Willows reminds one of the great Cypress avenue at Frascati and many another famous Italian bit

More in the conventional spirit of the formal garden as it applies to-day is the flower garden proper as the two views below reveal

TENDER ANNUALS FROM SEED

N. R. ALLEN

The Right Methods from Seed to Full Flower Demonstrated With Salvia, Which is One of the Extremely Popular Favorites

SALVIA seeds are of uncertain germination, and slow to sprout, so to facilitate matters I soak them over night in a pint bowl of water to which is added a tiny pinch of a soluble flower food. The next day remove them from the liquid and plant them in a seed-box at a depth of three or four times their thickness. Firm the dirt above them with a piece of old muslin, and water through this by means of a fine spray. The temperature in the furnace-room where mine go until germinated, standing across the top of a discarded clothes-horse, ranges during the daytime from eighty to ninety degrees Fahrenheit. The soil moisture is managed by watering through the cloth, and the latter must be always wet, though this means several visits thereto a day. About ten o'clock each night the final spraying is given, the cloth is wet, and the seeds are tucked up for the night under eight or ten thicknesses of newspaper.

When they have germinated they move to the kitchen whose temperature, though fluctuating, is not so high. The thermometer often registers eighty degrees when cooking is in progress but commonly it is about seventy. Here, uncovered, they have a place near the range for a week, then they are removed to a window facing south some twelve feet away. As soon as they crowd they are carefully pricked out with a penknife, and transplanted to stand two inches apart. After transplanting, water carefully and set where the sun will not shine on them for a few days.

Native to Brazil, Salvias not only like warmth, but a rich, friable soil. So the next event in their history is a small dose of wood ashes of the commercial sort, since these are not likely to be over-fiery. This tonic makes them strong and sturdy of stem, as it contains potash. I almost fear to mention it!—but if you try it, remember that you would not hand roast duck over to the baby just because he cried for it; and feed the Salvias with corresponding discretion. Not much more than a "dusting" of it is put on to the soil between the plants, in little furrows so that it shall not be washed against their stems when they are watered. A week later some commercial sheep-manure is given in the same way, and this alternating potash and phosphoric acid—the latter for bloom and good color in the flowers—contained respectively in the wood-ashes and the sheep-fertilizer, is repeated several times, but always with caution.

The Salvias are the last seedlings to be taken out-of-doors. At first they go on to the back porch for a few hours during the warmest part of the day only, but not in direct sunshine. If there is a drying wind or a cold and blighting one, they are protected and if there is a warm spring rain, falling softly, they are allowed the benefit of it—but when the soil is sufficiently saturated they are brought under cover from it, and they are always brought into the house at night for the first week or so. Some direct sunshine is allowed after a week or ten days, and from the middle of May they stay outside all of the time. But their box is set within a frame so that if there is a downpour heavy enough to injure them, or danger of frost, they may be covered. On or about May 31st they are transplanted into their permanent place—a sandy soil, naturally very poor, which is enriched early in the spring with horse-manure, not then thoroughly rotted and having a good deal of straw. Here they get sun from about eleven o'clock on. When they are well established, some coarse bonemeal is dug in around them.

About August 1st they will commence to blossom—a little in advance of plants grown from cuttings, usually—and many of my plants are from forty to fifty-eight inches high. I find it better not to place them two successive years in the same place.

I would never advise an earlier beginning than the first of April. Too early a start doubles one's troubles, for plants become so large that transplanting multiplies and it will take several boxes to hold them. Moreover it is almost impossible to keep seedlings in the house for a long time and have them remain healthy and strong.

FOR BIG RESULTS IN LITTLE TIME

The half-hardy and tender annuals, with summer flower-roots are an ever ready means of overcoming bare space. Salvia, Coleus, Canna, Castor-bean and in the distance Elephant Ear

AMONG OUR GARDEN NEIGHBORS

OLD sayings have a way of startling us into new lines of thought that are sometimes very profitable; and the old sayings of the soil and plants are no exception. Here is one about pruning, for example, that makes us open our eyes, it is so revolutionary:—"the wise man pruning his orchard carries out the prunings thereof in his pocket." Imagine such a thing! When all the tradition and precept and practice of to-day is based on the theory of severe pruning to induce strong growth!

Yet looking at it from a purely common sense attitude, why should it? Why should taking away a portion of a plant make the rest of it stronger and better, any more than removing a portion of a man would have the same effect on him? Without doubt there is usually an exuberant growth in the season following heavy pruning (and in special cases of course, pruning is done for just the purpose of stimulating this new wood, for one reason or another) but it has been proven by careful observations that this growth of shoots is by no means an index of a plant's vigor as a whole. As a matter of fact, does it not obviously indicate that the portions of which the plant has been deprived by pruning were essential to its life, and must therefore be replaced at the earliest possible moment *before it can go on* along its line of normal development?

Further, inasmuch as its normal development has been thus violently interrupted, and its strength drawn upon to make up the loss of vital members, does not natural inference conclude that it never will arrive in all its parts at what it would have become if such interruption had not occurred? This is precisely the truth according to the conclusions which various experiments and observations, made here in both the East and the West, in Canada, in Europe, and in England, reach. The less a tree is pruned the larger and heavier it becomes at maturity—larger in all its parts and heavier by actual weight, which reveals of course more definitely than anything else can, its actual condition.

All of this is very significant, and the well-being of our shrubs and trees generally, as well as our fruit trees, deserves that the widest dissemination be given the information—since the meddlesome instinct to prune and snip has been so encouraged. Sometimes indeed it appears that the mass of gardeners believe a garden is principally a place in which to exercise the pruning saw and shears; and without a doubt on many places the labor wasted in pruning things that should have only dead branches removed, or not be pruned at all, would amount to 10 per cent. of the total.

Which is not to be interpreted as an arraignment of what may be called constructive pruning! For although pruning per se is never a necessity, but simply a measure to an end, constructive pruning is one of the fine arts of plant growing. It differs, though, from the ignorant and energetic use of the pruning instruments as greatly as the restrained work of modern surgery differs from the indiscriminate activities of the old-time sawbones; and unless one knows beyond peradventure exactly what he is doing, why he is doing it, and just what effect it will have, let him withhold his hand! For it is a subject upon which even experts are not altogether agreed—albeit it is a practice as old as history—and much undoubtedly is yet to be learned about it.

For one thing, there is the sabbatical year stressed in the directions given the children of Israel, "Six years . . . thou shalt prune thy vineyard and gather in the fruit thereof; but in the seventh year shall be a sabbath of rest with the land, a sabbath for the Lord." Who in the modern era has ever tried following this literally? Yet why not? Apart from any religious significance, we know that the commandments and precepts given the children of Israel were based upon sound principles of hygiene or physiology; hence it would seem that there might be some advantage worth taking a good deal of pains to find out in this sabbatical restraint. But for the most of us the best part about the whole thing, under general normal conditions, is the extreme simplicity of *our* part—nothing to worry about, and nothing to do!

ONE wonders what would happen to a plant that came to our shores in these days showing evidence of actual disease or insect pest, when a luckless handful of seeds entering "by permit" obtained from the Federal Horticultural Board and routed through the channels mapped out by it, are delivered to their consignee as dead as doornails after treatment consisting of 24 hours' exposure to formaldehyde, followed by a similar exposure to hydrocyanic acid, the reason recorded on the slip in each case being *precautionary!* This is strenuous prophylaxis, hardly calculated to reassure plantsmen, or induce them to avail themselves of the much vaunted permits that "may be obtained." One wonders further on just what grounds the Federal Horticultural Board fears for the safety of our temperate region forests through the importation of the tender tropical Orchids! Or most of all perhaps, why, of things admitted, Lily-of-the-Valley, coming wholly from Germany, heads the list. Verily, there are not a few things in these days that are past understanding!

THE Trustees of the Massachusetts Horticultural Society are "of opinion that these drastic regulations of the Federal Horticultural Board, imposed under Quarantine 37, should be substantially modified. They believe that the restrictions enforced by this quarantine are very largely unnecessary and detrimental to horticultural progress in the United States."

They are of the opinion moreover that it is "a question whether the Secretary of Agriculture, in ordering such drastic quarantine, may not have exceeded both the intent and the scope of the Act of Congress authorizing plant quarantine."

Wherefore, "The Trustees of this Society believe that a

meeting of all the different horticultural interests in the United States should be held to consider Quarantine 37, and to take such action as may seem necessary to secure its amendment"; and they have requested that all organizations appoint a delegate to represent them officially at such a meeting, to be held during the month of May, in a central city of the United States. And further, "The Trustees of the Massachusetts Horticultural Society will thank you to advise them of what action you may take." This is good news indeed, and will lead to concerted action.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

Second Crop Crabapples

THREE Crabapples bearing in my garden were last summer full of aphis on the tips of the tallest branches. I had sprayed them before but evidently did not reach the vital spot. As I was busy I decided to cut out those tips and I did not want them to grow too tall anyway! Imagine my surprise when in August I found a number of branches in blossom on one of the trees, right where they were pruned, and I had a second crop of crabapples, about one dozen in all, in November, I presume as a result of the late pruning.—L. A. MALKIEL, *N. Y.*

Fall Blooming Iris Again

MR. MORRISON'S remark last spring that he did not know of another instance of the second bloom in the East of I. Mrs. Alan Gray as reported from my garden, recurred to me many times during the past cool wet sunless summer as I watched for a second bloom on my Iris plants. Sincere gardeners abhor, I think "fisherman" stories from their gardens. Not one spike of bloom appeared on any plant until mid-September when Mrs. Alan Gray with superb loyalty to the Garden Mistress, despite lack of ripening sun, sent up one spike—and such a spike! The usual number of flowers of this variety to the stalk is about five. This spike of vindication was *twice* branched and had *eleven* superb blossoms, whose pinkish lilac was well content with the Indian yellow of a neighboring Mrs. Aaron Ward Rose.—ELLA PORTER MCKINNEY, *New Jersey.*

Oh, Where Can It Be Had?

I WAS forcibly reminded by the experience of E. L. Cabot (see January issue) of the hours I too have spent searching the many catalogues for some of the plants and seeds commented on by writers in THE GARDEN MAGAZINE. And just here I would like to ask the "White Violet Lady" if she will please tell us where we can get plants of White Violet, for we are very much interested.—MRS. OLIVE GOENS, *Longview Farm, Hector, N. Y., R.* 1.

—I have been trying to locate some of the vegetables described by Mr. Kruhm in January issue, and have not yet traced Egg Harbor Pole Bean. When a contributor enthuses over a lot of so-called new things (new names, anyway!) why on earth don't you make him say where one can get them? That is one of the worst faults of THE GARDEN MAGAZINE and should be remedied. By the way Wong-Bok Chinese Cabbage, and the Cocozelle are already rather common here—I, at least, have raised them for some years.—(DR.) C. L. GREGORY, *Redwood City, Cal.*

—We sympathize with Dr. Gregory and others who have written in a similar vein but it is obviously not practical to supplement every article with a directory of dealers. As a matter of fact a little judicious searching of the list of the leading nurserymen and seedsmen will usually afford satisfaction. But it would indeed be surprising if any one dealer's list was found to offer everything that is discussed. Nor does the editor feel bound to hunt through catalogue after catalogue in assuring himself in advance that such and such a thing is offered in the lists before him, and refusing space to a comment on anything that he could not find listed. Such a course would not work for progress. Then again the dealer has ample opportunity to lay his announcements before the reader, and should do so indeed for the good of all. THE GARDEN MAGAZINE tries to lay before its readers the whole truth, impartially, in a general way—it is always glad to furnish further information by letter in reply to any specific request, so far as is possible.—ED.

Tigridia Pavonia

A YEAR ago an English gardener gave me six bulbs of Tigridia pavonia which I planted last spring in a warm spot in my garden in a mixture of leaf mold, sand, and loam. Their growth was rapid and strong. Then came weeks of wet weather interspersed with only days of sunshine and then more rains. Undaunted by repeated soakings the Tigridia continued to grow and one morning I looked from my windows and saw standing straight and tall the most gorgeous flowers red, orange, and yellow in such splashes of barbaric combinations and truly "Tiger-like." They had persevered through such climatic odds to reach their ultimate development that they indeed won my admiration. The bulbs multiplied rapidly, so I hope to set out these children of the tropics this spring and wish them a pleasant summer heat and sunshine. The gardener, who gave me this plant told me they were supposed to possess some medicinal qualities, but of what value, he knew not. What of the plant? Can any one tell me?—(MRS.) HENRY A. STEINMEYER, *New York.*

—Tigridias are Iridaceous plants, and the one mentioned is called Peacock Tiger Iris from its gorgeous coloring. It was introduced from Mexico in 1796. It should be treated just like a Gladiolus. All these Tiger Day-lilies are barbarically gorgeous but the flowers last only one day which is somewhat of a drawback.—ED.

By Way of Explanation

AN ARTICLE in a recent number in referring to Californian enterprise in the future production of plants for American gardens gives a wrong impression of the Cottage Gardens Nurseries moving to the Columbia River Valley. We are not moving because we cannot grow bulbs, Azaleas, Rhododendrons and other plants in enormous quantities successfully and profitably, but for business considerations. We had our troubles and our auto trucks were attached and tied up at commencement of shipping season so as to prevent our getting the 25 to 30 carloads of bulbs and plants shipped on time. Our water supply was cut off also when Azaleas were budding. Now as to growing plants: It takes three years to produce a commercial Azalea indica plant 16 to 18 inches in diameter. Four years produces commercial Rhododendrons; one year produces large fully-budded Ericas two to three feet tall; six months produces good Begonia bulbs from seed and same is true of Gloxinias; two years produces mother bulbs in Tulips from small planting bulbs three-quarters of an inch in diameter, and the same is true of Narcissus. Araucarias are readily produced in twelve to eighteen months. Hollies grow slowly and four to five years are required to get good plants two to three and one-half feet high. Six months produces fine Hydrangeas and other succulent rapid-growing plants. Our growing season includes all months except July, August, September, and October. No, it is no fault of the growing here. This coast will grow all the Dutch bulbs, Azaleas, Rhododendrons, Camellias and plants which will be needed to supply the American market and furnish them at less cost than imported stock. Stop kicking at the quarantine! CHARLES WILLIS WARD, *Eureka, Cal.*

—We take exception to Quarantine No. 37 partly because it is using quarantine measures to achieve a protective wall, and partly because it is administered in an illogical arbitrary way without regard to the actual facts and necessities of horticulture.—ED.

An Early Start Without Hotbeds

VERY early hotbeds do not seem satisfactory in our climate (Wisconsin) for the germination of seeds that require a good deal of heat,—such as Tomatoes, Eggplants and Peppers, and some flowers. I plant such seeds in cigar boxes about two and one-half inches in depth, and place the boxes in a pile on a hot-air register in a room where the heat is never intense, and where the boxes will not be troublesome. They are piled unevenly to allow a circulation of air, and are watered twice a day. The top box is covered with glass. Germination is quick and certain, and as soon as the plants appear the boxes are removed to a plant stand in a sunny window. Here they remain until the hotbeds are ready. We have found a very satisfactory place for the germination of seeds in our cellar. The top of our hot-air furnace is covered with a layer of sand to prevent escape of heat. Boxes placed on this sand between the emerging pipes keep an even, gentle heat, and give a surprisingly high percentage of germination. These boxes are covered with glass. We use the furnace again in making "pots" from which to transplant into the garden, using tin cans which are heated to remove the end. These cans are arranged in shallow boxes, drainage being provided for through the bottom of the box. These cans have uniformly produced

better plants for me than my paper pots, and last three or four seasons. Our Tomato plants are usually pretty tall when we set them out, because we do not put them into the garden before the end of May. Instead of digging a very deep hole to dispose of the contents of the "pot" and surplus stem, we dig a long one, and lay the root and several inches of stem on its side in the hole, turning the leafy portion upright when we fill in. This gives opportunity for the development of a splendid root system in the best soil, and the results are fairly magical. Last year I picked ripe tomatoes on July 11th. I have experimented a good deal with garden tools because so many of them seem quite unsuitable for feminine use. I have found a Warren hoe, and a smaller triangular hoe with a blade 4 x 4 x 5½ inches, both much easier for a woman to use than the ordinary hoes. It may not be out of place to add that in my humorously inclined family THE GARDEN MAGAZINE is known as "mother's Bible."—HARRIET L. KUTCHIN, *Green Lake, Wisconsin.*

Snowballs and Aphis

AS TO the old-fashioned Snowball going out of culture because attacked by blue aphis (page 111, October, 1919) I find that the circumstance is often a reminder that we do not do as well by it as we should. I have an old plant that has stood in shade and been much neglected a long time and I find that it is often attacked by the aphis and fairly crippled. Sometimes I have been on the point of pulling it up and throwing it away. One year I found a small plant that had rooted from the old one—as they will do readily if the ends of branches are covered, much as the Forsythia does—and I took it up and set it in rich soil in full sun. The result was that it began to blossom when not more than a foot high and it gets many compliments for its beauty of leafage when out of blossom. I think we can raise it and the Japanese Snowball, too, if we give it proper care.—JOHN W. CHAMBERLIN, *Buffalo, N. Y.*

The Little Iris Arenaria

THIS wee immigrant from Transylvania (referred to by others in recent notes) found a place in my garden several years ago. It has shown approval and appreciation of its new home by spreading growth and gleeful yellow bloom in early May. To the lover of the tiny fairy-like representatives of any genus, it will appeal because of its excellent, if sometimes whimsical, qualities. It likes the hottest, driest, sunniest plain of the rock garden, demanding the whole of its diminutive domain and resenting sulkily any intrusion of overhanging plants. Within the week or ten days of its blooming period it makes amazing bursts of color. It seeds so abundantly that often the pods have to be removed in numbers for fear of exhaustion to the plant. When sown as soon as possible after ripening, the seeds germinate fairly well the following spring. A single seedling sheaf transplanted in August will by the next August have spread, in some cases, to the astounding number of thirty—a somewhat rambling tuft of slender foliage, rarely exceeding five or six inches. The shallow anchorage of the roots requires the protection of a mulch. Manure should not be used. A simple shading of the spot with pine boughs or a few cornstalks is the most satisfactory winter and early spring care. The bloom is somewhat fugacious, lasting in very hot sunny weather even less than a day.—ELLA PORTER MCKINNEY, *New Jersey.*

Banana Melons

I READ with interest what R. E. Allen had to say of his experiences with the Banana Muskmelon on page 300 of the February GARDEN MAGAZINE. But I take exception to the comment and here are my reasons for so doing: about 25 years ago I visited a friend at Calla, Ohio, in August. My friend went to his garden and brought back a large basket of various Muskmelons among which were several ranging from 12 to 15 inches long. I commented on this variety and he told me they were the "Banana" melon. They were very fine eating, as Mr. Allen has said. For several years I have been trying to grow Muskmelons and found that the hungry bugs got most of them until I got some of the Banana seeds and grew them. For two years I have grown these and the bugs have not yet discovered that they are Melons—much to my satisfaction. Some years ago I visited Southern California in early fall and got acquainted with the wonderful Casaba Melon. A little later the Honey Dew was introduced and now it is extensively sold in the city markets (Cleveland). But it is entirely different from Banana, which is a real Muskmelon while Honey Dew has light green smooth skin and a different texture of flesh, and with no furrows or ribs. I endorse all that Mr. Allen says for Banana Muskmelon. Honey Dew is mighty good too—yes, better than lots of Muskmelons and well worth a trial by any one having a long summer season.—F. A. GANONG, *Ohio.*

—May I draw your attention to the foot note to the "Better than Bananas" paragraph on page 300 of the February issue? Mr. R. E. Allen's description of the Melon precludes all possibility of its being Honey Dew; it is the true Banana Muskmelon which our firm (Burpee & Co.) has been offering for many years. The shape of Banana Muskmelon has been against the variety from the commercial growers' viewpoint, but on account of its cropping qualities and fine flavor it has become quite a favorite in many home gardens.—GEO. W. KERR, *Penna.*

A Revised Opinion and Some Peas

DOES your conscience ever trouble you? Mine does! I wrote recently that THE GARDEN MAGAZINE was not quite everything it ought to be, but after looking over back numbers, and comparing them with the recent issues, I apologize. The magazine is certainly *great* and growing *better.* I have grown garden peas very liberally for home use for years, some seasons for market and as I believe, the first Gradus ever sold in Binghamton. I found that Gradus does its best by being sowed very early, as early in fact as the smooth peas can be planted, also that the seed should be sowed much more freely than usually recommended. I have sowed peas when large chunks of frost or frozen earth were near the seed, resulting in splendid germination, sometimes quite a fall of snow and unseasonable low temperature occurring after planting with no bad results. Gradus never shows its best when caught by warm weather. I think Laxtonian and other wrinkled peas would stand the same treatment. The only trouble I ever had was from severe freezing after peas were above ground which turned the vines yellow, they never making a complete recovery. My soil by the way is a rather heavy loam, too heavy to get sweet corn real soon.—LA FOREST F. BROWN, *Binghamton, N. Y.*

—It is indeed surprising to learn of such results in view of the extraordinarily early planting of wrinkled peas. The garden must be unusually well drained, and it must warm up quickly, which is exceptional on a clay soil. Since Mr. Brown likes Gradus, why not also try Thomas Laxton of the same habit of growth with pods uniformly well filled, and the peas of even superior flavor. Of the strictly dwarf peas give Buttercup and Potlach a trial. These are mid-season dwarfs; Buttercup is of unrivalled quality, though not suitable for market because of its light color; Potlach on the other hand, perfects a pod like Thomas Laxton, and is a wonderful market pea maturing in eighty-five days on the clay soils of Western Pennsylvania.—A. K.

The Horsechestnut Here and Abroad

WHEN I read the fine description of the Horsechestnut (in February GARDEN MAGAZINE) I wondered why Mr. Wilson did not mention the noble double row of trees on the long waterfront at Lucerne, Switzerland, for I am sure that he must know of it. They shade the promenade in a most acceptable way. I recall sitting under the monster one on the terrace above picturesque Altdorf; and we found striking specimens in St. John's College park at Oxford. I have never seen quite as fine Horsechestnut trees in this country as in Europe, though that may be on account of our considering them too common and neglecting them. Buffalo, N. Y., has had such a sad experience with the Horsechestnut that I have said I would never plant one, or even let it come up as a weed from the nut, as it is inclined to, just as the Ailanthus will do as soon as it is once established. The tussock moth somehow marked the tree for its own a number of years ago and proceeded to devour its foliage entire, so that it stood from early July as nude as in winter, unless it had energy enough to leaf out again. As the insect has but one brood here the later leaves were not attacked. This circumstance has made the tree a nuisance here, though through no fault of its own. Finally the city had to set up a forestry department, chiefly to fight the worm and is making good headway against it, though if not persistently sprayed it will return year after year. Oddly enough the trees in surrounding towns are not molested. The worm will eat no other foliage generally except that of the Basswood, so I have thought that the only way of getting rid of it would be to cut down these trees and starve it out. In dry weather the Horsechestnut suffers and its leaves often become very ragged in appearance and sometimes fall prematurely, so that it is really not much of a success as a city shade tree here. We Easterners are sorry that the Sugar Maple does not succeed here, as it does in central and eastern New York, but there are varieties of it that flourish. Our shade trees are the Elm (not quite as good as in New England), Oak, in several species, Soft Maple, Sycamore and many others in

smaller number. I am inclined to think that either the Ailanthus or the Catalpa would serve us better than the Horsechestnut, at least till the worm is driven out. Some of our trees grow in a remarkable way. A Soft Maple in a few feet from my window, standing between the sidewalk and the asphalt pavement, is perfectly vigorous.—JOHN W. CHAMBERLIN, *Buffalo, N. Y.*

Quality in Corn

MR. KRUHM'S article in the January GARDEN MAGAZINE very much interests me, as it also must interest all who read it. I am one of the pioneers of the seed trade; have been actively engaged for 60 years and have a modest garden on Cape Cod where I annually experiment with various sorts of fruit and vegetables. I tried several sorts of the larger type of golden Corn last season and I quite agree that none of them had table quality equal to Golden Bantam. I very much wish to try Golden Evergreen after reading what has been said. For several years past I have made a careful study of Tomatoes, and found Bonny Best to be the most desirable. Our soil on the Cape is rather light, but this Tomato flourishes there. As is said, it is also my experience that it is less acid, than other good varieties and I am safe in eating all I want of it which I could not comfortably do with some other sorts. I also discarded Old Homestead Bean for the lack of quality mentioned in this note referred to, and will try Egg Harbor Pole.—JOHN FOTTLER.

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in *a normal season* is taken as standard; but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

APRIL—THE MONTH OF RAPID-FIRE ACTION

NEVER let vigilance relax with regard to a sudden cold snap, for frost is likely to occur after even a warm and balmy day, right up to the end of the month. If you have delayed ordering seeds as late as this do not accept whatever a corner grocery stock may offer as substitute. Cheap seeds or seeds from any source other than a standard seed house are the most expensive things in the world (although they may represent but a small outlay in money) for they mean a year's production lost, all of the time put into gardening thrown away, all of the energy employed wasted, and like as not your gardening morale completely routed. Avoid them like a plague!

General

Pull or cut weeds out of the lawn whenever you see them, in passing. Fill the holes thus made with soil, sift on grass seed, and tramp it down.

Mow the lawn as soon as its growth will be reached by the blades of the machine, and mow frequently but never cut extremely close. This will induce strong root growth of the grass and that density which alone makes a perfect surface.

Finish manuring and spading up borders in readiness for Pansies and material of this sort which may be going in.

Greenhouse and Frames

Everything requires more water and ventilation and all material that is to go out of the greenhouse, whether out of doors or into the dwelling, must gradually be hardened for the change.

Shift well rooted plants into larger pots as fast as they need it, and repot Hydrangeas and such material if conditions demand, this month.

Plant Carnations in the field the end of the month, for carrying over until next fall.

Plant out all clumps of perennials that have been forced, giving them an obscure place where they may pick up for two seasons at least.

Plant out spent bulbs where these may also have time to recuperate.

Pot all seedlings as fast as they are ready and keep growing without a setback.

Prune weak wood out of fruits and start late trees into growth now.

Melons, Cucumbers and Tomatoes for under-glass summer crops should be started now. Use any preferred Tomato, but choose English forcing Melons and Cucumbers.

Flower Garden

Start tender annuals in coldframes.

Sow Sweet Peas at the earliest possible moment, as they cannot stand hot weather. Set out those that were started indoors.

Set out Dahlias as soon as the ground is drained out.

Uncover Roses and look carefully for scale. Prune them, leaving three eyes of last years' wood on Hybrids but taking out only weak wood and reducing the rest one-third on the Teas.

Do all planting this month. Shift perennials that you are to transplant as early as possible.

Look over all shrubs and trees and make sure there is no scale, or spray for it if there is. Often a single branch will be covered when the rest of the shrub has as yet escaped.

Prune shrubs that flower on this season's growth, now; prune all other and early flowering shrubs after they have bloomed.

Remove protective material from Rhododendrons, etc., on a dark day.

Fill gaps in hedges now, if winter has killed plants or branches here and there.

Trees newly planted that sway badly in the wind should be staked until they take hold, and also until they develop enough trunk to resist for themselves.

Rake up among perennials as soon as the foliage can be distinguished.

Water all newly set out material often if the ground seems dry and there is much wind, for the latter robs the soil rapidly.

Vegetable Garden

Asparagus, Rhubarb and Spinach (fall-sown) should be uncovered and the top-soil of the beds stirred.

According to the character of the season and the development of the leaves on native material, plant the seeds, beginning with the hardiest vegetables and progressing as the season progresses.

First plantings will be Radishes, Beets, Parsnips, Onions, Spinach, Peas, Lettuce, Cabbage, Salsify, Carrots, Turnips, and Kohlrabi.

Fruits

Finish all grafting within a week after the buds of the fruit trees swell.

Plant strawberries at once for starting new beds. Rake mulch from established beds or open it above the rows of plants to let them come through.

Examine Peaches to six inches below the surface of the soil for borers. Gum or sawdust reveal them. Clean these away, open the holes with a sharp knife enough to admit a flexible wire and run this in as far as it will go to kill the grubs. Examine again in about a week for later developed attacks.

Watch Currants and Gooseberries as the new leaves unfold, especially near the ground, for the worms, and spray at once they appear, wetting the under side of the leaves.

Watch for tiny steel-blue beetles on Grapes as their leaves open. Pick them off or knock into a pan of kerosene.

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Exclusive!

THE Adonis Aleppica, described in this issue of *The Garden Magazine*, is a rare gem, exclusive with us. You will have something to boast of if you put this into your garden! This beautiful annual, found in the region of Aleppo, Syria, is a splendid acquisition for groups, beds, or borders and can also be used as a pot-plant. The plants grow 16 to 20 inches high and produce from 16 to 20 main stems. From these many lateral branches are sent off, each ending in a round shaped eight-petaled flower, measuring 3 inches in diameter or four times as large as a common Flos Adonis. The color is a shining, deep, dark blood-red of great brilliancy. The flowers appear in great numbers and the effect of the free-blooming, pyramidal-growing plant is enhanced by its very handsome feathery foliage. Cut blooms put in water keep fresh for over two weeks. Pkt. 75 cts.

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BLACKBERRIES FOR WHERE YOU LIVE

E. I. FARRINGTON

AS A rule the blackberry is not very exacting as to its soil requirements, but nearly all kinds like plenty of moisture. There is a great difference, though, among the blackberry varieties as to hardiness, so that some of the best cannot be grown safely in the Northern states; and a great many blackberries that are grown commercially are not the best for the home garden. In Kansas, Missouri, and states in that section the three best varieties for home growing are Early Harvest, Mersereau, and Eldorado. The Early Harvest is especially likely to be found on the farms, and it has the advantage of being exceedingly early, often ripe indeed by the Fourth of July or earlier. The fruit is medium sized, oblong and juicy, and wherever it flourishes it is a valuable sort. Unfortunately it cannot be grown in the Northern states except in especially favorable locations.

The variety called Mersereau is more widely grown, being somewhat hardier. It cannot be planted with perfect safety in New York state, however, although it is found in a good many gardens. It is a seedling of Snyder, larger and much more drought-resistant and a good berry to grow in connection with Early Harvest, being a midseason variety. Of late years it seems to bear as freely as any other kind, and it is singularly free from orange rust. In some of the central states a variety called Minnewaski is popular, and with good reason for it is a remarkably good berry, extra large, aromatic and juicy. It is one of the best home berries in sections where the weather does not get extremely cold.

The list of blackberries hardy in the northern sections is fairly long, but different varieties seem to give the best results in certain districts. In Wisconsin, Eldorado, Snyder, and Ancient Briton are the varieties most commonly grown. Here as elsewhere Snyder must be set down as least desirable for the home garden, except in especially favorable situations—as where a rainfall is invariably plentiful. Ancient Briton is an old time variety which seems to grow well over a large area, and according to one expert in New York state should be included in any selection of the three best berries desirable for the home garden.

Although Eldorado is of the Snyder type and just as hardy, it is far and away a better variety the berries being of medium size, jet black, and well shaped. Their popularity however lies chiefly in their melting sweetness. It is medium early, hardy and not particular as to soil, thriving in New England as well as in Michigan; it can be set down therefore as an all-round good berry, and one of the most reliable which can be chosen. In Michigan it is one of the most important varieties.

Another is Wilson's Early; this is not very well known but grown to some extent in New York state also. The berries of this are large, round and glossy. Growers in the neighboring states, especially in Minnesota, have a fondness for Kittatinny. This is an old variety, of course, but hardly surpassed by later introductions. It is slightly tart and when perfectly ripe the flavor is unsurpassed, the canes grow strong and erect, and sometimes a small second crop is produced in the fall. It is a late berry and for that reason a good one to plant in connection with earlier sorts like Agawam—or, farther south, Early Harvest.

In some places it seems to be perfectly hardy yet in New York state it is occasionally winter killed. The late E. P. Powell of Clinton, however, named it as one of his good varieties, although he put Ancient Briton and Eldorado ahead of it. The varieties recommended for New York state are Agawam, Ancient Briton, Eldorado, and Kittatinny. In New Jersey all these varieties and some others are grown successfully. A particularly popular variety right now is called Ward, a descendant of Kittatinny, and considered an improvement. It makes a strong growth and yields heavily.

Garden makers in New England have to choose with considerable care as the rigorous climate of that section is much too severe for many varieties. Eldorado seems to be among the best kinds, but Agawam is grown to a considerable extent and is probably the most popular early variety for the coldest sections of the country. This is good, fairly early, very productive, and bearing for a longer season than many. It is a berry that succeeds much better in heavy than in sandy soil, and when soil is very light, some other variety should be substituted.

One variety more often found in New England than anywhere else except in New Jersey is the Wachusett Thornless. Home garden makers with a limited area prefer this variety because it is practically thornless, and so can be worked without the necessity of putting on gloves. There is no doubt about its hardiness, but it is quite often attacked by the orange rust, and does not produce so freely as some other kinds. The berries are excellent, though, being sweet and juicy.

Although some of the best varieties are of necessity ruled out when one starts to choose blackberries for Canada, many of the kinds named can be grown in the Dominion. In the Niagara Falls district Agawam, Snyder, and in the southern sections, Kittatinny are usually hardy. Eldorado and Kittatinny, and even Mersereau can be grown on the Essex peninsula, but in the Lake Huron district Agawam and Eldorado should be depended upon.

Closely allied to the blackberries and differing from them only in their running habit are the dewberries, which are usually allowed to trail on the ground, although sometimes trained to supports. Because of their low growing form they are less likely to winter kill than ordinary blackberry plants. Moreover, they are earlier than any other blackberry. Only a few varieties are listed, and of these Lucretia is much the best known. It is very early, glossy black, large, coreless, and sweet. This is the variety grown in most parts of the country, although the Austin has been recommended as preferable by some experts, especially for Long Island. In Missouri a berry called McDonald is being put out, which seems to be either a dewberry or a cross. It needs the Lucretia dewberry planted near as a pollenizer in order to obtain perfect berries. Its vines trail along the ground the first season, but send up canes later on.

It seems a pity that the culture of the blackberry has been so largely neglected. Probably it would be more widely grown if amateurs were more familiar with the kinds best adapted to their sections. One thing is certain. No such blackberries can be obtained in the market as can be grown at home, because blackberries are never at their best unless they are allowed to become perfectly ripe on the vines, being picked just as they are ready to drop.

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.....		**Balsam,** Mixed (Choice Colours)	.....		**Cabbage,** Winningstadt (Conical)
.....		**Calliopsis,** Mixed (For Table Decorations)	.....		**Carrot,** Early Market
.....		**Candytuft,** Mixed (Fine Colours)	.....		**Carrot,** Improved Long Red
.....		**Convolvulus Major,** Mixed (Climbing)	.....		**Cauliflower,** Early London
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.....		**Nasturtium,** Giant Mixed (Climbing)	.....		**Corn,** Golden Bantam
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.....		**Phlox,** Annual, Mixed (For Edging)	.....		**Parsnips,** Selected Crown
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.....		**Sweet Pea,** King Edward VII (Crimson)	.....		**Radish,** French, Breakfast
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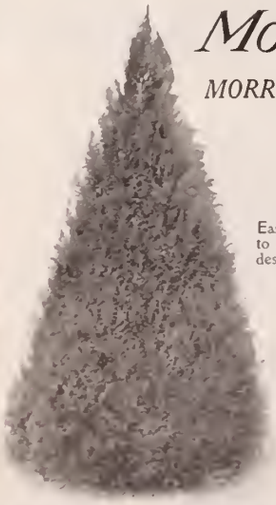

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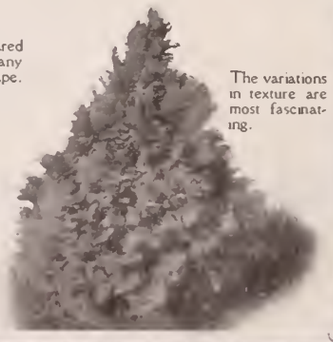

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THE FLOWER GROWER champions the cause of the summer garden flowers. It is published monthly and each issue abounds with helpful information on how to have the best of success with those increasingly popular flowers, the Gladiolus, the Peony, the Iris, the Dahlia, the Rose, etc.

THE FLOWER GROWER tells what sorts to grow, how and when to plant, when to cut the bloom for shipping and for home decoration, and how to save and store the seeds, bulbs, etc. In short, every phase of flower culture is taken care of, and practical facts and information on summer-flowering plants of all kinds comprises the contents of each issue.

While other publications have been advancing their subscription price, we have held ours steadily. $1.00 for one year, $2.00 for three years.

Sample copy will be sent if you want to see one before subscribing, if you mention "The Garden Magazine."

MADISON COOPER, *Publisher*, Calcium, N. Y.

GLASS GARDENS

And So, After That They Had a Perpetual Garden of Roses

After all, it is the little things that do the really big things for us. Sometimes it's just *one* little thing.
Leastwise, that is the way it was with this particular instance, that we have a notion you would like particularly to know about.

Of course, it would be a deal more definite if we could tell you names and the place.
Something the owners said, however, held a suggestion that it would be happier for them, if we didn't. So, let's call them the Put-Offs.

All of which brings us to the happening itself.
The one little happening that made it happen to the Put-Offs.

Like a lot of us, they had long talked of having a Glass Garden; even to sending for a catalogue, with a request for a price; which, in itself, did not at all deter them.
Nothing really seemed to prevent them buying one; still they just didn't.

Then one day when Mrs. Put-Off was spending a week-end with her old schoolmate, a little dinner was planned.
It fell to her lot to go down to the greenhouse and pick some roses for the table.

Mind you, it was the middle of winter, snowy and blowy; although the picture of the house itself, shown here, was taken last September.

With each rose she picked, there came a distinctly new pleasure. A care-free joyousness.

When with armsful of the queenly flowers, she walked out into the greenhouse work room, her mind was all made up.
She knew that nothing could repeat and keep repeating that joy for her, but a Glass Garden all their own.

And so—so little a thing as picking a bunch of roses, has brought about so big a thing as a perpetual garden of roses.
A garden of roses and other flowers for the Did-Its—for you will agree, their first name straightway ceased to fit.

As building just such perpetual Gardens of Glass is our business, you cannot exactly blame us for hoping that the telling of this happy happening will be just the little thing that will make a similar one happen to you.

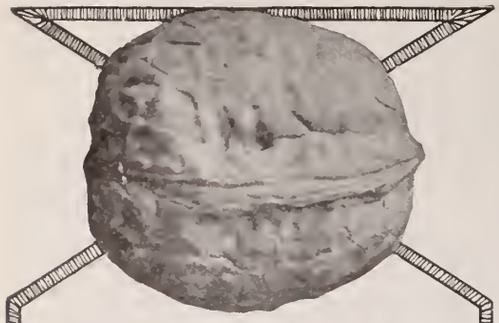
Which shall it be—a catalogue—or talk it over together?

Lord & Burnham Co.

Builders of Greenhouses and Conservatories

IRVINGTON N. Y. — NEW YORK 42nd St. Building — PHILADELPHIA Land Title Bldg. — CHICAGO Continental Bk. Bldg.
BOSTON, 11 Little Bldg. — CLEVELAND 2063 E. 4th St. — TORONTO Royal Bk. Bldg. — MONTREAL Transportation Bldg.

Eastern Factory Irvington, N. Y. — Western Factory Des Plaines, Ill. — Canadian Factory St. Catharines, Ont.



Gets All the Meat That's in the Shell

THAT is just what the nut-grower does—particularly the grower who has a few trees around his home grounds. But be sure to set grafted or budded trees—**Jones' trees**—which practically guarantee large nuts and fine crops.

Nut Trees Are Good Shade Trees

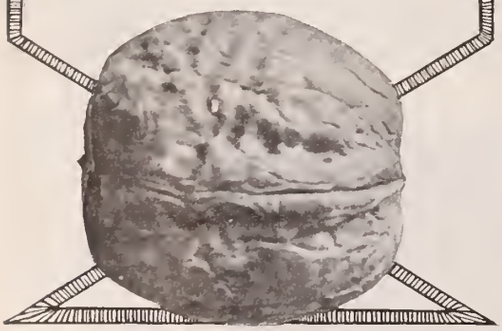
Besides producing food and profits the trees make desirable lawn trees; they grow shapely, furnish good shade, and fit well with shrubs and evergreens.

Special Catalogue of Nut Trees

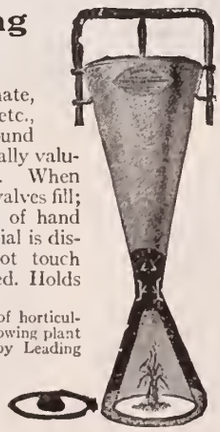
will be sent to you on request. Pictures show how the trees grow; story tells how to plant and care for them. You will read it from cover to cover—send for it now.

J. F. Jones *Nut Specialist*

Box G Lancaster, Penna.



Fertilizer-Ring Depositor



Places any material, phosphate, nitrate, lime, salt, ashes, etc., in measured quantity, around seed or growing plant. Equally valuable on large or small area. When lifted, handle pulls up and valves fill; when set over plant weight of hand depresses handle and material is discharged. Material does not touch plant. Amount can be varied. Holds twenty-five pounds.

For the first time in the history of horticulture it is possible to nourish a growing plant in a scientific way. Endorsed by Leading Agricultural Experts.

Send for Circular

George William Browning
Clinton, N. Y.

THE LURE OF THE SEEDLINGS

BECAUSE we have become accustomed to growing many of our garden plants by means of vegetative parts, namely, bulbs, tubers, and cuttings, we are likely to overlook the fact that these plants may also be grown from seed. To be sure, some species are none too liberal in the matter of seed production, but when seed is obtainable, the flower lover will find propagation by this means a most interesting diversion.

For a few cents a packet of Dahlia seed may be purchased of a reliable dealer. If planted indoors in early spring the young plants may be transplanted to the garden when danger of frost is past and most of them will bloom the first season. From a packet of seed of mixed varieties, I have secured a marvelous array of blooms and at the end of the season a stock of tubers that would cost many times the amount originally invested in seed.

The Gladiolus is another plant that is easily grown from seed, though the resultant bulbs do not produce flowers until the second and in some cases not until the third season. These seeds are not readily obtainable from dealers so that one has to depend upon the supply from the home garden. The seed pods must be gathered immediately upon ripening, as they are liable to split and allow the seeds to drop out. After separating the pods from the seeds, the latter are best cared for over winter by placing in a wide necked bottle of sand.

In preparing the seed bed for their reception, use sheep manure and a small quantity of bone meal, mixing thoroughly with the soil to which a liberal amount of sand has been added, or the seeds may be planted in an eight inch bulb pot, which is then sunk so that the top of the pot is level with the surface of the ground. The seed should be planted rather thickly at a depth of a quarter inch.

At the end of the season there will be found small bulbs varying in size from that of an apple seed to the proportions of a hazel nut. These should be stored over winter as ordinary bulbs, replanted the following spring, and many of them will produce their first blooms before the end of summer. Aside from the fascination of seeing these "garden babies" develop, there is always a possibility of finding some interesting variations from the parent forms.

The Geranium, which is usually grown from cuttings, and the Heliotrope, whose delightful fragrance makes it welcome in any garden, are produced very easily from seed, and from a packet of Coleus seed can be grown plants displaying a surprising assortment of colors. The Calla-lily may also be mentioned among the plants which lend themselves to this method of propagation.

If you have never tried growing seedlings, you have missed one of the real pleasures of gardening and those who have the patience to wait for the blooms are well repaid.

NEW GLADIOLUS REGISTERED

THE following varieties of Gladiolus are registered with the American Gladiolus Society by John Lewis Childs, Flowerfield, N. Y.

Conspicuous (Childsii). Beautiful clear cardinal-red, with a large white throat. A very attractive combination of color. Originated by John Lewis Childs.

White America. Buds and partially expanding flowers pale flesh, 136 (½). Flower opens snow white, 2(1), with a faint streak of violet mauve, 195(1), or paler in the throat. Has the same strong habit of growth, form of flower and substance as America, of which it is a seedling.

De Lue's GOLDEN GIANT SWEET CORN

TRADE MARK REGISTERED

New Early Hybrid

This new corn has been before the public for three years and thoroughly tested throughout United States and Canada in comparison with all other varieties of sweet corn, and particularly with the once popular Golden Bantam. It has been pronounced superior to all others.

The most particular attention has been paid to the quality, for earliness and great size would count for nothing without this crowning virtue. It is because of the extreme tenderness, combined with the exquisite rich sugary flavor that the Golden Giant has become the standard of perfection for sugar corn the world over, and when you consider that its admirers report that it is one to two weeks earlier, and two to three times as large, and better in quality than its own parent, the Golden Bantam, you may be sure it has well earned the title **"The New Master of the Fields."**

DeLue's Golden Giant excels all other early varieties in size, productiveness, and quality, and all the late varieties in quality and early maturity.

It is the one corn for the home or market gardener who wants the greatest amount of highest quality corn in the shortest period of time from the smallest piece of land.

The Other Fellow's Opinion.

Mr. P. P. R. says: Boston, Mass., Apr. 27, 1917.
"I have had a great many years in farming and never in my experience have I seen a corn that produces such large, well formed ears and a corn which was as juicy, tender, and sweet."

Mr. W. B. H. Robinson, Ill., Sept., 1919.
"I distributed the corn among several of my customers and the experience from all of them was the same; that the corn ripened about two weeks earlier than any of the rest; that it was better than the Golden Bantam or any other that was raised around here."

Mr. W. H. H. Winnipeg, Canada, Dec. 3, 1919.
"My friend, Dr. ——, and I found your Golden Giant Corn a howling success. The best corn by a long way, in every respect, that we ever had. There was more growth from one seed of your corn than from five seeds of the Golden Bantam which we had. The growth was something wonderful—quite a few ears had 18 and 20 rows."

Rural New Yorker. July 26, 1919.
"Golden Giant sweet corn is a vast improvement on the popular Golden Bantam."

Send for new 1920 Corn and Strawberry Literature

Price 2 oz.—35c. 4 oz.—50c. 8 oz.—85c. per lb.—$1.50

Send check or money order, no stamps.

The DeLue Experimental Farm
Needham, Mass.

RIPE TOMATOES

Earlier Than You Ever Had Before

Hundreds of Market Gardeners are more than doubling their profits by using my wonderful Plant Forcing devices. Don't be satisfied with a garden like the other fellow—beat him to it.

No matter how backward the spring, it's easy with

The Ball Seed & Plant Forcer

cheap enough to use them by the thousands. Send for my Beautiful Free BOOK, HOW to GROW BIGGER, BETTER and EARLIER CROPS than you ever had before. It gives you gardening information found in no other publication. It tells you how you can have a garden with flowers in full bloom and vegetables for your table a month earlier than you ever had before. Just drop me a postcard and I'll send you your copy by return mail.

THE BALL MANUFACTURING COMPANY
Department "E" Glenside, Pa.

An April Shower or a Fine Spray

MAKE sure of your garden's success by controlling the factor which has most to do with its success or failure—"Rainfall."

A Cornell Irrigation System, by an arrangement of underground piping, will lead the water to upright sprinklers capped with the famous Rain Cloud Nozzles which deliver a fine spray or a heavy rain, as you prefer, over every part of your garden. The volume and heaviness of the shower can be controlled perfectly, giving just the amount and character of irrigation that you need. Cultivation is not interfered with by this installation.

For your lawns use the Cornell Underground System with Rain Cloud Nozzles. Perfect irrigation over the whole area and no interference with mowing.

Write for Illustrated Booklet

W. G. CORNELL COMPANY

Lighting—Heating—Plumbing

45 E. 17th St. New York City

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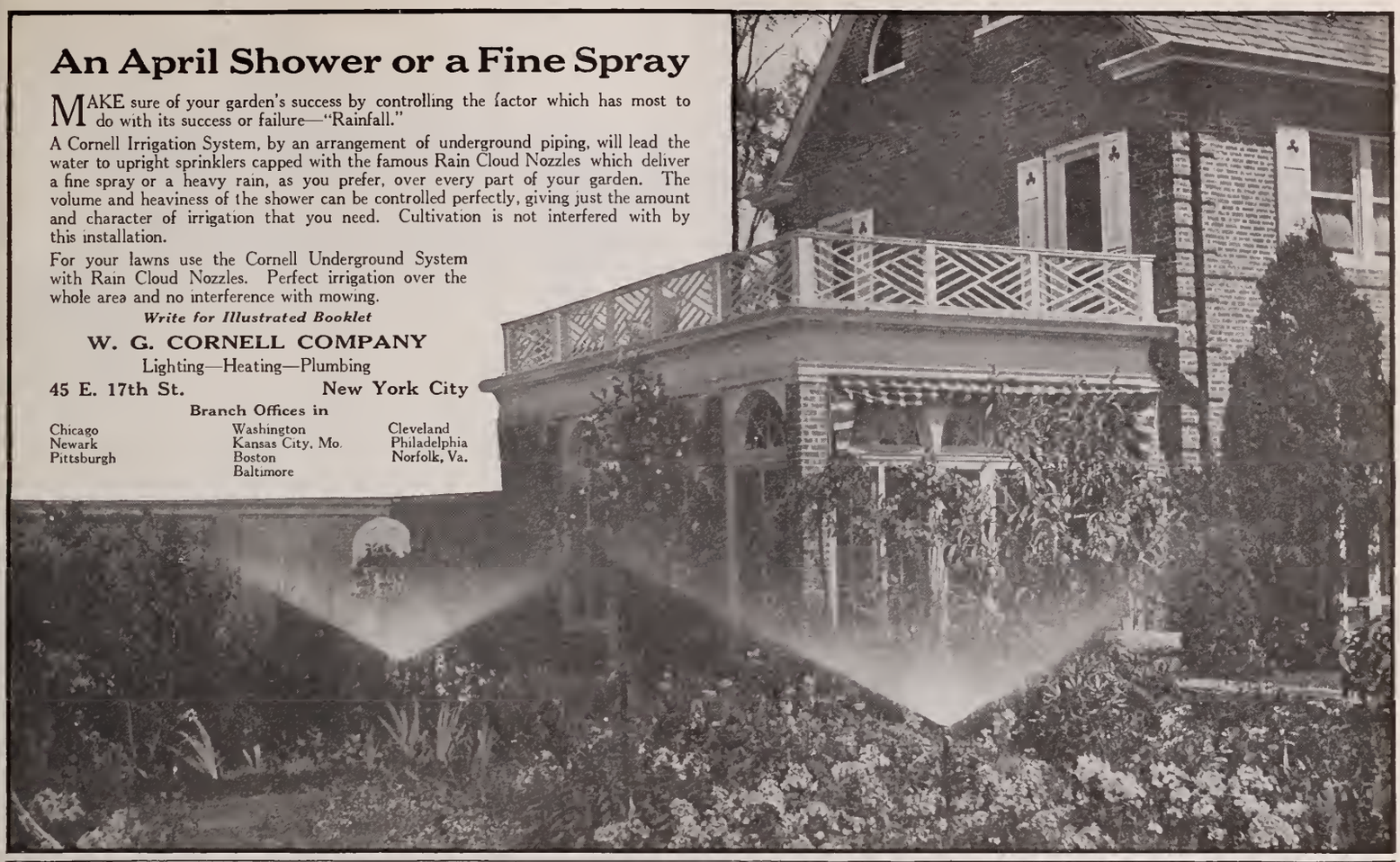
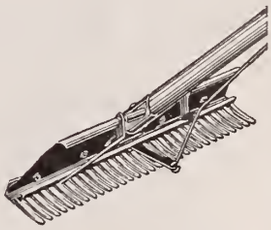
Chicago, Newark, Pittsburgh, Washington, Kansas City, Mo., Boston, Baltimore, Cleveland, Philadelphia, Norfolk, Va.



For the Perfect Lawn

Send today for "The 14 Points of a Rake." It tells the secret of a perfect lawn—

GEM DANDELAWN RAKE



Its curved teeth spare the tender grass and roots, but catch the dandelions unfailingly. The self-cleaning stripper operates by an easy pressure of the finger.

These—and many other features—are all incorporated in a rake weighing no more than the ordinary kind, and costing but a trifle more.

Every lover of fine lawns should have one

Write today for the booklet—it is free

Specialty Division of

The Casement Hardware Company

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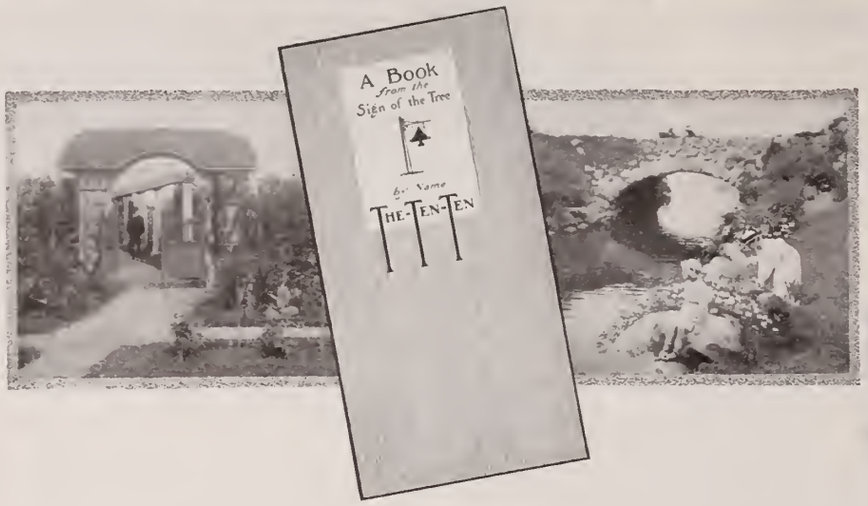

This Ten-Ten Catalog Saves You Money—Saves You Time Multiplies Your Gardening Joys

But don't mistake us—the joys of gardening are not given under importance, at the expense of practical garden practise.

It always has seemed to us, however, that gardening, done the way it can so easily be done, would give so much more pleasurable satisfaction.

With that, and two or three other things in mind, we made The Ten-Ten Catalog of our seeds, hardy plants, roses, and evergreens.

Aside from the dependable fact that everything in the Ten-Ten Catalog can be thoroughly depended on—it's all grouped in tens. Ten of the best roses. Ten of the best iris. Ten of the best asters. Ten of the best annuals. Ten things that ought to be in every vegetable garden. Ten ways of making the garden you make, make more for you.
And so on, everything in tens.

All of which, you at once welcome as the happy solution to that headachy job, of making selections from catalogs, containing more varieties, of more things, than any mortal could plant in a life time, if they began when they first learned to walk.

For your further convenience, there is only one column to a page, and the print is as big as you have always wished it was.

When a thing is named and described, it is promptly priced.
You don't have to be a Sherlock Homes to find it; or a mathematician, to figure out the cost.

Another thing—it's getting late, and you can easily make quick selections from The Ten-Ten.

Likewise, depend on our making prompt shipments.
Let us send you the Ten-Ten with our compliments.

R. Roehrs

Julius Roehrs Co
At The Sign of The Tree
Box 10, Rutherford N.J.

Native Rhododendrons and Kalmias
in Car Lots, at Reasonable Prices

Our collectors have secured a splendid lot of Rhododendron maximum and Mt. Laurels, in extra fine plants, for spring delivery. These are the ideal hardy broad-leaved Evergreens for massing or grouping under trees, large shrubs and along borders. **Fruit trees and Rose bushes.** Get our prices NOW.

Write for Free Catalogue

Describes our general line of fruits and ornamentals which will be found complete in every respect. Please ask for your copy to-day.

The Morris Nursery Company
1123 Broadway New York City, N. Y.

THREE WAYS TO GET RID OF DANDELIONS

EXPERIMENTS made at the Colorado Agricultural College show that there are several ways in which Dandelions may be eradicated from lawns. There is first the familiar and common method of digging them out which, as usually done, is a waste of time; for when a Dandelion root is cut off near the top, it simply gets very busy and produces several plants! But when the digging is done early in the season just before the plants mature seed, and again in the autumn, the weed can be kept in control fairly well, providing seed is not introduced from other sources.

Dandelions spread mostly from seed. Seven days are required after the first day of blooming for the seeds to reach the germinating age. If all flower heads are cut off once a week, there will be no seeds, but many flower heads are missed because they lie too close to the ground to be reached by lawn mower blades. An excellent tool especially designed for gathering them is really a rake with protrusions that resemble a saw blade except that they are longer. With this the young flower buds, the heads in bloom, and the seed-ripening heads may be gathered in one operation. Of course, the plants remain, but they can be gradually dug out.

It is possible to dig deeply enough to remove the whole plant, and this method can be used advantageously when the number is not large. It is often followed in public parks, sometimes for areas which cover several hundred acres. The work is best done when the ground is rather soft, following a rain. A tool which has a blade eight inches long and one inch wide is used, the blade being thrust into the soil about four inches from the plant, and at an angle of forty-five degrees. The root is not cut off, but pried out by pushing down on the handle of the tool. Of course this is laborious and defaces the lawn somewhat; but it is most effective, and the addition of a little grass seed will soon cover the bare spots.

An altogether different way of eradicating the Dandelion is by means of herbicides, gasolene and kerosene being among the most useful. A teaspoonful of gasolene applied in the centre of a Dandelion plant will usually kill it, although twice as much may be required for very large plants. Usually the leaves will wilt very quickly, and the plants appear quite dead in a few days. Sometimes the entire root shrivels up and can be pulled out of the ground. Something which drives the gasolene into the head of the plant is best for making the application—often a large sized oil can will serve. The fluid may kill some of the grass around the plants, but reseeding will remedy that. Kerosene is about as effective as gasolene, and should be used in the same way or a smaller amount of coal tar creosote may be used, from a quarter to a half teaspoonful being enough for each plant. This method of exterminating the Dandelion is one which can be adopted to advantage by the owners of suburban and village places.

A SPRAY FOR ALL WEEDS

Finally, there is the spraying method, which is really the cheapest and most effective when a lawn is badly infested. A solution of $1\frac{1}{4}$ pounds

(Continued on page 138)

The New Britain Tractor

Dealers:
We are ready to close with responsible dealers who are sufficiently aggressive to profit to the utmost by our national advertising. Write, stating lines now handled

JUST think of your real need of a high-grade, small-size tractor—compact, powerful and with unusual stability—that will out-work any horse at cultivation or soil preparation; out-distance, out-tire and out-last him; and then starve him to death in economy of maintenance!

Such a machine is the New Britain Tractor. Guided as easily as a wheelbarrow and occupying little more space—no complicated controls—no awkward cranking.

It will plow, harrow, disc, cultivate, drill or haul any one-horse implement or load. It will dodge obstructions, work between narrow rows, straddle crops 8 to 13 inches high, creep under low branches, and work up as close as you want to fences, walls, and bushes.

Still more! The New Britain Tractor delivers 6 h.p. on the belt and drives saws, grinders, silo fillers, pumps, dynamos, or other machines within the limit of its power.

In design, workmanship, and material the New Britain Tractor has no superior in any tractor at any price. It is built by mechanics trained to precision work in fine materials, in a factory world-famous for thirty-two years for the excellence of its products.

Built in two models. Both are described in detail in booklet, sent free on request.

THE NEW BRITAIN MACHINE CO., New Britain, Conn.

Branches:

New York Philadelphia San Francisco Detroit Cleveland Chicago

FARQUHAR "BOSTON BEAUTIES" PILLAR ROSES

ROSES? *Yes,*
The Unusual Kinds

From its very beginning R. & J. Farquhar has striven after the unusual. If we learned of a better shrub, a rare new flower, or new vegetable of greater economic value, we would spare neither effort nor expense to get it. Most of Mr. Wilson's remarkable introductions, about which Garden Magazine readers have read so much, may be secured from us exclusively.

The Farquhar Catalogue

Is unique in that it includes many of the new and unusual plants of the Arnold Arboretum collection, as well as other rare plants not obtainable elsewhere. It will be mailed on request.

R. & J. Farquhar Company

6 South Market Street Boston, Mass.

Horse Disadvantages Go When The *Moto-Mower* Comes

Spring brings soft ground, and horse's hoofs are heavy. You either wait, and the grass gets too long, or you put such holes in the ground as a season's rolling can hardly level.

Moto-Mower Does Double the Work With Half the Power

and it does it neatly. It weighs less than the operator, and is a mule for work and pull. Of simplest construction; under perfect control. Will go wherever a man can walk and is always ready at a moment's notice.

Strongly built of best material to give life time service. Valuable self-sharpening features alone make it worth more than any ordinary machine. Yet low in first cost, low in up-keep—economical in everything—as all *best* things are in the long run.

Descriptive Booklet Supplies Further Facts

Learn how the working out of an entirely new thought in motor application succeeded in reducing weight and increasing usefulness; how, by reducing machinery we increased handiness and efficiency. An inquiry incurs no obligation.

PONTIAC LAWN MOWER COMPANY

Garfield Bldg. Detroit, Mich.

Made in 24 inch and 30 inch sizes. Prices on request.

Farr's Specialties for Early Spring Planting

Year after year the garden increases in charm and value as the shrubs and plants increase in size and blooming power. Early spring is a desirable time for setting most plants, and in my collection at Wyomissing may be found specimens that are suitable for every phase of gardening. A few are here noted—to list all would be impossible:

Japanese and Asiatic Shrubs—Berberis, Flowering Cherries, Enkianthus, Cotoneasters, Corylopsis and others.

French Lilacs, Philadelphus and **Deutzias**—a complete collection of Lemoine's new creations.

Rare Specimen Evergreens for the formal garden, lawn groups and rock gardens.

Hardy Asters, Phloxes Delphiniums, Chrysanthemums and other perennials for spring.

An Emergency Edition of Farr's Hardy Plant Specialties (issued because of the great demand for the sixth edition) will be sent to those who request a copy.

Bertrand H. Farr, 104 Garfield Ave., Wyomissing, Penna.

Wyomissing Nurseries Co.

(Continued from page 136)

of iron sulphate to a gallon of water seems to give the best results. The solution must be applied at least three times, at intervals of about two weeks. In Colorado the most effective results were obtained in late summer. It is important that the spray be applied in the form of a fine mist driven forcibly into the crowns of the plants. Cloudy, damp weather is particularly favorable if the application is not followed by rain within twenty-four hours.

This material is damaging to most metals, therefore it should be used in a spray pump having brass fittings, and never put into any iron, galvanized iron, or tin vessels. Moreover, all utensils must be thoroughly rinsed with water after the work has been completed, and the movable parts of the pump kept well oiled. It is likely to cause a rusty stain if it touches walks and curbings, so should be used carefully, or some sort of protecting material laid down. The weak solution does no serious injury to the grass, although it may seem to affect it at first That part of the lawn sprayed however will eventually take on a greener hue than before—but it is deemed advisable to pay particular attention to watering and mowing the lawn, in order to encourage the growth of the grass. And White Clover, if present, will probably be killed out.

HOW TO MAKE A "CROSS"

THE essential point in crossing is to prevent the stigma of the chosen seed-parent from being pollinated by any flower except the one desired as a pollen parent. In order to accomplish this: (1) remove all flowers that have opened and shed any pollen; (2) select several buds that look as if they would open in a day or two, and gently pulling their segments apart hold the bud open with the fingers of the left hand while the immature anthers are removed by the fingers or by means of tweezers. Be sure that you take out all (six in Lilium).

Cover the bud with a paper bag, leaving it for two or three days. Then remove it and examine the stigma, the knob-like end of the pistil. If it be viscid and glistening in the sun, it is ready for the pollen of the chosen species. Cover it well with pollen and replace the bag, keeping it on until the stigma withers and further danger of foreign pollination is past.

The paper bag has certain disadvantages. Damage to some of the flowers in removing or replacing the bags, is certain; and on a warm day, the atmosphere inside the bag will become hot and steamy and may prevent seed formation. On a large scale omit the bags entirely, but take extreme pains to keep all the buds on the patch emasculated. This method is practically as exact as the former method if the different species are planted in isolated groups in different parts of the garden. Its great drawback lies in the necessity for the rigid surveillance of every bud.

Give each cross some distinguishing mark, or write the names of the parents on a label and fasten it to the flower stalk.—H. E. GILKEY.

[Though the method of procedure here outlined refers specifically to work on Lilium, still the same principles apply in general to all ordinary flowering plants. The smaller the parts or the more intricate the work the more difficult is the handling, necessitating practise and patience.]

Japanese Turquoise Berry

Grows 6 feet high. Showy flowers in May. Blue berries in September. So pretty one wishes they might linger all the year instead of only six weeks. We hope we have enough to go around

We have illustrated this and a few other rare shrubs in their true colors in a new booklet appropriately called

"A Feast of Flowers"

We have just 500 copies left. Naturally the most interested will be the first to write. It is free.

Hicks Nurseries, Box M, Westbury, L. I., New York

Hardy Native Plants, Ferns and Azaleas

Osmunda Claytoniana

Our Collection of Native Ferns Is The Best In America

Announcement for 1920

My 1920 catalogue with many illustrations of hardy native plants, ferns and azaleas, is now ready, and I should be pleased to send you a copy if you are interested in such plants.

For 40 years I have been growing ferns, wild flowers, orchids, azaleas, and many other hardy native plants that are of great value in the rock garden. It has taken many years of painstaking labor, and a great deal of expense to be able to offer this collection. I am especially proud of my collections of ferns and azaleas.

My stocks not only include these rare plants, but they are sufficiently large to enable me to take care of large as well as small orders.

I also have choice stocks of native rhododendrons, laurels, evergreen shrubs and perennials of all sorts.

EDWARD GILLETT

3 Main St. Southwick, Mass.

Strawberries De Luxe

Kevitt's Jubilee—The New Black Strawberry

The last word in Strawberry Hybridization. The wonder Strawberry of the century. Perfect flowering variety. The greatest producer known. Pot grown plants. 12—$2.50, 25—$4.50, 50—$8.00, 100—$15.00. Illustration one-fourth actual size.

Beal. Greatest producer under severe conditions. The sensation of last year. 25—$3.00, 50—$5.50, 100—$10.00.

Standard varieties such as **Barrymore, Marshall** and **Sharpless,** 100—$6.00, 1,000—$50.00. Circular on request.

WILLIAM M. HUNT & COMPANY

148 Chambers Street New York, N. Y.

FAIRFAX ROSES

The Aristocrat of Rosedom, no garden complete without my hardy everblooming roses. Grown under natural conditions. My free 1920 guide on "How to grow roses" sent on request. I also have a select grade of GARDEN seeds.

W. R. GRAY

Box 6 OAKTON, VA.

WHEN MULTIPLICATION IS NOT VEXATION

THERE isn't anything easier in the world to propagate than Climbing Roses. And here is the easiest way to do it:—after the blossoms fade take the flower stems or side shoots all along the main canes, for cuttings, making them about four to six inches long and cutting them just below a bud at the bottom and above at the top.

ROSES FROM CUTTINGS

Set them an inch apart in a box of wet sand, in the sunniest exposure you can find—and keep them wet. And you'll have a nice lot of rooted cuttings in the course of five or six weeks. I started cuttings three years ago, though I didn't know just what I was going to do with them at the time. But the Climbing Rose bug bit me severely and I raised them anyhow; and last fall I transplanted forty two-year-old plants that I had allowed to grow along in a tangle until I could decide their fate. They had grown five to eight-foot canes with no attention. And I knew what I wanted of them. Wire fences are specially made for them. A wire fence is no thing of beauty but nearly everybody has one somewhere around the premises. Plant Climbing Roses to tie to the wire. This idea has taken a firm hold through northern Ohio and Indiana and while travelling through these states the latter part of last June it was surprising to see the number of cottages with wire fences about them gay with Ramblers.

ROSES FROM SEED

Then, too, there is the fun of growing them from seed, which is an easy matter—and perhaps you may raise a fine new Climbing Rose. Again, you may not! But here is the simplest way to try. In the fall when the hips have turned red, break them open, separate the seeds and plant them about half an inch deep in a row, somewhere handy to mark—and leave them to their fate. In the spring some fine day you will be surprised to see baby Roses. They do not germinate uniformly, so do not disturb the row except to transplant them. I have a fence planted with ten bushes from seed which ought to bloom this year. If they are worthless they can be thrown away. If they prove to be good ones, there they may remain.

Of all the Ramblers—a term which seems to belong more strictly to the Wichuraiana types which will ramble along the ground as happily as up in the air—Hiawatha is the most brilliant I have seen, with its great bunches of little Roses, crimson at the tips with a contrasting white centre. Excelsa is another brilliant one, a deep rose color of the Dorothy Perkins type. Thousand Beauties (I prefer the English equivalent of Tausendschoen) is a larger individual flower in various shades of pink from almost white to a deep pink in the aging blooms. Christine Wright is a fine light pink, large flowered and a rampant grower.

All of them are beautiful in flower and have fine foliage to disguise a chicken yard fence or other unsightly wire barrier if pillars and arches are not available.

SHERMAN R. DUFFY, *Chicago.*

MAKING SUCCESSFUL GARDENING A PLEASURE

So Quick and Easy

Simply place a sealed cartridge in the Key Duster Gun—that's all. The Gun AUTOMATICALLY opens the cartridge effectively spreading Insecticides and Fungicides just as required.

NO HANDLING, MIXING, WEIGHING OR MEASURING OF CHEMICALS and WITHOUT THE USE OF WATER

Now you can have desired vegetables, flowers or fruit thriving growths—free from insects and blight without all the trouble of old fashioned spraying methods and devices.

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It will pay you to investigate Key Duster Gun simplicity and Cartridge convenience because these cost so little—and mean so much to you in maintaining **THE PRODUCTIVENESS OF YOUR GARDEN OR FRUIT, THE BEAUTY OF YOUR FAVORITE FLOWERS OR SHRUBS.** Write for Free Particulars

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Without the use of Melrosine

The Rose Bug Is Doomed!

This surely must be happy news to every rose grower. Mr. Maurice Fuld announces the first and exclusive offering of

MELROSINE

(Trade Mark)

THE only really effective remedy for the riddance of the rose bug, that beastly insect that eats the flower just before you are ready to pluck it.

Melrosine is a liquid spray which should be diluted with 20 times the amount of water. Sprayed directly on the flower it leaves no spot nor blemish.

No disagreeable odor.

Non-poisonous to animals, birds or children.

Must be sprayed daily while the rose bug is present.

Full detailed cultural directions on each can.

Melrosine has been tested and is endorsed by scores of the most eminent rosarians in America.

Melrosine is sold as follows: Sample can (enough to make one gallon of diluted mixture) 50c. Pint Can $1.00, Quart $1.75, Two Quarts $3.25, Gallon $6.00.

Order now to avoid disappointment for the demand for such a helpful insecticide will surely be world-wide.

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PROTECT your home and the health of your treasures against germ-carrying insects night and day. Flies and mosquitoes are the greatest carrier of disease known. Keep them out. Screen your door and windows; screen your porches, and especially screen your sleeping porch—with PEARL WIRE CLOTH.

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Buy only the genuine. Two copper wires in the selvage and our red tag on every roll.

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ASTERS, late branching, Rochester, Imperial white-light, pink, rose, purple, assorted.

Price: Dozen—50c: 100—$3.50: 25 of a kind at 100 rate. Send for list of pot grown Salvia, Geraniums, Vincas, Petunias, Cannas, Coleus, etc.

THE PARK GARDEN COMPANY
770 South Avenue Rochester, New York

THE AMERICAN ROSE SOCIETY

Department of Plant Registration

THE following registrations of varieties of Roses have been approved by the registration committee of the American Rose Society, and unless objections are received in the secretary's office within three weeks of the publication of this notice the registration will become permanent.

Doctor Huey; Class: H. W.; Parentage: Ethel x Gruss an Teplitz; Description: Habit of plant, climber; character of foliage, good; freedom of growth and hardiness, good; flower large, semi-double, dark maroon in color. A free-flowering variety with good lasting qualities. Introducer: George C. Thomas, Jr.

Bloomfield Progress; Class: H. T.; Parentage: Mary, Countess of Ilchester x General MacArthur; Description: A strong-growing, bushy plant with red double flowers of strong fragrance; petalage over 50; freedom of bloom and lasting quality very good. This Rose is similar to General MacArthur, but differs in habit, size and form of flower, having superior qualities, as it holds the centre better and is larger than General MacArthur in hot weather. Introducer: George C. Thomas, Jr.

Bloomfield Abundance; Class: H. W.; Parentage: Sylvia x Dorothy Page Roberts; Description: A bushy plant, 3 to 6 ft. in height, with dark green, glossy foliage, not susceptible to mildew; flowers, salmon pink, double, produced singly and in sprays. This Rose is similar to Cecile Brunner, but is hardier and of a larger bloom. Introducer: George C. Thomas, Jr.

Bloomfield Perpetual; Class: H. P.; Parentage: Iceberg x Frau Karl Druschki; Description: Habit of growth, bushy, 3 to 5 ft. in height, with good green foliage; flowers, white, single resembling Cherokee; a very free-flowering variety with good keeping qualities. The Rose is similar to the Cherokee in flower, but differs in having a bushy growth which is hardy in Philadelphia, and blooms until November. Introducer George C. Thomas, Jr

REGISTRATION OF NEW ROSES

Frederick R. M. Undritz, West New Brighton, S. I., N. Y., has requested permission of the Executive Committee of the American Rose Society to change the name of the variety of Rose registered by him August 23, 1917, as "Frederick R. M. Undritz" to "General John Pershing." Inasmuch as this Rose has not yet been disseminated, the Executive Committee of the American Rose Society voted to allow this change of name.

General John Pershing. H. W. Dr. W. Van Fleet x Mrs. W. J. Grant (Belle Siebrecht). Climber. Foliage same as Dr. W. Van Fleet; very vigorous, perfectly hardy; flower double, four inches in diameter, dark pink, centre projecting, medium long, quite fragrant; bud pointed and firm; fifty-three petals, curved, stiff, centre close; blooms profusely in June; may bloom later; lasting quality, on bush five or six days.

E. A. WHITE.

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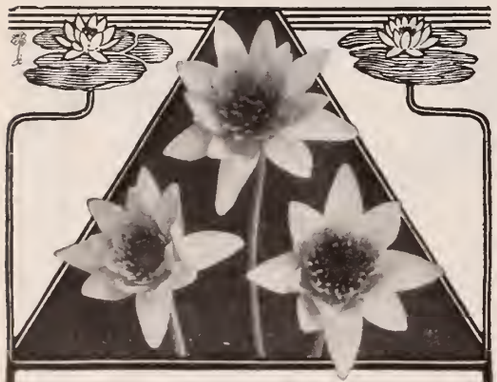

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You should try Panama-Pacific and Mrs. Wilson, two of the most interesting new varieties. Their beauty is, in itself, enough to make them popular, and in addition they lend to any garden a novel charm which cannot be obtained otherwise. They bloom readily, need very little attention and are quite unusual.

Full Cultural Directions Are Given in My Booklet

in which also are catalogued many rare and beautiful varieties of interest to those who already appreciate the splendor of the water lily. Many of those sorts have received gold and silver medals because of their beauty and novelty. You can get a copy of this booklet by writing now to my address—as the edition is limited, it is best not to delay.

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Hardy Plant Lore

Have you a border, a rockery, a shady place, or a bare spot that needs special treatment? Do you know just what to plant and how to plant it? Perhaps our experience in growing hardy plants—plants collected from every part of the world—would be of value to you.

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Our collections of perennials have supplied many American borders and gardens with combinations of rare charm and beauty. Let us send you our 1920 Hardy Plant Guide. All we need is your name and address.

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Half-pint—25c. Pint—45c. Quart—80c.
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TRAINED INSPECTORS NEEDED

A STATEMENT OF POLICY CONCERNING QUARANTINE NO. 37

[EDITOR'S NOTE:—*This statement, adopted by the Advisory Committee of the Massachusetts Horticultural Society, outlines the position of the Society in regard to the Plant Quarantine Order No. 37, and offers constructive suggestions for remedying the present lamentable situation.*]

THE Trustees of the Massachusetts Horticultural Society realize the importance of excluding from the United States insects and diseases injurious to plants. They believe that for the good of the nation this work of exclusion should be carried on with intelligence and energy; they do not believe in the methods now adopted by the Department of Agriculture of the United States for the accomplishment of this purpose. They believe that the addition to the Federal Board of Horticulture of a man familiar with plants will add to its efficiency. They believe that with a few exceptions like the White Pine it is not now necessary to exclude plants from this country in order to secure the exclusion of dangerous insects and plant diseases, and that it is safe to import in large quantities for commercial purposes and in small quantities for the use of amateurs, nearly all plants that can be imported more advantageously than they can be grown in this country, if a better system of inspection by men properly trained for the work is adopted. It is known to the Trustees of the Massachusetts Horticultural Society that, under the existing regulations of the Federal Horticultural Board, certain Lily and other bulbs, Rose stocks and fruit tree stocks can be imported without being sent to Washington for inspection but that permits to import even a small number of plants, not already in this country, for scientific study and experiment can be obtained only after troublesome formalities have been complied with, and that under the present ruling plants thus imported must be sent to Washington for inspection. This means that plants brought to this country by ships landing their cargoes at Galveston, San Francisco, Seattle, New York, or Boston must be sent to Washington at the expense of the importer and from Washington must be returned to the importer also at his expense. It is too much to expect that in Washington plants will be carefully unpacked and repacked, that there will not be long delays in the one office in which all the plants imported into this country are inspected, and that they will not be injured in the hands of men who are not specially trained for this work.

This Board, therefore, after a careful study of the subject believes that with the exclusion of a few plants to be named from time to time as necessity for their exclusion is shown, all restrictions on the importation of plants, bulbs, and other roots, and on seeds should be removed, with the exception of that of rigid inspection with the right to destroy affected plants. It realizes that the inspection which is needed to protect the country can only be secured by the employment of intelligent and honest men familiar with plants as well as insects and fungi as inspectors, and by the establishment of additional Inspection stations at Boston, New York, New Orleans or Galveston, San Francisco or Seattle. This Board believes that if such a plan is adopted importers, in return for prompt and safe delivery, will be only too glad to pay inspection charges large enough to reimburse, in part at least, the government for this additional expenditure.

COME FORTH INTO THE LIGHT OF THINGS; LET NATURE BE YOUR TEACHER

—*WORDSWORTH*

This is one of the 24 beautiful paintings illustrating Louise Beebe Wilder's "Colour in My Garden."

They were executed by Anna Winegar, using a section of Mrs. Wilder's own garden for each subject.

(See other side)

COLOUR IN MY GARDEN

by LOUISE BEEBE WILDER

NO ARTIST in the world, with the most sensitive of color instincts, has ever mixed colors as rare and rich, as those that Nature gives us so magnificently in flowers. Every one who has a garden, has fountains and resources of color with which he can make a veritable Eden. From the age-old days of hanging gardens, horticulture has been one of the fine arts. And in his garden, man has been able to indulge his instinct for beauty, as his heart led him.

Does your garden express your individuality; does your secret self show forth from it, as that of the painter comes out on his canvases? Are you perplexed with problems of design and color harmonies? Are your Irises blue enough? Does the hedge set out the flowers, or overshadow them? Are the arbors ripely and richly enough in bloom?

Here, in a beautiful book, dedicated to the art of gardening, will be found answers to all such questions; and suggestions which will be of inestimable help to you in beautifying your garden. The author is an artist in flowers. Her garden ranks among the most beautiful in the country. The illustrations are reproductions in full color—each one a magnificent example of fine printing—of twenty-four paintings from the exquisite subjects of Mrs. Wilder's garden. The text is a delightful telling of her garden secrets, and a summary of her experiences in planning and maintaining her beautiful garden in the full glory of its colors. This is a book that should be in the possession of every lover of art and nature. De luxe edition, limited to 1,500 numbered copies. Boxed, $10.00.

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A great many people would grow their own Asparagus if it was not for the two years of waiting. We eliminate this for the planter by cultivating and transplanting the roots till they are four years old, strong and healthy. **Downing, no doubt the highest authority, says: *"Roots of this age will produce fruit the same season planted."***

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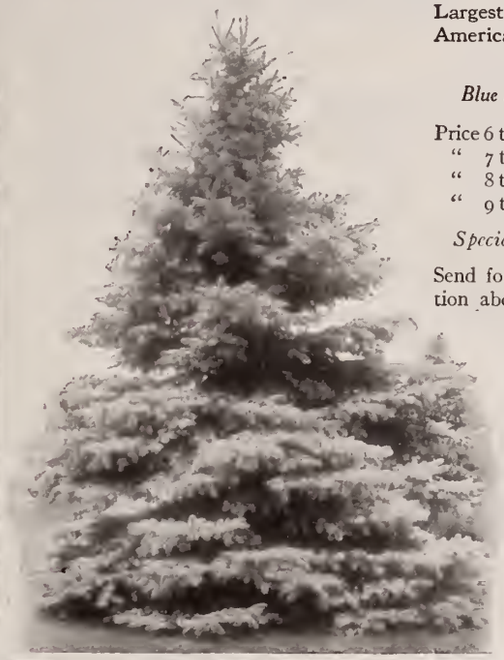

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The men behind this movement have linked themselves together, to make it their business to see that *you* get satisfaction with every tree and plant you buy.

They are the Members of the American Association of Nurserymen; men whose methods and standards come up to the Association measure; men who are permanently established in the business and who seek to give honest stock and dependable service.

Buying from *any Member* of this Association, you have the Association's assurance of satisfaction back of your purchase.

Just what the American Association of Nurserymen is, and how, through its Vigilance Committee, it is aiding buyers of trees and plants to get varieties true-to-name, free from disease and of satisfactory quality, is told in our Booklet, "Looking Both Ways Before You Buy Nursery Stock."

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The Blueberry, although among the finest of fruits and the finest of all berries for pies, is almost unknown in the average garden. This is due to the scarcity of nursery grown plants, the only kind that transplant easily

We have to offer this Spring some excellent nursery grown plants—ideal for the home garden. All that is needed is some good garden soil and the plants will take care of themselves. They are very hardy, rapid growers and heavy bearers.

In the Summer when you are eating luscious blueberry pie made from berries picked from your own bushes, you will realize the wisdom of planting Blueberries.

WRITE for our Illustrated Catalogue and Planting Guide

J. G. Mayo & Co., 603 Ellwanger & Barry Building Rochester, N. Y.

Marking Drills

THERE are two matters which I have in mind that I believe THE GARDEN MAGAZINE readers should know about. The first is a suggestion which I think is worth passing on for the convenience of those whom it may concern. The second matter is a riddle which I daresay the editor or some good friend will solve for me. The suggestion referred to above is in relation to a simple little device for measuring and marking drills. Every gardener appreciates the use of a garden line in making straight rows and most everybody uses some gauge or tool for spacing the rows. A yard stick or sometimes a graduated hoe handle answers the purpose. My way is to use two yard sticks (the man who sells you your garden tools or seeds should give you these) each cut in two in the middle and the small end, up to 18 inches, nailed or screwed to the line stakes which are 1 inch square and 24 inches long, the yard stick section extending from the top of the stakes to within 6 inches of the bottom which is tapered to a point. The stakes may, of course, be either longer or shorter to suit the individual notion of the operator by the use of more or less of the yard sticks than the 18 inch which I suggest. By the use of this little trick your measuring stick is always where you want it. You don't have to chase it from one end of the row to the other or back to the tool house. It is like unto the poor, always with you. Now to return to my riddle. Who will explain to me why some of my Peonies do not bloom? They have been planted at least nine years, send up each year an abundance of slender canes, but in the nine years I have not had nine blossoms from the six original clumps. When I received them I planted them on rather high ground which was I suppose none too rich. After about three years I moved them down into my garden where other Peonies were flowering beautifully but in the words of the immortal Huck Finn, "Nothing came of it." As yet they have not changed their habits. What will somebody recommend? I do not feel that I ought to commute their sentences. Shall I give them a new trial?

CHAS. EDW. CURTIS, *N. Y.*

—Now then speak out! Why is it that some Peonies do not bloom?—ED.

Patriotic Color Notes

ONE fall when I planted six Farnscomb Sanders Tulips in front of a clump each of the old blue Iris and Florentine Iris, I never dreamed they would arrive at approximately the same time and start a grand patriotic parade in my back yard, but that's exactly what they did. The Farnscomb Sanders Tulips bloomed first, about four days later the old blue Iris arrived and two days later along came the delicately scented Orris-root, otherwise the Florentine Iris which, though tinted lavender, is white enough for practical purposes. The effect is gorgeous beyond description, and I have promised myself to have the same parade next May by design instead of accident. Another pretty patriotic color note is to plant old blue Iris and scarlet Darwin Tulips in front of Spiraea Van Houtteii. The Tulips and Iris open first against a background of the green Spiraea leaves, which are followed in a few days by their snowy white blooms that provide the field of pure white against which the nearly blue Iris and red Tulips show to great advantage. Other combinations will suggest themselves, or present themselves, once attention focusses on the idea—or perhaps someone has already found another?

MRS. R. W. WALTERS, *Ohio.*

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Gladioli and Dahlias

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Cultural Directions

How to grow Prize Winning Flowers

B. HAMMOND TRACY

INCORPORATED

Box 27 WENHAM, MASSACHUSETTS

Six Glorious Hardy Lilies

Including: **L. REGALE**, the *NEWEST RAREST* and most beautiful lily in existence, short white trumpet, suffused pink, canary yellow heart, deliciously perfumed. **$1.00.**

L. MAGNIFICUM, truly magnificent, reflexed petals, rosy white, clouded and spotted rubyred. **40c.**

L. HENRYII, the yellow Speciosum lily, yellow, slightly dotted brown, grand and showy, 30-40 flowers to stalk. **40c.**

L. LONGIFLORUM GIGANTEUM, the ONLY long pure white trumpet lily. Delightfully fragrant. **35c.**

L. CANADENSE (Bell flower lily), charming, bright crimson with black spots. **20c.**

L. SUPERBUM (the glowing, tawny Turban lily), golden orange spotted dark brown, 20-30 flowers to stalk. **25c.**

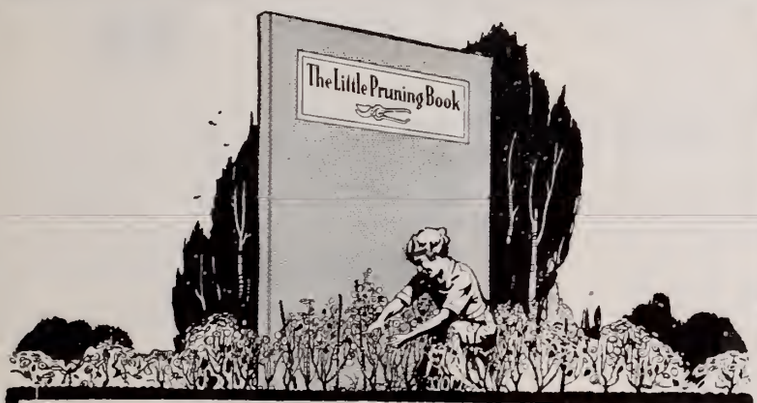
These six lilies are selected for their *ABSOLUTE hardiness*, ease of culture and richness of flowers. The cost, purchased singly would be $2.60. We offer the six POSTPAID, for **$2.00** *during APRIL*. The bulbs we send out are sound and plump, true to name, SURE to bloom the first season, July and August. FULL directions, how to grow lilies with every order.

We are Lily specialists and have been importing LILY bulbs for 43 years.

Our 1920 Spring Gardenbook tells all about flower and vegetable seeds, bulbs and roots, etc. SEND FOR IT. It will interest and please you.

H. H. BERGER & CO., 70 Warren St., New York

See our offer in February issue



Get Better Results by Pruning

"The Little Pruning Book" will help. Correct pruning adds vigorous and healthy growth to your trees and plants.

Better fruit or better flowers is the result.

The how, when and where of correct pruning as well as the kind of shears to use, will be found in this practical book.

Pexto Pruning Shears have the all-important easy grip and a clean cutting edge. There's a Pexto Dealer in your locality.

Send for free circular, or better still send 50 cents for the book. Money refunded if book is not satisfactory.

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THE PECK, STOW & WILCOX COMPANY

2003 West Third St., Cleveland, O.

PEXTO PRUNING SHEARS

MICHELL'S GRASS SEEDS

THE BEAUTY of a HOME

is often ruined by an unsightly half covered lawn. Your home or estate can be made to correspond with the BEAUTY of surrounding properties. In 4 to 6 weeks you can have a perfect green, even lawn, all bare spots eliminated by sowing

Michell's Selected Grass Seeds

You will find in our stock of seeds a grass seed for every requirement. Our special formula grass seed for shady lawns is a wonder.

DO NOT NEGLECT YOUR FLOWER GARDEN

OUR FREE MAMMOTH CATALOGUE

is now ready and free to you for the asking. Covers every garden question thoroughly. The original guide that most garden lovers use.

MICHELL'S SEED HOUSE 520 MARKET ST. PHILA., PA.

"See, this is a Conard Star Rose. The Star Tag shows the genuine—and besides, it helps me tell my roses apart. The name of each variety is printed on the Tag. This is the famous Dr. W. Van Fleet."

As leading American Rose Specialists we are able to offer unusual facilities to all rose lovers.
Garden beginners and prominent rosarians everywhere rely both on Conard Star Roses and Conard Rose Service.

CONARD ★ ROSES BLOOM

They are guaranteed to bloom or your money refunded

One of the most beautiful Conard Roses is the celebrated climber, Dr. W. Van Fleet. A delicate flesh pink, exquisite in form. Flowers often 4 inches across, bloom singly and in groups on stems 12 inches or more long. Ten times as many blooms as the average bush rose. Exceptionally hardy; grows 12 to 15 feet a season. Excellent for bouquets and hedges and for covering archways, garage, fences, etc.

Note these SPECIAL INTRODUCTORY OFFERS
$1.50 WORTH FOR $1.00

1. Strong 2-year, field-grown Star size plant, Dr. W. Van Fleet, with Conard Star Tag.
Also Illustrated Booklet, "SUCCESS WITH ROSES" (usual price 25c), containing complete information, easy to follow—when, how and what to plant, proper soils, culture, etc.
Also 52-page CATALOGUE, Conard Star Roses and other choice flowers.
Also a 25c. return check good when returned with first order (of not less than $1.) from CATALOGUE.

ALL THE ABOVE FOR $1.00

2. Just the Booklet "SUCCESS WITH ROSES" and CATALOGUE mailed on receipt of 10 cents.
3. CATALOGUE alone FREE on request.

Planting time is nearly here. *Write to-day to*

CONARD ★ ROSES
& Jones Co., Box 24, West Grove, Penna.
Robert Pyle, President — Antoine Wintzer, Vice Pres.

This tag is your guarantee and shows the genuine Conard Rose. — Send for this free Catalogue. See special offer above. — Reverse gives name of rose—a permanent label on your growing plant.

PLANS *for your* Garden

Bird Bath No.343 Height 25 in. Bowl 20 in. wide. Price $12.00.

should include WHEATLEY GARDEN POTTERY—Bird Baths, Shapely Vases and Pots and Benches.

Our catalogue on request

Wheatley Pottery is weatherproof, and very inexpensive. Order direct from the Pottery.

WHEATLEY POTTERY
2434 Reading Road — Cincinnati
Established 1879 — DEALERS ATTENTION!

HOPE SPRINGS ETERNAL

In spring when buds begin to sprout
And plants are pushing toward the sun,
With ne'er a droop and ne'er a pout,
Then gardening is glorious fun.

By June we've started in to spray,
The fun has changed to fungicide.
Scab, blight, and beetles, day by day
Arise and will not be denied.

Anthracnose comes upon the bean,
And San José upon the fruit.
The Rose is thick with aphis green,
And other enemies to boot.

Hurrah, for winter! We forget
Our disappointments then, and toil.
The pests by which we were beset
In next year's gardening we shall foil!

KATE B. BURTON.

CREOSOTE LENGTHENS LIFE OF FENCE POSTS

SIMPLEST METHOD IS TO BRUSH ON THE PRESERVATIVE BUT DIPPING IN BATH GIVES LONGER LIFE

POSTS of any non-durable wood can have their lives greatly lengthened if properly treated with creosote, say men who have tried the experiment. The treatment is simple and inexpensive. The post must have the bark entirely removed and be thoroughly seasoned. Particular care must be used to remove the thin skin of inner bark, says the department of forestry at the state college of agriculture at Ithaca, as this skin prevents the creosote from entering the wood. Seasoning will require from two to six months, depending upon the climate and time of year. These methods are suggested:

BRUSH METHOD SIMPLE

The most simple, least expensive, and likewise least effective method of treatment is applying hot creosote with a brush. The creosote or oil should be heated in a receptacle to a temperature of 150 degrees F., or more. Several coats should be given; each coat should be dry before the next is applied. The great drawback in this method is that the coating of oil is on the surface, and if further seasoning takes place and checks develop, the untreated interior of the post is exposed to the decay-producing agencies. The brush treatment is advised only when the other and the more thorough methods cannot be used.

Dipping the post into the hot oil is a much better method. This requires some large vessel, such as a small tank, or empty oil drum, in which a large quantity of creosote can be heated. The oil penetrates every check and crack of posts plunged in this bath and a complete covering of the preservative is assured.

HOT AND COLD BATH BEST

Better still is the hot and cold bath treatment, in which the post is allowed to remain in the hot oil one to three hours. Then the posts are taken out and plunged at once into a tank of cold oil, or they can be left in the first tank to wait until the hot oil becomes cold. Although it takes more time and costs more, this method will result in a much deeper penetration of the oil and consequently a longer period of life for the post.

Costs will vary with the kind of post and the method of treating. The best creosote now costs 45 to 50 cents a gallon in barrel lots, and in the hot and cold bath treatment from ¼ to ½ gallon

(Continued on page 150)

"More Home to the House"

An Extra Outdoor Room

AEROLUX VENTILATING PORCH SHADES transform your sun-exposed porches into cool, airy outdoor rooms where you can be comfortable the hottest days or nights.

Unlike awnings and other shades they keep out the heat, soften the sun's glare, and allow free air circulation through them.

Aerolux Porch Shades have the features, beauty and finish that make them superior in every way.

How to Select Porch Shades

Get this information by writing for free literature, diagrams, suggestions on shading, color, measurements, arrangement and simplicity of hanging, also name of Aerolux dealer.

THE AEROSHADE COMPANY
236 Oakland Avenue — Waukesha, Wis.

AEROLUX
TRADE MARK NO-WHIP REG. U.S. PAT. OFF.
VENTILATING PORCH SHADES

Cultivate Your Garden the "PERFECTION" Way

The "Perfection" Cultivator kills weeds, aërates the soil, conserves moisture. Can be adjusted many ways and anybody can work it. Write for full details to-day.

Satisfaction guaranteed or money refunded

Two sizes $4.50 each

No. 1, with two discs with 6 inch or 7 inch knives, will work rows 9 to 11 inches wide.

No. 2, with four discs for use with 7½, 8¼ and 8¾ inch knives, will work 11 to 14 inch wide rows.

Descriptive circular FREE

LEONARD SEED CO.
226-230 West Kinzie St.
Chicago, Illinois

Horsford's Cold Weather Plants

are safe. Many plants hardy as far North as Philadelphia will not stand the winters of Northern New England. Our tested list offers the best hardy sorts—wild flowers, hardy ferns, new and rare lilies, hardy orchids, trees, shrubs, vines. Send for our new Annual before placing your order.

F. H. HORSFORD, CHARLOTTE, VT.

GLADIOLI

Mrs. Frank Pendleton is the finest gladiolus in existence today. Best quality blooming bulbs 85c per dozen postpaid.

We grow and sell all that is best in **gladioli, iris, phlox,** and **peonies.**

M. S. PERKINS & CO. 6 Winthrop St., Danvers, Mass.

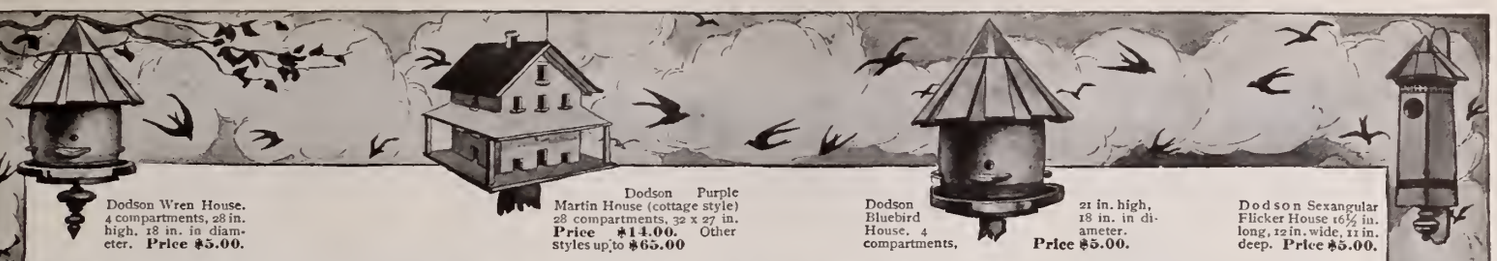
Evergreen Bittersweet

Euonymus radicans vegetus

Easily the best climber you can obtain anywhere. Red berries brighten it in winter; in summer it needs no color.

My Catalogue of this and other specialties will be sent free upon request. Send for a copy if you are interested in the upkeep of your grounds.

Adolf Müller DE KALB NURSERIES
Norristown, Penna.



Dodson Wren House. 4 compartments, 28 in. high. 18 in. in diameter. **Price $5.00.**

Dodson Purple Martin House (cottage style) 28 compartments, 32 x 27 in. **Price $14.00.** Other styles up to **$65.00**

Dodson Bluebird House. 4 compartments, 21 in. high, 18 in. in diameter. **Price $5.00.**

Dodson Sexangular Flicker House 16½ in. long, 12 in. wide, 11 in. deep. **Price $5.00.**

Not Merely a Bird House, But "*A Bird Homestead*"

It's the DODSON

It's the Dodson Bird House which attracts and wins the songbirds, and it's the same Dodson Bird House to which the same little songsters return every year. A close study of bird life has shown Mr. Dodson that returning birds, seeking a nesting-place, with uncanny accuracy insist on occupying the house they left in the fall, if it is there.

The sturdy Dodson House is there—just as strong, but more inviting from a winter's battling of the elements, for it has aged and become a part of the Nature surrounding. Constructed of thoroughly seasoned Red Cedar, Oak, Cypress and selected White Pine, nails and cleats coated to resist rust, painted with strictly pure lead and oil, its permanency is assured.

Order Now

The most charming and effective way to protect trees, shrubs and flowers from insects is by our native songbird, and their beauty and song insure a cheery environment.

Mr. Dodson will supervise and stake out proper location for his houses, insuring success, if transportation and expenses are provided.

FREE BIRD BOOK—Sent on Request—Illustrating Dodson Line, giving prices; also beautiful colored bird picture free.

JOSEPH H. DODSON *President American Audubon Association* 709 Harrison Ave., Kankakee, Ill.

Dodson Sparrow Trap, guaranteed to rid your grounds of these quarrelsome pests. Price, $8.00. 45

Dodson Cement Bird Bath **Price $19.00.** Height 32 in., Basin 34 in. in diameter

ROWE'S GLOUCESTER HAMMOCK From our sail loft to you. Charges prepaid in the U. S.

Take comfort and rest in the open air

THE ORIGINAL AND GENUINE

If you love the fresh air and sunshine buy a real genuine Rowe Gloucester Hammock direct from our sail loft at Gloucester, Mass. You will get real actual comfort from a real Gloucester Hammock. Oh! so comfortable to stretch out in on hot days and evenings. They do not fade. Rain or fog does not soil them. Nothing to rust. No noise or clatter. Made of duck to use and stand usage. Not one returned in 15 years as unsatisfactory. Send for catalogue.

E. L. ROWE & SON, Inc., *Workers in Canvas*
135 Wharf Street Gloucester, Mass.

PENNSYLVANIA *Quality* **LAWN MOWERS**

Not how it cuts at first, but how it continues to cut, is the test of quality. "PENNSYLVANIA" Quality mowers are self-sharpening and longest lived.

At Hardware Dealers and Seedsmen

"No library complete without Kipling complete"

Vaughan's Glorious Gladiolus

Bloom All Summer

Best of All the Easy Growing Free Bloomers

They give you giant spikes of perfect flowers with wonderful colors in fascinating profusion; often changing as each flower opens fully.

We grow over one hundred acres of these bulbs and harvest many hundreds of thousands, developing every year scores of new hybrid seedlings, which surprise even our own trained men with their new types of giant blooms in novel colors.

The long graceful spikes, carrying often twenty buds, may be cut as the first lower flower opens; placed in water each successive bud develops a perfect flower. Plantings each ten days from April to mid-June will provide flowers from August to October.

VAUGHAN'S "RAINBOW" MIXTURES

All large Bulbs, 1¼ to 1½ Inches in Diameter

ALL PREPAID within fourth postal zone (600 miles) from Chicago or New York City

Order by figures at left hand

Collection B5
B5 Vaughan's "*Homewood Collection*," long offered by us, 50 *medium* bulbs, but all bloomers, not less than 5 colors, for $1.00.

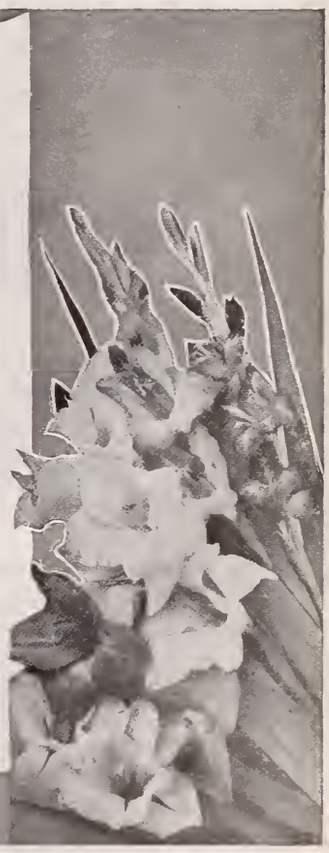
B 1—13 Best Kinds, each different **$0.60**
B 2—3 Sets of B 1 (39 Bulbs) for **1.75**
B 3—50 Bulbs, 20 kinds, for **2.25**
B 4—100 Bulbs, 2 sets of B 3, for **4.25**

If you live beyond the fourth postal zone from New York City or Chicago, **add ten cents for each dollar's** *worth ordered.*

Vaughan's Catalogue, "Gardening Illustrated," goes with either, or by mail FREE—136 big pages

VAUGHAN'S SEED STORE

31-33 West Randolph Street (Dept. G) CHICAGO
41-43 Barclay Street (Dept. G) NEW YORK



Make Your House Plants Flourish

The soil of potted plants needs replenishment and nourishment. Mix in a little

SODUS HUMUS

"The Essence of Fertility"

and you will marvel at the improvement in your plants' growth.

Sodus Humus gives new life and vigor to *plants*, *shrubs*, *lawns* and *gardens* (*flower and vegetable*).

1-peck size for *Home Use*. 2-bushel size for *Garden Use*. Absolutely odorless.

Carload lots for large users like *Farms*, *Greenhouses*, *Nurseries* and *Golf Links*. Prices on request.

Send for interesting literature

SODUS HUMUS COMPANY

190 MAIN STREET BENTON HARBOR, MICH.

Hidden Beauty

The beauty of a blossom depends upon the plant food that is supplied to the blooming plant. Lustre of foliage, wealth of bloom, depend on the nourishment of the plant.

"Dr. Grozum"

A scientifically prepared, properly balanced plant food of great value. It is

Economical, Odorless, Easy to Apply, Compact and Clean.

"Dr. Grozum" only charges you $1.00 for a visit. This will enable you to make one-hundred gallons of plant food that is made from a scientific formula, and at the same time is Nature's own food.

"Dr. Grozum" has none of the disagreeable features of the ordinary commercial fertilizer, and is more effective.

Let us tell you about this wonderful plant food.

Send us $1.00 and the name of your dealer. We will send you enough "Dr. Grozum' to make one-hundred gallons of plant food.

LEVERING & LEVERING *Specialists in Fertilization* Keyser Bldg., Baltimore, Md.

(Continued from page 148)

is likely to be used for each post. In dipping, the creosote goes much farther and the cost of oil is correspondingly reduced. Brush treatment costs run between five and ten cents a post.

SALVAGE FROM WEEDS

WE HAVE to expend labor to remove weeds and any return from utilizing them is clear gain. In but few cases is the value of any weed great enough to justify gathering it solely for utilization. The most pertinacious of all weeds, all garden weeds, at least, is Purslane, "pusley." "Meaner than pusley" is an ancient comparison. A few people eat Purslane as a "green," but is appears rather late and so many of the very best vegetables have become ready to eat that not many will care to eat what is at best only a mediocre green. But it is the best of all plants to supply green food for hens. It will not wilt for days. The grass, the clover you throw to hens, wilts in a short time, usually before they have eaten much of it. Hens do not eat green stuff rapidly, as they do grain. Before they have consumed it in their leisurely pecking, most of it has wilted and become unappetizing. But Purslane stays fresh until they have eaten every bit, even the stalk.

Lamb's-quarter, or pig-weed (one of the two weeds called Pig-weed), is a far nicer green than most cultivated greens. It is little inferior to green Peas. However, its value for human consumption is lessened by the fact that the period when it can be eaten is short, as it is early attacked by a fungous affection that causes its leaves to be shot with blue. But even so, hens eat it as eagerly as they do clover, and pigs delight in it. "Fattens pigs just as well as grain," say old farmers. Recently scientists have corroborated this belief by telling us of a fat they have discovered in green things, an hitherto unknown fat and we learn that certain sorts of "garden sass" which we supposed we ate for pleasure and their beneficial effect upon the digestive apparatus and gave no actual nourishment, do possess nourishment.

Young Milk-weed is certainly worth much more than the mere labor of gathering it. The earliest of greens except the Dandelion, it makes a fine dish and if any cultivated green came so early and were so good, the seed catalogues would star it. Elecampane, prominent in the pharmacopeia of all herb doctors, is a troublesome weed in many places and makes a rather characterless green that does well enough if you can get nothing better and if you cook your greens with salt pork, bacon, or other things which give flavor, then it is very successful, for it is tender, smooth, bland, an excellent neutral base in dishes whose character comes from some ingredient of marked flavor.

Some people eat Sorrel and others Mustard. The cultivated varieties of these may be good, but the wild varieties have so small a foliage that you can't afford the time to prepare them for cooking. Brakes and Ferns, only occasionally weeds, but among the most stubborn of weeds when they get into the cultivated land, or rather when your plow invades the long uncultivated sod where they hold sway, are every little while declared by somebody to be just as good as asparagus when eaten as young shoots. They are passable, perhaps worth a short trip to the pasture, but it is not likely that they will be consumed in a noticeable degree by other than the one form of insect, bird, or animal life which now eats them, small boys. The Docks, too, are occasionally warmly recommended as greens, but after trying the bitter things, most of us will decide that only an unusual taste is welcomed.

DAHLIAS

OUR OWN INTRODUCTIONS
and the cream of
American and European Exhibitions

The name and color of this crowned
Empress Of The Garden
is Legion. We have grown and tested thousands of varieties, and only those proving exceptional merit keep a place in our gardens.

Write for our 1920 Catalogue

Dahlia lovers can send their order with the assurance of receiving strong, healthy tubers, from which will grow a wealth of grace, and beauty, for we grow and sell

Every Worth While Dahlia,

guarantee absolute satisfaction, or refund purchase price. For Dahlia enthusiasts we have a grand offer

The Alpha Collection
13 Superb Varieties and Novelties, $5.00

For those who will become enthusiasts,

The Garden Collection
20 Beautiful Varieties, all labeled true to name, $3.00

No trash. No discards. None listed less than 25c per bulb. Sent postpaid on or around May 1st.

THE DAHLIA FARM, East Moriches, L. I., N.Y.

Edith Ripley Kennaday
Consultant in
Practical and Decorative Gardening
Naturalistic Plantings
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The charm of little gardens and the balance and beauty of larger gardens are due to careful thought and consideration
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Pansy Seed Imported Giants. Purple, bronze, indigo, azure, mauve, canary, mahogany, silver white, cardinal. coal black, golden or violet; 25c per pkt. Butterfly Collection including blotched, striped, mottled, shaded, margined, curled and frilled—indescribable variegation—$1.00 per 1000 seeds. Postpaid with cultural instructions for April planting and summer blooming.
Patrician Seed Co. Inc., Dept. E, 4312 Broadway, New York City

DAHLIAS THE BEST ONE DOLLAR INVESTMENT **DAHLIAS**

Try our **Hard to Beat** collection of 20 choice different double dahlias. Named, labeled. $1.00 postpaid, anywhere. Why not try raising dahlias from seed; will bloom the first season. You have the chance of producing some excellent new varieties. 100 selected seed, from choice varieties, 25c. packet. Catalogue free.

ENTERPRISE DAHLIA FARM
Harry L. Pyle Atco, New Jersey

Beautiful Iris

Splendid Collection of Best Varieties. Gorgeous Colors. All Postpaid at Price Named.

	EACH	DOZ.
Mme. Chereau—white. blue fringed	25c	$2.50
Lenoldas—dark blue	25c	2.50
Sans Souci—yellow, petals wine	20c	2.00
Gracous—yellow, petals light wine	20c	2.00
Ossian—canary yellow, petals light purple	20c	2.00
Siberian—blue	25c	2.50
Florentine—purple	20c	2.00
Celeste—sky blue	25c	2.50
Flavescens—lemon yellow	20c	2.00
Gold Coin—yellow, petals purple	20c	2.00

Collection one plant each variety prepaid, $2.00

W. N. Scarff & Sons, New Carlisle, Ohio

RARE
ORIENTAL FLOWERING TREES
FROM PERSIA, CHINA and JAPAN
Catalogue
A. E. WOHLERT
The Garden Nurseries
Narberth, Montg. Co. Penna.

6 Ornamental Evergreen Trees $5
To Beautify Your Home

Silver Fir

Direct To Your Door From
Little Tree Farms
Charges Paid East of Mississippi River
Remittance With Order

1 SILVER FIR, 1 JUNIPER, 1 RED PINE, 1 DOUGLAS SPRUCE, 1 ARBORVITÆ, 1 AUSTRIAN PINE
all two feet high or over

Fine trees soon become valued possessions; as their beauty increases so does the attractiveness of your home. They are nature's greatest gift to the beautifying of your grounds. This unusual offer is to acquaint you with the superior stock and service of **Little Tree Farms.**

The Book of **Little Tree Farms** will be sent upon request without charges. It tells just what you want to know about trees and shrubs, their planting, care, and the varieties best suited to various conditions, purposes and locations.

Beautifully illustrated—used as a reference book in schools and listed in the library of the United States Dept. of Agriculture.

AMERICAN FORESTRY COMPANY, Dept. A 4
Owners of Little Tree Farms near Boston
15 Beacon Street Boston, Mass.

STANDARD FLOWER AND GARDEN FERTILIZER

A powerful, highly concentrated and soluble plant food for
Flowers, House Plants, Lawns, Shrubbery, and Gardens

The most highly concentrated, properly balanced fertilizer ever compounded.
So strong that a pinch will intensely fertilize a house plant, a small package 200 square feet.
Odorless—Promotes quick and luxurious growth and deep green color to foliage and gives rich, brilliant color to flowers and will revive those puny, pale, sickly plants, flowers, shrubs, etc.

ANALYSIS	
Nitrogen	15 to 17%
Equiv. Ammonia	18 to 20%
Avail. Phosphoric Acid	10 to 12%
Potash (K-2-O)	8 to 10%

PRICE	
½ pound package	$ .40
1 pound package	.75
5 pound package	2.25
25 pound bag	6.50

For sale by leading seed houses and stores. *If not catalogued by your seedsman send your order to us direct.*

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By WM. M. ODOM **A History of Italian Furniture** TWO VOLS. NET, $100.00

WE MAKE & ERECT **FENCE** FOR LAWNS, DIVISION LINES, ORCHARDS, GARDENS, FARMS, TENNIS COURT INCLOSURES, POULTRY AND DOG RUNS

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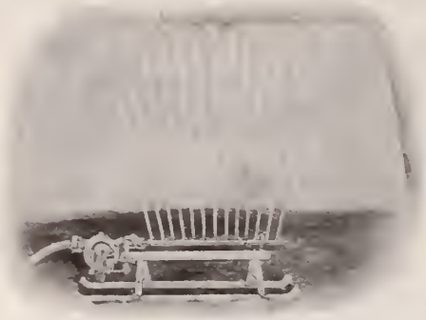

Cico Oscillating
IRRIGATOR

For Lawns, Vegetable Gardens, Seedbeds, Shrubbery, Greenhouses, Hardy Borders, Putting Greens, Fairways and General Irrigation.

Cico throws a generous, gentle, mistlike spray which can neither wash out nor pack the soil, nor injure the most delicate seedling. The plane of the spray Oscillates back and forth, wetting the soil evenly and thoroughly.

Cico waters any *rectangular* area 12 feet wide up to 60 feet long, is instantly adjustable without tools, and may be moved at will without turning off the water or wetting the operator.

Cico is unique in the automatic oscillation of the distributing pipe in which a line of small brass nozzles are fitted—thus throwing a plane of spray to and fro over the area being watered.

Cico oscillations recur 20 times a minute. Each interval allows time for the spray to sink in before the next precipitation. The advantages are:

—No puddles can form.
—Large area watered thoroughly, quickly.
—An absolutely even precipitation over the area.
—No dry spots, no spots too wet.
—No unsprinkled corners and no waste.

Cico weighs but five pounds and is 21 inches long.

Price complete $15.00 F. O. B. Factory, but transportation paid in U. S. A. if remittance accompanies order. Buy direct or from your dealer. Descriptive circular on request. 1920 output limited; order now to insure delivery.

CAMPBELL IRRIGATION COMPANY
Woodbury, New Jersey

Dealers Wanted to Sell Cico—Write for details. We manufacture the well known Turbo-Irrigators and Automatic Sprinklers. All necessary machinery and equipment furnished for complete irrigation of large projects, including truck farms, market gardens, sugar beet fields, orchards, golf courses, etc.

The Glen Road Iris Gardens
Grace Sturtevant, Prop.
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GROWERS AND ORIGINATORS OF FINE VARIETIES OF BEARDED IRIS

GALLOWAY POTTERY
GIVES ENDURING CHARM
Send for our illustrated catalogue of Flower Pots, Boxes, Vases, Benches, Sundials, Gazing Globes, Bird Fonts and other Artistic Pieces for Garden and Interior Decoration.
GALLOWAY TERRA COTTA CO.
3214 WALNUT ST. PHILADELPHIA.

A HANDY ROSE GROWER'S MANUAL

THE time to decide that you want Roses in your garden is now in Rose planting time, not later on when your neighbors are enjoying their blooms and you are bewailing your lack of them. And that you may choose wisely and plant and care for the flowers as they should be planted and cared for, don't delay in studying up the facts about them. One good way is to send to the New York State College of Agriculture at Ithaca for a free copy of its Reading Course Bulletin for the Farm, Number 121, bearing the title The Culture of Garden Roses. Remember, indeed can one ever forget, that

Roses always roses are—
What with roses can compare?
Search the garden, search the bower,
Try the charms of every flower;
Try them by their beauteous bloom,
Try them by their sweet perfume.
Morning light it loveth best
In the rose's lap to rest;
And the evening breezes tell
The secret of their choice as well,
Try them by whatever token,
Still the same response is spoken;
Nature crowns the rose's stem
With her choicest diadem.

WHAT IS A GROUND COVER?

I SHOULD like to have an exact definition of this term which I see used often in garden writings. How are we to know exactly where to classify any plant?—L. H. R.

My definition of a ground cover plant is very elastic, and not quoted from any authority. I make the *purpose* for which used the test for plant lists. To me a ground cover is a plant that *covers soil*, for the purpose of holding it in place, and adding green foliage, colored flowers, or winter effects. There are two sorts: herbs and shrubs. Of herbs, whose primary use is to cover up ground otherwise bare, we think of Pachysandra, English Ivy, Myrtle, etc., and cheap self-supporting herbs as Ferns, Bouncing Bet, Coreopsis, etc., though lawn grass, pasture grasses, clovers, etc., are also soil cover. From the landscape architect's point of view an herbaceous ground cover is a low herb of great vitality that takes the place of grass in formal or wild plantings. Woody ground cover, larger in scale, gives the effect of woodland undercover, and ranges from Witch Hazel and Red-barked Dogwoods to prostrate Junipers and Rosa wichuraiana. In the broad sense height has little to do with the definition, for Basket Willows are often "ground cover," but practically we do restrict our idea to plants of low dense spreading nature, those that hide the soil surface most completely. STEPHEN F. HAMBLIN. *Instructor in "Plant Materials," Harvard School of Landscape Architecture.*

HOW TO TREAT LETTUCE PLANTS

IN THE spring I had all my lettuce sown in sunny places. The sun is not strong in the early spring and nearly all seeds need all the spring sunshine they can get. Lettuce and its relations are really cool weather plants and must be treated as such. If I felt it was heading too quickly I covered it over with cheese cloth propped up on branches of trees to shade it from the sun. This discourages any tall growing ideas it may have and makes it head firmly. In the latter part of the summer I plant it under a shade where it only gets the noon day sun. I treat romaine and endive the same way.

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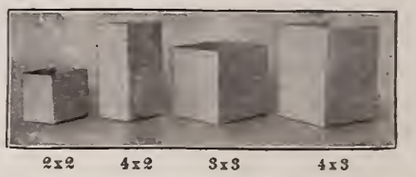

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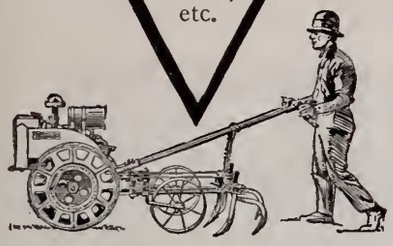

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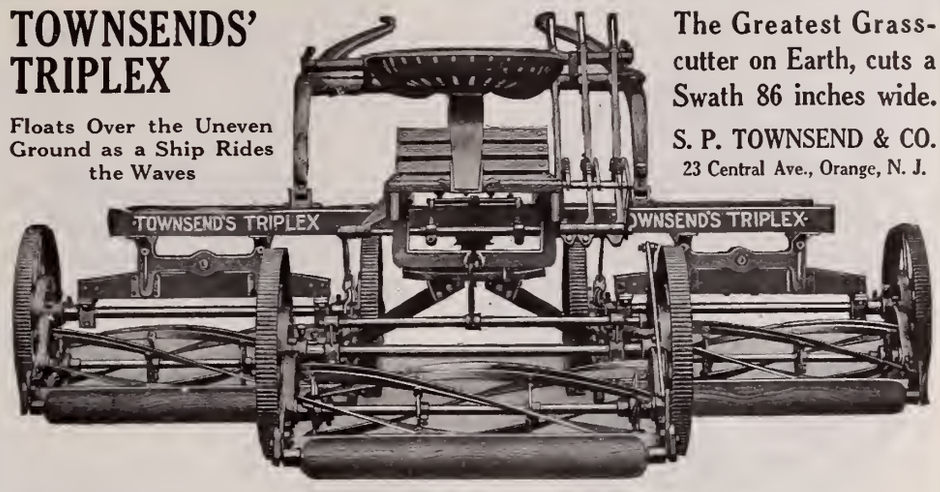

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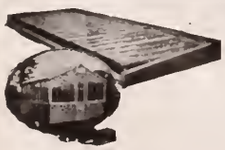

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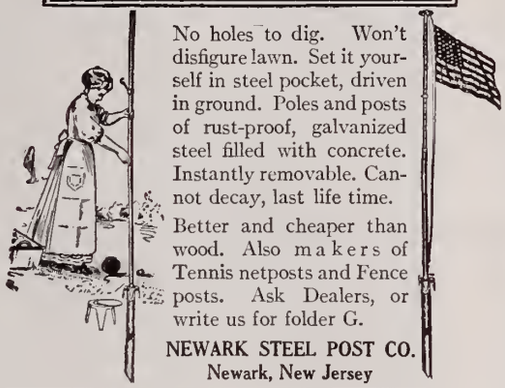

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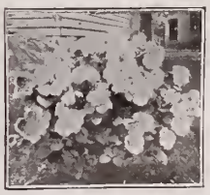

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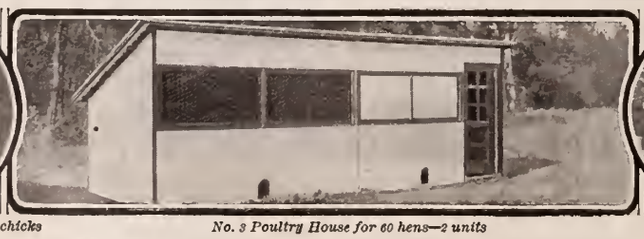
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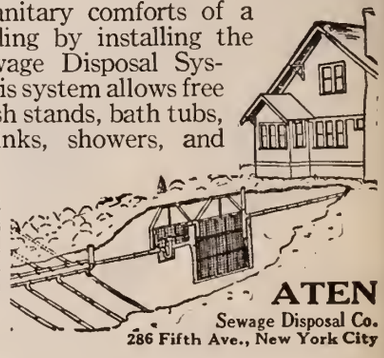
Home owners in the Country can secure all the sanitary comforts of a city building by installing the Aten Sewage Disposal System. This system allows free use of wash stands, bath tubs, toilets, sinks, showers, and the like.



Our booklet No. 11 tells how and why. Sent free upon request.

ATEN
Sewage Disposal Co.
286 Fifth Ave., New York City

Don't Say Roses! Think and Say *Totty Roses!*

Our New Rose for 1920—*"Madam Butterfly"*

MADAM BUTTERFLY

A lovely symphony of pink, apricot, and gold! A dainty, beautiful flower aptly named and one that will become a popular garden Rose, when better known. Very easy to grow, with lustrous, rich foliage, not affected by mildew or disease. We offer: TWO YEAR OLD, DORMANT PLANTS, FOR OUTDOOR PLANTING; $2.50 per plant; $25.00 dozen.

Special Offer

If you are in the market for Roses, you may as well get the best! To make this possible for you we offer—

12 two year old plants dormant or 5" pots, as preferred for - - $10.00.

12 distinct kinds which will include one of our

"COLUMBIA"

The Gold Medal Winner. This Rose we introduced with the raiser, the E. G. Hill Co., in 1918 and it is being sold everywhere this year at $1.50 per plant, which is also our own retail price on this variety.

This $10.00 Collection will, We Guarantee, Bloom Profusely for You This Year.

CHRYSANTHEMUMS In addition to Roses, our Novelty CHRYSANTHEMUMS, have for years been recognized as the world's best in both Hardy and Greenhouse varieties. This year they are the best we ever had and with our collections of—

DAHLIAS, GLADIOLI, DELPHINIUMS, BUDDLEIA, and other Hardy Garden Plants, fill to overflowing our 100 page catalogue, which is yours for the asking if you have not already received it.

If genuinely interested, you will find it refreshing and unusual.

TOTTY THE NOVELTY MAN Madison, New Jersey

Our Guarantee: Your Money Back, if not satisfied, still holds good.

BURPEE'S SEEDS GROW

GOLDEN Bantam is the most famous Sweet Corn in the world. It was first named and introduced by Burpee.

BURPEE'S ANNUAL is a complete guide to the vegetable and flower garden. It fully describes the Burpee Quality Seeds with a hundred of the finest vegetables and flowers illustrated in the colors of nature.

If you are interested in gardening write for a copy of BURPEE'S ANNUAL. It will be mailed to you free.

BURPEE'S
GOLDEN BANTAM
SWEET CORN

W. Atlee Burpee Co.
Seed Growers Philadelphia

THE COUNTRY LIFE PRESS, GARDEN CITY, N. Y.

GARDEN MAGAZINE

MAY
1920
Price
25 cts.

The Memorial Trees

Water Lilies

Insects *of the* Ornamental Garden

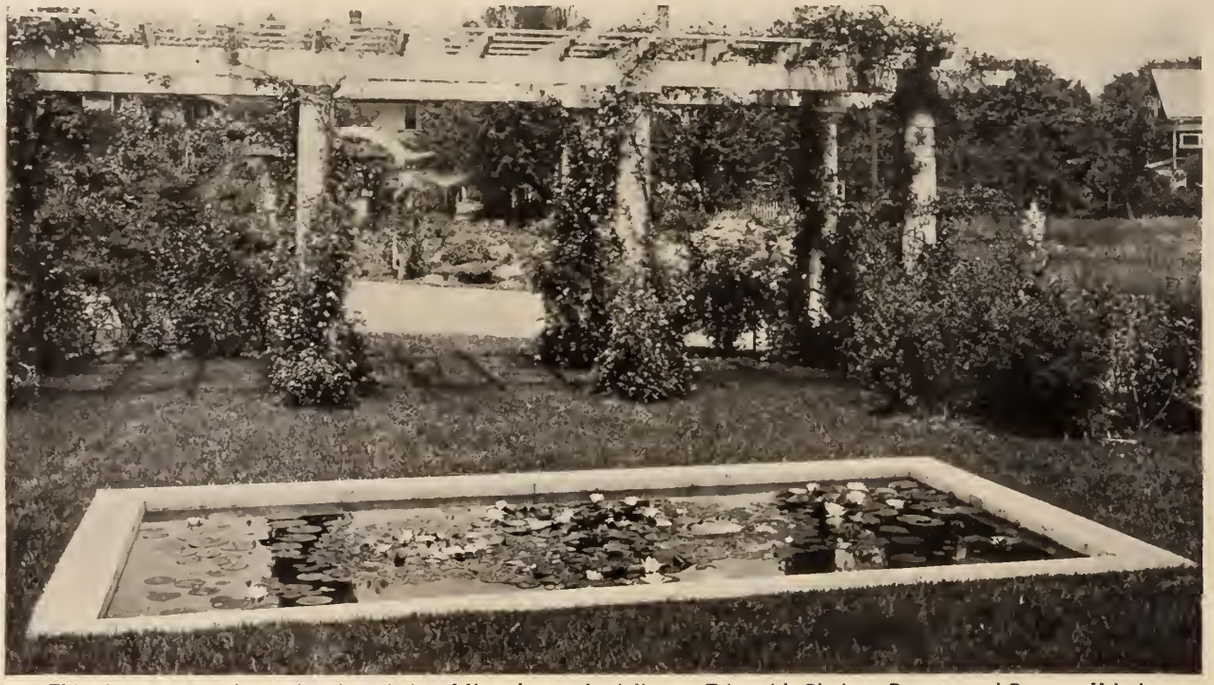
Our Nut Trees

Doubleday, Page & Co.
Garden City, N. Y.

Water Lilies Will Grow in the Modest Garden or Large Estate

Water Lily culture is so simple that it may almost be said the plants "just grow themselves." A natural pond, with no water-current is, of course, ideal, but not absolutely essential, for Water Lilies will bloom freely in an artificial pool. And rather than have no lily garden at all, you may use a strong half-barrel or tub as a container for the plants.

Three elements only are needed in successful Water Lily growing—*sunlight, water* and *soil*. Nature gives freely the sunshine that Lilies love; water can be had without trouble, and the first supply of soil will last for the entire season. Can any garden task be easier or bring greater joy?



This picturesque pool contains six varieties of Nymphæas—the Arlington Trio, with Gloriosa, Pygmæa and Pygmæa Helvola

There Are Water Lilies For Every Place

Nature has been lavish in supplying Water Lilies that will grow in ponds, in artificial pools, and in tubs. For each location there are certain varieties peculiarly adapted, either because of the habit of growth, or the form, or color of the flowers. The varieties here noted are only a few taken from the 1920 edition of "Water Lilies and Aquatic Plants."

LILIES FOR ARTIFICIAL POOLS

Allow at least 15 square feet of surface for each plant

Mrs. Woodrow Wilson. One of my own introductions. Flowers lavender blue, with yellow stamens tipped with the color of the petals. Unusually beautiful. Plants $2.50 each.

Gracilis. The only white day-flowering tender Water Lily. Blooms quite large and deliciously fragrant. Awarded certificate of merit by the Society of American Florists. Plants $1.50 each.

Pennsylvania. Flowers deep rich blue; unusually large; often larger than the other blue sorts. Plants $2.50 each.

William Stone. Flowers rich purple with yellow centre and purple stamens; open early in the morning and remain open all day. Plants $2 each.

Dentata (*Night bloomer*). Flowers absolutely pure white; 10 inches or more in diameter. Plants $1 each.

Frank Trelease (*Night bloomer*). Large crimson blooms and mahogany-red stamens. Plants $1.50 each.

Omarana (*Night bloomer*). Reddish pink with light flesh or white stripes in the centre of the petals. Plants $1.50 each.

Marliacea albida. Flowers unusually large, and sparkling white; stamens light yellow, while the sepals are flushed pink. Almost a continuous bloomer. Plants 75 cents each.

Marliacea rosea. Flowers deep rose; because of the long stems are desirable for cutting. Leaves purplish red changing to deep green. Plants $1.50 each.

Paul Hariot. On first opening the flowers are clear canary yellow; the second day they are shaded with pink at the base of the petals, and on the third day this pink suffuses the whole bloom. Plants $1.50 each.

LILIES FOR TUB CULTURE

One plant is sufficient for a tub 2 feet in diameter

Daubeniana. A delicately scented light blue flower, often 5 inches in diameter. Plants begin to bloom when quite small. Very free blooming and unique in its habit. Plants $1 each.

Pulcherrima. Light blue petals, with yellow stamens; flowers 10 to 12 inches in diameter. Plants $2 each.

Zanzibariensis rosea. Flowers are in various shades of rose pink, which color is carried to the underside of the leaves. Plants $1 each.

Deaniana. (*Night blooming*). Petals a pure light pink; red stamens and deep rose pink sepals. Plants $1.50 each.

Graziella. Orange red, with rich orange stamens; sepals light green, striped red. Leaves dark green with spots of maroon. Plants $1.50 each.

Marliacea flammea. Flowers rich wine red, deepening with age. Particularly good for tub culture. Plants 75 cents each.

LILIES FOR NATURALIZING IN LARGE PONDS

Helen Fowler. A strong, vigorous plant, bearing deep pink fragrant flowers on extra strong stems. Plants 75 cents each.

Eugenia de Land. An exquisite shade of deep rose pink, of iridescent hues; stamens rich golden yellow. Superior to others of the *Nymphaea odorata* group. Plants $1.50 each.

Gladstoniana. Flowers from 6 to 8 inches across with dazzling white concaved petals. A continuous bloomer and one of the finest white varieties. Plants $1 each.

Odorata. The fragrant pond lily of the northeastern United States; flowers white, stamens yellow; leaves dark green with the under surface red or reddish green. Plants 25 cents each, $2.50 per dozen.

Many other desirable varieties of Water Lilies are pictured in natural colors and fully described in the 1920 edition of **"Water Lilies and Water Plants"** a booklet which treats exclusively of plants for the aquatic garden. It is the most comprehensive book of its character that has ever been issued. I shall be glad to send you a copy on request.

WILLIAM TRICKER, ***Water Lily Specialist,*** **Box E, Arlington, New Jersey**

You Can Grow Luscious Melons—

On *any* soil, provided you supply humus! And don't use humus, use *Alphano Humus*, for that is the *ultimate* grade in rich plant food made better by man's scientific efforts.

Prepared Alphano—The Organic Humus with a Guarantee

For fifteen years Alphano has made good throughout the country as one of the greatest soil renovators known. On the basis of merit alone—producing greater crops at minimum cost—it has helped us build up one of the largest businesses of its kind in the world.

What Alphano is

A perfectly natural product of nature itself, concentrated and further enriched with plant food elements. In addition, it carries in active form, those valuable soil bacteria that encourage and help plants extract nitrogen from the air and store it in the soil in form of plant food. Thus, Alphano is not merely a stimulant but it puts backbone into the soil. It helps the soil help itself to nature's abundant fertility.

ALPHANO
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What Alphano does

Used freely, it gives the soil an abundant supply of gradually liberated plant food. It makes the soil lastingly fertile because it does not leach out of the soil like chemical elements. Alphano becomes an integral part of the soil itself, encourages rapid development of vegetables, fruits, and flowers; adds to the *lasting* qualities of velvety turfs and lawns; helps man get the most out of the soil—at least cost.

Ask Your Dealer Most prominent horticultural supply stores handle Alphano Humus. However, we would ask you to specify *Alphano*—the Humus with a Guarantee—for common Humus (which we can supply at considerably lower cost than Alphano) cannot lay claim to the extraordinary characteristics of our Prepared Alphano. As with all other merchandise, Alphano as the best will be found the cheapest regardless of price.

Alphano is sold at these uniform prices—

$20 a ton in bags.
$16 a ton in bags by the carload.
$12 a ton in bulk by the carload.

Prices F. O. B. Alphano, N. J.

1/5th TON for $5

Write Us Kindly tell us what area of land you wish to improve with Alphano. We shall gladly offer specific suggestions how much Alphano to use for best results with certain crops. Take Melons for instance: Three shovelfuls per hill, or one hundred pounds for every ten hills would be about right. Further facts on request.

Alphano Humus Co.

Established 1905

17-C Battery Place New York

Let's talk PEONIES Seriously NOW!

These were the words of our Mr. Frank Good when, a few weeks ago, we decided to offer this unusual suggestion. It seems utterly logical to offer certain plants when the plants themselves arouse most interest. The end of this month will see the earliest of the glorious Peonies burst into bloom. Then it will be that you'll be wishing hardest for Festiva Maxima, Edulis Superba, and other forerunners of a glorious race. Then will be the time that you should let us book your order!

"Peonies for Pleasure"

Awaits Your Call

You'll be more than pleased with this unusual "Booklet de Luxe" which is easily the most comprehensive treatise on Peonies ever offered free for the asking. It deals with *one flower only*—The Peony—which ranks second in importance in our establishment, but first in the affection of many. Not a catalogue, but a true Guide to Peonyland, into which it will introduce you fittingly, frankly, and freely. Please write for your copy of this unusual book TO-DAY.

The Good & Reese Company

Largest Rose Growers in the World

Springfield, Ohio

THE GARDEN MAGAZINE

MAY, 1920

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LEONARD BARRON, Editor

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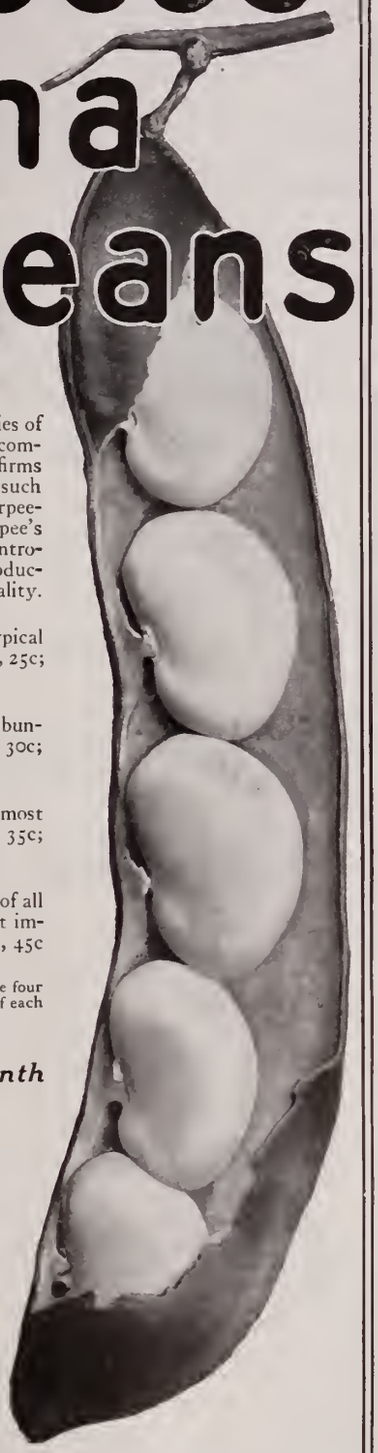
Burpee's Lima Beans



BURPEE has introduced more varieties of vegetables that are now in general commerce than have any three other firms combined. Among the Lima Beans such quality leaders as Burpee's Bush, Burpee-Improved Bush, Fordhook Bush and Burpee's Giant Podded Pole, all first named and introduced by Burpee, are noted for their productiveness, size and, most of all, their quality.

Burpee's Bush Lima
Immensely productive, early and of typical strong bush growth. Pkt., 15c; ½ lb., 25c; 1 lb., 45c postpaid.

Burpee-Improved Bush Lima
Pods truly enormous in size, borne abundantly, extra early. Pkt., 15c; ½ lb., 30c; 1 lb., 50c postpaid.

Fordhook Bush Lima
Very tender with unusually thin skin, most delicious in flavor. Pkt., 15c; ½ lb., 35c; 1 lb., 60c postpaid.

Burpee's Giant Podded Pole Lima
Largest podded and heaviest cropper of all pole limas. A quality variety of first importance. Pkt., 15c; ½ lb., 30c; 1 lb., 45c postpaid.

We will mail to you one packet each of the above four Burpee Lima Beans for 50c postpaid, or ½ lb. of each of the four for $1.00 postpaid.

Other Specialties to Sow th s Month

Burpee's Stringless Green-Pod Bush Beans
This famous snap bean, introduced by Burpee twenty-seven years ago, still stands supreme among all green-podded beans. Tender, brittle, and absolutely stringless, even when fully grown. Pkt., 10c; ½ lb., 25c; 1 lb., 45c postpaid.

Burpee's Golden Bantam Sweet Corn
The most famous Sweet Corn in the World. Without question the richest and sweetest of all early sweet corns. Pkt., 15c; ½ lb., 35c; 1 lb., 60c postpaid.

Write for a copy of the Burpee Leaflet "How to Grow Beans." It will be mailed to you free and please mention Garden Magazine.

W. Atlee Burpee Co.

Burpee Buildings Philadelphia

Scheepers' *Unusual* Tulips

This special message is aimed at those ultra exacting gardeners who put *results* above all other considerations. Due to the courtesy of a leading specialty Tulip grower in Holland, we will be able to supply this Fall some of Holland's most unique productions in *Breeder, Cottage, Darwin, and Lily-Flowered Tulips* that have ever reached America's shores in our usual High Quality, and at special prices. There will be twenty-four varieties only, in this offer, everyone of them a peerless garden jewel.

See them in flower at the New York Botanical Garden this month

So impressed are we with the surpassing beauty and inherent merit of these Tulips that we arranged to plant trial plots at above station. See them yourself, then arrange for some—RIGHT NOW.

Breeder			
	ABD-EL-KADER	Dark bronze with lighter border	$4.00 for ten
	BACCHUS	Dark violet-blue	$3.00 for ten
	DON PEDRO	Morocco-red on cadmium yellow ground	$1.50 for ten
	GARIBALDI	Lilac-bronze, pale yellow border	$2.50 for ten
	GOLDFINCH	Golden chestnut	$3.50 for ten
	HELOISE	Purplish-red, yellow center	$2.00 for ten
	LOUIS XIV	Dark dull bluish-violet	$3.00 for ten
	PALADIN	Rich deep old-rose	$2.50 for ten
	VELVET KING	Dark glossy royal-purple	$1.50 for ten
Cottage			
	HAMMER HALES	Rich mahogany-brown, edged orange	$1.00 for ten
	KINGFISHER	Creamy-yellow, flamed lilac and purple	$2.50 for ten
	MRS. KERRELL	Salmon-rose, delicately tinged amber	$1.50 for ten
	QUAINTNESS	Golden brown, flushed dull old-rose	$2.50 for ten
	TWILIGHT	Dull violet-mauve, brown border	$1.50 for ten
	WALTER T. WARE	Deepest golden-yellow	$2.00 for ten
Darwin			
	AFTERGLOW	Deep rosy-orange, edges shaded salmon	$6.00 for ten
	CITY OF HAARLEM	Intense dark scarlet; largest of all	$2.00 for ten
	GIANT	Dark purplish-violet	$2.00 for ten
	JUBILEE	The finest blue-purple	$1.50 for ten
	LA FIANCEE	Deep rose, shaded old rose	$3.00 for ten
	YOLANDE	Bright rose-pink, shaded salmon	$1.50 for ten
Lily-Flowered			
	ADONIS	Rosy-red	$4.00 for ten
	ARTEMIS	Carmine-rose; white base	$4.00 for ten
	SIRENE	Brilliant satin-rose	$4.00 for ten

The complete collection, ten bulbs of each of these 24 varieties, $60

Every bulb of course fully guaranteed

Special Prices—Good only until May 31st

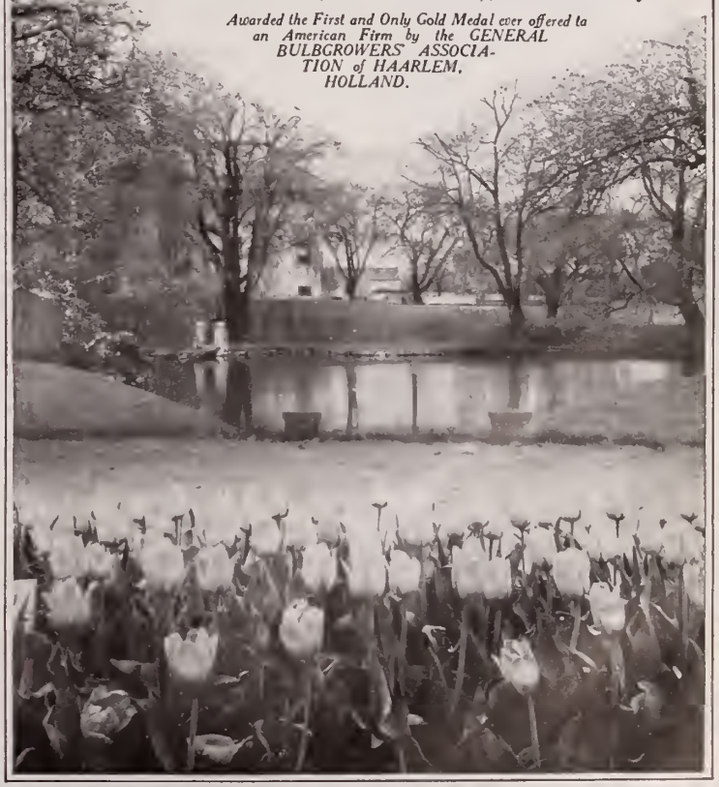
These Tulips are so scarce as yet, that Holland growers are reluctant to send out more than appreciative hobbyists demand. For this reason we may import to order only. How many may we reserve for you? Do not send remittance; send order only and at once: after May 31st, our regular catalogue prices shall be in force.

JOHN SCHEEPERS, INC.

Flower Bulb Specialists

522 Fifth Ave. (Corner 44th St.), New York City

Awarded the First and Only Gold Medal ever offered to an American Firm by the GENERAL BULBGROWERS' ASSOCIATION of HAARLEM, HOLLAND.



Beautify Your Garden

SPRING, with all its beautiful tracery of young foliage and delicate tints and odors, is practically here. Now is the ideal time to visit our Nurseries and make selections from our extensive variety of well grown plants and trees to beautify your garden.

Evergreens—Trees—Shrubs—Roses—Perennials

Beautifully illustrated catalogue on request

Bobbink & Atkins

RUTHERFORD NEW JERSEY

That Water Garden

Need be neither sumptuous nor expensive to make it exquisite. A well chosen spot, a well conceived plan, the proper material correctly disposed, and all the joy that the sight of a bit of beauty can bring may be yours.

Best Aid is Never Dear

Facts are that the *only* way to secure greatest results from least expenditure is to enlist the help of men who have helped others. We do not claim to be able to do the impossible. BUT—please write us so we may tell you more about the service we are prepared to render.

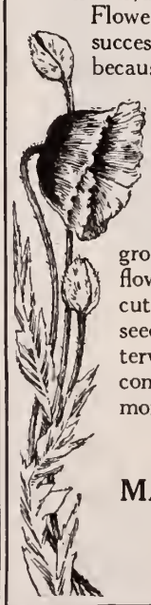
A. W. Smith Company Landscape Engineers

300 Keenan Bldg. Pittsburgh, Pa.

Fuld's Blue Lace Flower

For several years in the past my patrons would come to me and ask for seeds of the Charming Blue Lace Flower which is found in all the finest florists' shops along Fifth Avenue, and I had to confess that the botanical name of the flower was unknown to me and without it I could secure no seeds.

If there is one thing I dislike, it is to confess that I cannot name a flower, and so I was determined to locate this mysterious "Lace Flower," and after two years of ceaseless search I have been successful and rather than wait for another twelve months, because my catalog is off press, I adopt this unique method to introduce this old-new flower to the gardening public. I rather like the name of "Lace Flower," and, as the botanical name is hard to pronounce, I shall offer it as the heading indicates.



What is it like? An Annual of easiest possible culture; growing 18 inches high and of bushy growth, each side shoot terminates in a flat umbel flower of a most charming pale blue color; excellent for cutting and most useful for table decorations. Sow seeds in May directly into the garden and thin out afterwards to allow 12 inches of space. It is of cut-and-come-again nature; the more the flowers are cut, the more the plants will bloom.

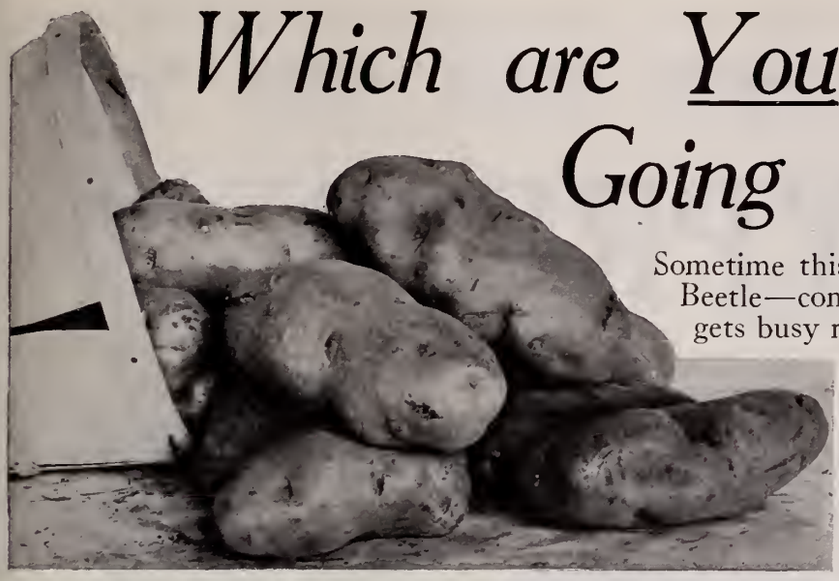
Pkt. 50 Cents

MAURICE FULD, Plantsman-Seedsman

7A West 45th Street, New York

JUST OUT: The May Issue of My Garden Favorites; another revelation to amateur gardeners.

Which are You Going to Raise?



Sometime this month, the Colorado Potato Beetle—commonly called Potato Bug—gets busy reducing your potato crop.

Prepare right now to fight the pest that works day and night. The size of your potato crop will depend *entirely* on the amount of nourishment which a *thrifty* plant can send down to the roots. Therefore, save the plant that feeds the roots.

Hammond's Slug Shot, since 1880,
has aided Thousands saving Garden Products.

For forty years it has *saved* billions of valuable food-bearing plants from the ravages of leaf-eating insects. For two-score years it has served this nation without injury to man, fowl, or foliage.

Add to this the absolute safety with which it may be applied, even by children, and you have the reason why the name Hammond to-day stands as a household word for safe and efficient insecticides—used from Ocean to Ocean and in many foreign lands.

Buy it by the Bag — *at all good Dealers*

Hammond's Slug Shot is put up in several convenient packages, including pound canisters, cartons, etc. The most economical way to buy it is in quantity, together with the handy Slug Shot Duster or Bellows. Slug Shot and equipment with which to apply it is the most economical material obtainable. Ask your dealer.

No matter where you live, you need not do without Slug Shot. If your dealer does not carry it, write us and we will see that you are supplied, either through him or direct. Mails make near neighbors of us all, and Slug Shot is readily sent by parcels post. Don't try to do without Slug Shot—you'll need it sooner or later!

Slug Shot kills Potato Bugs, Currant and Cabbage Worms, Slugs and Caterpillars of all kinds, besides destroying Larvae and other insects injurious to vegetation.

Hammond's Gold Medal Insecticides for the *Ornamental Garden*

will prove a boon to the man in search of joy among flowers, shrubs and trees.

Slug Shot drives off Rose Bugs, Aster Beetles, and Aphis. It keeps the Larvae of the Elm Tree Beetle under control, and saves Walnut Trees from the ravages of caterpillars.

Hammond's Grape Dust prevents mildew on Roses, Chrysanthemums, Violets, as well as vegetables attacked by that fungus.

Hammond's Thrip Juice No. 2 is a reliable insecticide for use on all plants, shrubs, and trees, outdoors and under glass, to fight all kinds of Aphis as well as Red Spider, Soft Scale and Mealy Bug.

Learn to look to Hammond's as Headquarters for Ammunition with which to fight Garden Enemies.

Instructive Booklet FREE

Tucked away among its modest covers you'll find many a nugget of advice based on nearly half a century of studies of plant and insect life. "Insects and Blights" lays claim to throwing light on a subject treated all too lightly by most homegardeners. A plant saved is the product earned, and why start a garden if you propose to neglect the plants that grow in it. "Insects and Blights" will prove a helpful hand in your battles with bugs. Your copy of this useful booklet—now published thirty-seven consecutive years—awaits your call.

HAMMOND'S PAINT & SLUG SHOT WORKS
BEACON · NEW YORK

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Working Plans and Specifications for the above are in Vol. 40, Cypress Pocket Library. (Sent Free.)

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—

"It means a lot, that it doesn't rot."

—

Working Plans and Specifications for this and many other artistic outdoor embellishments are in Vol. 28 of the Cypress Pocket Library. (Free on request.)

Working Plans and Specifications for above are in Vol. 30, Cypress Pocket Library. (Free.)

THIS REGISTERED TRADE-MARK IS INDELIBLY STAMPED IN THE END OF EVERY BOARD OF TRUE "TIDEWATER" CYPRESS. LOOK FOR IT.

CYPRESS "The Wood Eternal"

is probably the best wood on the market for trellises, arbors and pergolas, because it is not necessary to tear down the vines to repaint the wood. Cypress may be left to "weather" into its fine natural effects, or it may be painted once every 91 years if desired. (Or as often as desired for artistic reasons.)

SPECIAL NOTICE: Among the 43 Volumes of the INTERNATIONALLY STANDARD **CYPRESS POCKET LIBRARY,** the following volumes contain matter bearing on the above subject, viz.: **Volumes 28, 30 and 40.** Volume 1 contains full U. S. Government Report on Cypress and a complete list of all volumes. Any or all of these will come FREE promptly on your request. (Also ask for Volume 42, "Good Bungalows for Good Birds.")

Let our "ALL-ROUND HELPS DEPARTMENT" help YOU. Our entire resources are at your service with Reliable Counsel. We invite correspondence with a serious purpose in it.

Southern Cypress Manufacturers' Association

1209 Hibernia Bank Building, New Orleans, La., 1209 Heard National Bank Building, Jacksonville, Fla.

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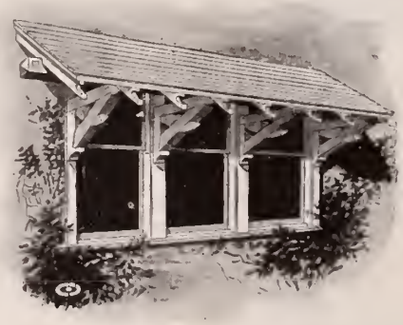

PRIZE POEMS:

The wood that all its users prize
The wise investor safely buys.

He who looks before he leaps
Builds of Cypress and builds for keeps.

Working Plans and Specifications for this Cypress Hooded Window and Garden Entrance are in Vol. 28, Cypress Pocket Library. ("The Guide to Thrift and Beauty.")

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The Garden MAGAZINE

Vol. XXXI, No. 3 May, 1920

LIBRARY
NEW YORK
BOTANICAL
GARDEN

WHERE RIPPLES TRANSMUTE REALITY

Serene birds, afloat like clouds, and deep reaches of shadowed sward typify seclusion. Garden of J. C. Whitehouse, Cincinnati, O.; Wagner Park Nurseries, designers

Y 3 1920

Photo by Mattie Edwards Hewitt

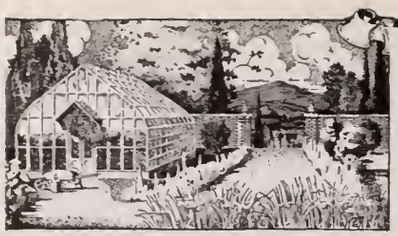
SOME VISTAS ARE DEFINITELY INVITED TO COME INTO THE GARDEN

The foreground Cedars, suddenly opening to this vista after obscuring it until the moment for revelation arrives, increase its perspective. They are themselves greatly magnified in scale by the diminutive pieces of sculpture at their feet. Garden view at Two Pine Farm, the Mt. Kisco estate of Mr. E. O. Holter

Photo-© by Trustees of Ropes Memorial

THE GAY FLOWER-GARDEN
OF AN OLD SALEM MANSION

Especially provided for was the garden when the two Misses Ropes who were the last of their line, wishing to preserve intact the splendid example of a Colonial home, fully furnished and "lived in" as theirs was, willed the Ropes Mansion to the public, together with a fund for its maintenance; and though the present garden is modern, its prim beds of annuals, beautifully kept, with the backing of brick wall and shrubs, are redolent of the somewhat formal elegance of Colonial days



PLANT BRIEFS

Saxifraga Ligulata is one of the most useful of the large-leaved section of the family, often spoken of as Megasea. It makes a plant about one foot high, with large broad leaves and flowers borne in a dense raceme varying in color according to variety from deep rose-purple to white. It is a useful plant, taking well to almost any kind of soil and valuable in the garden both as a border plant and in the rockery. A native of the Himalayas, it is hardy everywhere with us except north of Boston. In cultivation it is known in a number of named varieties (which are not commonly offered, however, in our nurseries although they are to be had in a few cases). Similar species are cordifolia Stracheyi, and purpurascens; and to some extent all are confused together in the trade. The foliage being practically evergreen adds a further point of value to this interesting group of plants.

Climbing Rose Emily Gray. A climbing yellow Rose with large flowers and high fragrance has long been a dream, and visitors to the recent International Flower Show at New York were considerably intrigued with the exhibit of this variety, a European novelty introduced here by A. N. Pierson. It has been thought sufficiently well of abroad to have been awarded the Gold Medal of the National Rose Society. The foliage is decidedly glossy, of good stout texture, and the individual blooms recall the yellow of Marechal Niel, and to some extent its fragrance also. The originator states that the blooms are "almost as large as those of Mme. Ravary," and likens the foliage to that of Berberis vulgaris. The appearance of the plant as seen here would suggest the influence of Fortune's Yellow Rose as one of the parents, and it is stated that the other is wichuraiana. It is to be hoped that the latter parent may have injected a sufficient degree of hardiness to make Emily Gray a really valuable Rose for American gardens, but first appearances raise a doubt. However, this year's experience should definitely determine the point. But whether or not it will become available as a garden Rose of the North, there can be no question of its intrinsic beauty and merit and for the southern tier of states Emily Gray is bound to be a valuable acquisition.

NEW DECIDUOUS AZALEA LOUISA HUNNEWELL

The first American hybrid of the Chinese and Japanese species; flowers orange yellow. Raised by T. D. Hatfield

Azalea Louisa Hunnewell, or if we are to be strictly correct, Rhododendron, and not Azalea for botanists make the one name include the two garden groups. From a garden viewpoint, however, there is some convenience in thinking of them as two different things. A. Louisa Hunnewell shown in the accompanying illustration is the first authentic hybrid between the Chinese and Japanese deciduous Azaleas molle and japonica, raised in America. It was developed by T. D. Hatfield, on the estate of Walter Hunnewell, Wellesley, Mass., and exhibited before the Massachusetts Horticultural Society at the recent spring show in fifteen large plants constituting one of the most conspicuous features of the exhibition. The large flowers, fully two or more inches across, are produced in large rounded heads as is seen by the photograph; in color they are rich brilliant yellow with the slightest tinging of the red-rose color taken from the Japanese species. This blends a richness into the yellow that varies a trifle in the different plants, but on the whole there is very slight difference among all the plants of the group. When this variety becomes distributed it bids fair to keep a prominent place as a forcing Azalea for Easter time, its free growth, profusion of bloom, size of flowers, and brilliancy recommending it. Outdoors it would flower early in June. If it is bud-hardy, as claimed, this is the most valuable plant of its class ever raised in this country. It was awarded a Gold Medal by the Massachusetts Horticultural Society last summer.

Euphorbia Myrsinites, a Spurge found wild in rocky places on the sea coasts of southern Europe, is interesting at all seasons. Its serpentine stems covered with persistent glaucous leaves of grayish blue never fail to attract attention when seen sprawling over the rocks. It forms an effective contrast when in proximity to the coppery almost orbicular leaves of Saxifraga crassifolia a Siberian belonging to the Megasea section of this genus. Both are of easy culture in almost any soil.

The Sempervivums are worth more than a passing glance because of their usefulness during fall and winter. One of the most noteworthy of these is the Cobweb Houseleek (Sempervivum arachnoideum) which however loses its cobwebby character entirely during the winter except for woolly tufts at the points of the leaves. Toward the fall it rolls itself into tight little buttons which appear well able to endure any kind of weather. The pretension to beauty of even the Common Houseleek (S. tectorum) is not to be despised, especially when a good clump is seen perched in solitary grandeur on a large rock. Many others in this genus are attractive by reason of the rich red-brown coloring of their leaves. With the increasing number of rockery gardeners these plants will increase in favor

WATER GARDENS, WATER-LILIES, AND LOTUS FLOWERS

Recognizing in a Still Pool the Perfect Rest of a Complete Sentence, Water in Other Forms Becomes Comparable to Interrogation or Ejaculation

I. THE INTIMATE GARDEN ASPECTS OF WATER

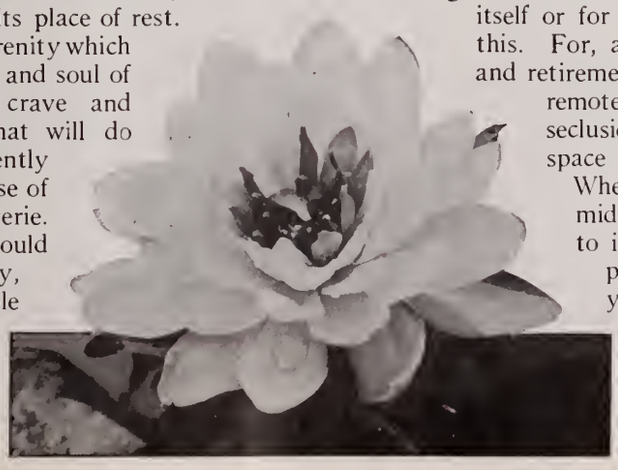
GRACE TABOR

HOWEVER it may be handled, water introduces an effect into the garden which cannot be obtained in any other way. It is indeed possible to change the entire mood of a composition by the manner in which this element is handled. For there are two distinct and opposing conceptions under which it may be presented; one animated and lively and filled with gaiety and activity, another subdued and placid and the very essence of repose.

These two aspects of water are in violent opposition, and one must choose between them, as a matter of fact—or should do so. For they cannot be successfully combined in the garden except under certain very definite conditions. That they are very often so combined is no argument for the propriety of doing so, nor for the effectiveness of methods that ignore the subtleties of harmony. Water in motion does violence to its own law; for water is by its very nature static. It seeks its "level"—which is rest.

Hence nothing in the world is more agitated than the plunging cataract or the rushing, tumbling stream—just as nothing is more expressive of force irresistible than the spurting jet or playing fountain, though the latter indeed may be an expression of contentment which the turbulent stream is not, since it merely dances at its level—its place of rest.

Yet neither of these produces the serenity which is, in the last analysis, the very heart and soul of the kind of garden that we all crave and delight in. It is the pool alone that will do this. For the still pool is preëminently pensive and sets up, at the first glimpse of its shining surface, the mood of reverie. All its attributes and surroundings should therefore be pitched in this key, whether these are extremely simple and naturalistic or formal to a high degree; and attention should be directed to intensifying the reflective quiet of spirit which its still waters engender.



On the other hand, always guard against a somber moodiness which will come of emphasis laid too exclusively upon this quality—or of a somber character in the reflections which the waters catch. See to it that it is sunlight and not shadow which lies upon it; or in more definite terms, always locate an artificial pool in the open and never beneath the shade of trees. It may of course be perfectly all right to allow a small portion of its waters to catch an overhanging branch; but not more than a third of its surface ought ever to be in shadow, whether it is naturalistic or formal in character, and regardless of its size.

WITH the use of water as a garden feature thus divided according to the method of handling, it is to the pool that we are going to devote ourselves here, since it is the still pool alone that affords suitable conditions for the culture of flowers—and it is with flowers that we are most concerned in springtime. Another season will permit us to think about brooksides and streams, perhaps.

Although still waters demand a measure of seclusion to complete the harmony of a composition, it does not follow that a great amount of space is necessary, either for the pool itself or for the surroundings which shall provide this. For, after all, it is the *sense* of seclusion and retirement that is wanted, rather than actual remoteness from everything. And a sense of seclusion may be accomplished in very limited space indeed, with proper handling.

Whether it is a little formal basin in the midst of a tiny garden that you purpose to install therefore, or a pool of broad expanse, do not let interest in it distract you from the necessities of its surroundings, nor beguile into the belief that the pool alone is enough. As with everything else in the garden, rich background is a prime essential. The surrounding planting, moreover,

should play up to its important part in the general scheme by being considered not only in its direct aspect but in the indirect aspect in which reflections will present it.

There is, for example, the skyline, the color, and the marginal line, as these repeat in the water—sometimes as vivid in their inversion as in their actuality, and inevitably affecting the aspect of the Water-lilies which may happen to float within their field. And there is of course the opportunities which just these points afford for pictures of startling beauty and unexpectedness. The water garden indeed may very well be considered as exactly doubling the possibilities which an ordinary garden creation affords, since there is this constant *de capo* at the end of every theme. Its reflections are as much a part of it as the plants and flowers which provide their substance.

It is perhaps more difficult to shape an artificial pool according to natural lines than it is to group plants naturally—yet the whole character of a naturalistic pool will depend upon its being truly natural at its margins. If possible, secure this quality by letting its margins be natural; that is, by utilizing a natural depression for the pool's basin, if you are actually making it "from the ground up." And where a dam is a part of the project, let this extend and then gradually unite the lines of the depression, rather than spring abruptly across it from its sides.

II. THE SIMPLICITY OF GROWING WATER-LILIES

CHARLES TRICKER

IN ANCIENT Egypt the Lotus, or Sacred Lily of the Nile, was a highly prized flower, closely associated with court life and the Pharaohs. Some of the petals of the blue Lotus-of-the-Nile (really a Nymphaea) have been found in the mummy cases of Egypt, and artistic designs were fashioned after the pattern of the leaves and flowers of this particular species. But every continent has contributed some species of Water-lily that has been used in obtaining the wonderful varieties now in cultivation.

From the northern part of the United States has come the Nymphaea odorata, our common Sweet-scented Pond-lily. From the southern states came Nymphaea mexicana (or N. flava) a small yellow Lily that has been one of the parents of our large-flowering yellow varieties. From Sweden we have Nymphaea alba rubra, or N. Froeblii, a red variety which brought much of the gorgeous red and pink coloring into some of the later varieties; and M. Latour-Marliac of Temple-sur-Lot, France, who has produced many marvelous hybrids, found that Nymphaea alba, from the European continent, was one of the best varieties for his purpose.

Most of the blue Lilies have come from the tropical countries. Nymphaea caerulea, a light blue, is the aforementioned Lotus of the River Nile, N. zanzibariensis, blue, and N. zanzibariensis rosea, a pink, came from Africa, while N. gracilis, a pure white came from Mexico. These are day-blooming Lilies. Most of the original night-bloomers have come from India.

With all these varieties a wonderful line of vari-colored Lilies has been built up—many pure white, white to pink and through all the shades to red and crimson; yellows, and yellow shaded with red and pink; and blue, lavender, and purple.

THE SUMPTUOUS QUALITY OF THE LOTUS IS IN BOLD CONTRAST TO NORTHERN VEGETATION

Its spreading habit is decided too, hence the roots usually need to be strictly confined, as here in the Lotus pool that lies midway along the walk to the lake; estate of Mr. R. H. Scott, Lansing, Mich.

THERE IS NO GARDEN TOO SMALL FOR WATER-LILIES AND OTHER AQUATICS

A single tub or box or a grouping of both will fit a water-garden into any corner

The best growers indeed now offer something like eighty varieties, and this exclusive of those discarded from the trade as better ones have come on or those lost to cultivation. Yet it is but a few years since the only flowering aquatic plants were such as grew wild in the ponds and marshes and along the margins of streams!

TWO types of Water-lilies, or Nymphaeas are to be considered—the "hardy" and "tender." Hardy Lilies have been derived from those indigenous to the temperate zone and will stand the severest of winters, provided the roots or racemes are not actually frozen. In natural ponds nature affords protection from freezing by a sufficient depth of water and a stratum of soil that does not freeze, but in artificial pools covering must be provided. The tender Lilies can be wintered over with the proper facilities, but the plan of purchasing young growing plants at the proper planting season, as with bedding plants, is usually more satisfactory and much more reliable.

Nelumbos—or Lotuses, as they are commonly known—are very strong growers, and most striking in their appearance. The leaves are borne on stout stems, 3 to 5 feet above the surface of the water, and the flowers are large and usually raised considerably higher. They are usually in a solid color, pink, red, yellow, or white, although there is one striped form. Several double forms are also to be obtained. The plants are heavy feeders and must be supplied with plenty of soil, and as their roots spread rapidly, provision must be made to confine them within a given area. They are impatient of removal and must be transplanted only at a certain season, the tubers being dug just as they begin to grow in the spring, which is usually about the first of May. These tubers resemble somewhat a banana in shape and are planted horizontally in the soil about 2 inches below the surface.

THE Victoria regia, or Royal Water-lily, is noted chiefly for the marvelous size of its leaves. I have seen a single plant with seven perfect leaves each not less than six feet across. The flowers are white, and of a very heavy fragrance, not unlike that of a ripe pineapple; they open for the first time early in the evening. It is obvious that to bring to perfection this giant Water-lily one needs a large pool: for at least 300 square feet of surface will be required and 3 cubic yards of soil, while the depth of water over the crown of the plant should be 15 to 18 inches. But miniature specimens may be grown in half-barrels of soil sunk 10 to 12 inches under the surface of the water and plants under such conditions will produce leaves 3 feet across and quite a number of flowers. They should not be planted out, unless one has a heated tank, until warm settled weather is assured—which is usually the first or second week of June in the latitude of New York City.

The three essential things in the growing of Water-lilies and aquatic plants generally are sun, water, and good soil. All aquatics demand full exposure to the sun for their proper development. The depth of water may vary however from 6 inches to 3 or 4 feet. A natural pond, or one that can be made by damming a stream, furnishes the ideal spot, but where this does not exist it is of course quite possible to build a suitable artificial pool. The hardy Lilies are best adapted to planting in natural ponds where the roots may be planted directly in the soil at the bottom, in sufficient depth of water to provide protection during the winter. Where there is unlimited room the planting of separate varieties in groups is most desirable. Six or more of one kind soon make a very attractive display, and if the individual groups are twenty-five or thirty feet apart the effect is very pleasing. The best method of planting in artificial pools is in boxes not less than 2 feet square and 1 foot deep. One plant is all that such a box will hold. A box 3 feet square however will contain sufficient soil to grow two plants.

GENERALLY speaking aquatic plants are voracious feeders and like to spread their roots in the richest soil. This can be prepared by mixing three parts of rotted sod, compost, or top-soil with one part of cow manure and adding a slight sprinkling of bone meal. This must be *thoroughly* mixed and decomposed however before it is put into the water, or trouble from fermentation will result. If well rotted manure cannot be obtained substitute one quart of bone meal to one bushel of soil. After the boxes are filled with this they should be covered with a generous layer of sand, which prevents small particles rising from the soil and keeps the water clean. Place them in the pool and run the water in to a depth of six inches above their tops. All this should be done several days before the plants are expected.

The actual planting is very simple. The roots need only to be pressed into the soft earth and left alone. If they show a tendency to float to the surface a flat stone or brick will hold them down until they develop roots. Where it is possible to regulate the amount of water it is well to plant in a depth of 6 inches, gradually increasing this as the plants become established. In planting in natural ponds where the water is deep it is well to plant in light boxes of soil, or even in chip baskets. Place these in shallow water until a good growth is made, then move into the deeper water. Only strong growing Water-lilies should be selected for growing in deep water. Tender Lilies and Nelumbos should never be planted in more than one foot of water.

Under the lee of such Bullrushes a small buccaneer may drop anchor, surely, safe too from prying eyes within the forest of Evonymus and Barberry! At Mariemont, residence of Mrs. T. J. Emery, Newport, R. I.

ABOUT the only insect pest that the Water-lily grower has to contend with is the black or green aphis. These often gather in great numbers on the leaves and stems that may be above the surface of the water. A forceful stream of clean water will wash them off to be devoured by the fish in the pond. Sometimes a green scum forms on the surface of the water; this is always in the spring and usually follows the planting or the disturbing of the soil. It usually disappears when the Lilies start to make strong growth, but since it annoys it is well to flush the pool several times and if possible to allow it to overflow. Any chemical used to destroy it is liable to harm either the fish or the plants, or both. Copper sulphate in small quantity will keep down the algal growth, but in doing so it destroys the oxygen-giving vegetation, and as a consequence fish suffocate if the changed condition is radical.

The margins of all pools or ponds should be planted with moisture-loving plants naturally arranged to produce a proper effect. Formal planting should be avoided, except about very formal pools, as the entire aim elsewhere is to copy nature as closely as possible. Plant in masses or groups and do not overcrowd.

FOR the help of the beginner the following selections are made of varieties suited for growing under certain conditions:

For Growing in Tubs or Small Pools: Nymphaea Laydeckeri lilacea, lilac; N. pygmaea, white; N. pygmaea helvola, yellow; N. Marliacea flammea, wine-red; N. graziella, orange-red; N. Mrs. Woodrow Wilson,

WHETHER MADE BY NATURE OR IN IMITATION OF NATURE MATTERS NOT

Sheltered, sunny and still are these waters whence the green jade of the Arrowhead is shot at random through Pickerel-weed clumps, while Pond-lilies float complacently just beyond. Estate of Mr. George B. Dorr, Mt. Desert, Bar Harbor, Me.

lavender; N. Panama-Pacific, plum-purple; N. pulcherrima, blue; N. zanzibariensis rosea, pink. And all varieties of Nelumbo.

For Planting in Deep Water (2 to 4 feet): Nymphaea Marliacea albida, white; N. Marliacea chromatella, yellow; N. Gladstoniana, white (very large); N. odorata, white (Common Pond-lily); N. odorata W. B. Shaw, flesh-pink; N. tuberosa rosea, rose-pink; N. tuberosa Richardsonii, white (very full flower); N. Eugenia de Land, light pink.

For Naturalizing in Large Ponds: Nymphaea odorata, N. odorata W. B. Shaw, N. tuberosa rosea, N. tuberosa Richardsonii, N. Helen Fowler, N. Eugenia de Land.

For Planting in Artificial Pools: All the tender varieties, and the hardy also, except those of the N. odorata and N. tuberosa types, which are too strong-growing for this purpose. Some varieties of recent introduction suitable for artificial pools are: Attraction, garnet-red shading to mahogany; Paul Hariot, yellow shaded with pink; Rose Arey, cerise-pink; Mrs. Woodrow Wilson, lavender; Panama-Pacific, plum-purple; Mrs. Edward Whittaker, blue (of enormous size).

THE size and shape of the pool is largely a matter of individual taste. A rectangular pool is the simplest to construct. The proper depth for an artificial pool is 2 feet. A concrete mixed in the proportion of one part of Portland cement, two parts of sand, and three parts of stone, has been found satisfactory for a water pool. The bottom layer should be 3 inches deep below the reinforcing wire and three inches above it—six in all.

The circular pool is all conformity, fitting itself to the flowing lines of a broad setting wherein irregular roof-lines, massed shrubbery, and informal yet orderly perennial plantings all play important parts

HARMONY OF LINE IS VITALLY IMPORTANT IN FORMAL COMPOSITIONS

The very simplicity and frankness of this well-proportioned rectangular basin in the garden of Mr. W.E. Davis, New Haven, Conn., is one of its peculiar charms, but it is the harmonious elements in the complementing pergola which emphasize this

MEMORIAL DAY DECORATIONS

FRANCES DUNCAN

The Use of Material Gathered from Woods, Fields, Gardens, and Dooryards and the Advantages This Offers to the Amateur Decorator

THE work of decorating assembly hall or church for Memorial Day services is usually in the hands of a committee of women, or of a women's club or association; and the committee is pretty sure to have taste and artistic feeling. But there are a few practical suggestions which may be of value.

In the first place, cut flowers as they are used for house decoration, are by no means so easy for volunteer decorators to manage in the ornamenting of large public places, as the less used shrub branches. Shrub branches are very graceful, much more effective for a large room and very much easier to handle. They "carry well" as the painters say, that is, being on a larger scale than the cut flowers, they make an effective showing from a greater distance. Then it is much easier to keep them fresh, less are needed, and the work can be done far more quickly than with cut flowers, since it does not have to be so carefully elaborated.

A WISE committee, like the Wise Virgins, will prepare beforehand—will visit near-by gardens or call up patriotically inclined folk who have gardens or much shrubbery, by telephone and arrange for contributions of blossoming branches. and call up or visit any available nurseryman. Nurseries do not make a practice of selling cut flowers—that is not their trade—but in the blossoming season most nurseries have many very lovely shrubs and trees abloom as well as hardy plants in flower, from which flowers and blossoming branches can be cut almost lavishly, if the cutting is done by some one who understands where and how to do it. And these may be bought for comparatively little, if the buyers will come in person and carry them away; this last because the nurseries do not have facilities for packing and shipping cut flowers.

Or sometimes whole shrubs in bloom may be taken up and potted or the roots carefully burlapped. Laurel or Azalea or Rhododendron used thus in a pot may afterward be planted out in someone's garden, none the worse for its experience. Such blooming shrubs, indeed, taken up bodily and burlapped, are a boon to the amateur decorator. For they are wonderfully easy to manage—far easier often than a potted plant—they keep perfectly fresh, may be tipped at any angle, and give a really lovely effect. Sometimes whole plants of Spirea in bloom may be bought at no greater cost than that of a couple of dozen Carnations. Overgrown shrubs six or eight feet high or unsymmetrical and unevenly grown plants, unsalable from the nurseryman's point of view may be bought and used to great advantage for decorating. A decorating committee should therefore find out what may be had, first from private gardens and then from nurseries, before spending their allotment on cut flowers at so much a dozen.

Among the shrubs which may be had in bloom at this season are Spiraea Van Houttei (sometimes called Bridal Wreath, although the true Bridal Wreath is the earlier Spiraea prunifolia) which has long graceful sprays of white flowers like small pompons, the Japanese Snowball (Viburnum plicatum), and other Viburnums, the very earliest of the Rhododendrons—some crimson and white varieties—the Mountain Laurel (Kalmia latifolia), and many of the Roses in some places—depending of course on how far north one is.

TREE branches may also be used, especially for a background. The cut branches of Beech are lovely—or any green of which there is abundance will be of much service, for it is a boon to have plenty of greenery. The Mountain Laurel is very beautiful in leaf and lends itself wonderfully to decorative purposes. For making arches or wreaths, it would indeed be hard to find anything better. But if the wild Laurel is gathered, tree-loving folk will be careful to take either pruning shears or else a very sharp heavy knife, so that the plants shall not be broken, but instead smooth, clean cuts made which will heal over easily. The lovely Dogwood is also available usually; use just its informal branches.

Another kind of decoration is arches of Crimson Rambler Roses with white Spiraea Van Houttei or the Japanese Snowball and some stalks of deep blue Iris to give the national colors. With only bunting and American flags, simple wreaths of Laurel make a dignified and effective decoration. If these are used, the arrangement of flags and bunting should be symmetrical, and the wreaths hung at regular intervals where the flags are looped together—like a decoration of the Adam period.

Where cut flowers are used, the chief difficulty for the amateur is to keep them fresh. A number of small, narrow-necked bottles will be found invaluable for this; a few flowers are to be put in each of these and the bottle placed where it is out of sight and tied in its place, perhaps to an arch or a heavier piece of decorative material. Even such fragile flowers as Shirley Poppies may be used, if managed skilfully in this respect—and the flowers cut, not picked or broken from the stems. Cut them moreover early in the morning and when not quite opened and plunge the stems directly into water, handling the flowers as little as possible. If the white Field Daisies which sometimes are plentifully in bloom at this season, are used, take great care that they be kept fresh. Daisy wreaths or chains or ropes should be kept in a cool place in tubs where they can be well sprinkled, until required.

To sum up:—plan decorations well beforehand; find out just what material you can have to use; and *don't* wait until the flowers are brought to the hall or church and lie there wilting while the committee discusses where each shall go! Go to the church or assembly hall, and think it all out and discuss it fully, making notes and memoranda, and writing down the final decisions. That is the way professional decorators do; and if they find such preliminary work absolutely necessary how much more is it necessary for amateurs? Then when the flowers and plants are there, no time is lost in discussion. Those in charge know exactly where each is to go and the work goes ahead rapidly and easily—and what is more, usually with complete success and praise for all concerned, and no hurt feelings nor ill will!

THE SIMPLE CULTURE OF A SUPERLATIVE FRUIT

E. V. LAUGHLIN

One of the Table's Greatest Luxuries, Melons Are Likewise One of the Garden's Most Exuberant Vegetables, Responding Amazingly to Friendly Attentions

FIRST let me say that good melons may be grown on any kind of soil except that which is very stony. Many folks are deterred from attempting them from the mistaken notion that only a sandy loam is suitable. My experience is that any soil, except the stony, may be made to produce most excellent melons. Fertilizing, right preparation of the seed bed, and judicious cultivation practically insure success anywhere.

But Melons will not do well on any soil that is deficient in humus, or which contains little plant food. The first thing therefore is to make the soil rich in these ingredients. My own practice is to cover the soil liberally with well-composted, unleached manure. If time permits I do this several weeks before plowing. When I plow I make sure that the major part of this manure is turned to the bottom of the furrow where the Melon roots may make use of it during growth. What remains on the surface will aid in making a surface mulch. I plow to a uniform depth of eight inches. Just before planting I harrow until the surface is exceedingly fine and mellow.

It is not wise to plant melons before the soil is thoroughly warm and the nights rather sultry. In the northern states the latter part of May is about the right time. The seed quickly germinates then and the plants do not receive a setback from a prolonged spell of cold weather subsequently. Vines that are uninterrupted in their growth always render the best results. Therefore do not be in too great haste to put the seed in the ground.

YES! ANY ONE CAN GROW REAL MELONS!

On any soil that is not actually over burdened with stones, so long as plenty of humus is there to hold moisture and to keep the plant growing continuously

It is poor policy to have Melon vines too close together or too thick. The area intended for Watermelons I mark off into hills eight feet each way; that for Muskmelons five feet. Before planting I thoroughly pulverize the hill area to a depth of eight or nine inches, using the hoe for this purpose. I place seven or eight seeds in each hill, covering to a depth of about one inch; this done I press the soil with the back of the hoe until it is very firm. If the weather is warm the plants will appear in five or six days. A week or ten days later I thin to two or three plants per hill. This is important. And though it seems cruel to pull up thrifty looking plants, in the long run it pays.

Cultivation is begun just as soon as the plants are two or three days old, and kept up until the vines have almost covered the ground. In cultivating the points to be remembered are these: not a weed or spear of grass must be allowed to remain; the soil must at all times be mellow and fresh looking; a caked or baked surface always retards the growth of Melon vines. Especially should cultivation follow every rain. Careful and continuous cultivation is the secret of growing large, sweet, and juicy melons.

I have the best success with Kleckley Sweet Watermelon and Fordhook and Emerald Gem Muskmelons. And plants that are up by the first of June should produce ripe melons by the middle of August, continuing to produce until the vines are nipped by the October freezes. For an abundance that is almost a surfeit, allow twenty hills of Watermelons and half as many of Muskmelons.

Raising good melons is really an astonishingly easy thing. Success depends purely upon using the principles discovered by experienced growers. My garden in Iowa for instance, in August and September lies thick with big watermelons and mouth-watering muskmelons. My neighbor just over the fence raises sickly looking vines with equally unattractive fruit. My success simply lies in properly preparing the soil, selecting the right kind of seed, and in giving the right kind of cultivation.

And watermelons and muskmelons! What delicious summer luxuries! During the past fifteen years I have scarcely ever failed to raise all the melons that my family can use. In addition we have always had some for friends and relatives; also, quite a good many dimes and quarters have been added to the family exchequer from the sale of surplus fruit. When my wife entertains melons make an inexpensive but much prized dessert. In brief we find that they are profitable in many ways, chief of which is the saving they effect in the purchase of fruits and sweets.

THE NEW LILY-FLOWERED TULIP

JOSEPH JACOB

After Four and a Half Centuries of Intimacy, During Which It Has Sprung Many Sensations, This Beguiling Flower Suddenly Surprises Us Again

[EDITOR'S NOTE: *The Rev. Joseph Jacob, author of "Tulips," published in 1912, the only book in English dealing with these plants, is one of England's well known amateur flower fanciers and hybridizers, and we are sure of only the best either from his pen, or his gardens at Whitewell Rectory, Whitchurch, Salop. This is the first presentation in an American publication of the facts concerning this most interesting new flower.*]

THE man who remembers that Tulips are among the garden's old inhabitants exclaims "Is such a thing possible?" To think that these flowers came to Western Europe somewhere about the year 1550, and that there is every probability that a few bulbs were brought over to America as a great garden treasure, in the *Mayflower;* and then to read "something quite new in Tulips!" That's surely a taradiddle!

But it is not. It is a plain statement of fact; and it is quite possible, for the following reasons:—Firstly—because until recent times all Tulip growers and Tulip lovers were extraordinarily conservative in their likes and dislikes. There was one type of beauty and one alone; and about the only change that took place in the flower in more than 200 years was the slow elimination of the pointed petal for the round. No one would have dreamed of trying to raise such a variety as the new Lily-flowered Siren, any more than an old-fashioned Dahlia raiser would have tolerated anything but the big ball-like bloom. Secondly—approximately between 1880 and 1890, someone made the discovery that there was a great deal of beauty in many of the cast-offs, and in the neglected varieties which were to be found in English and Irish cottage gardens. These "caught on" and became very popular before the end of the last century, and the public taste became accustomed to various new shapes—just as has been in the case of our old friend the Dahlia and, I may add, the Chrysanthemum.

THE NEW FORM OF THE TULIP FLOWER

This is a portrait of Siren, the first of the Lily-flowered group to come up to London and set the world agog with the beauty of its recurved, shiny, silvery-rose petals

THE slender-stemmed and graceful, long-pointed-petalled retroflexa with its pale yellow recurving petals was much sought after. No Tulip was more pleasing in a case. It became very popular. Then it entered into Mr. Krelage's head (I presume from the date of their appearance in London) in the early years of the present century, to try to get the same graceful shape in other colors than pale yellow. It is true that there were elegans and fulgens in commerce, but these were red and lacked a good deal of the delicate grace of retroflexa: and there was a distinct opening for more of its type.

Moreover, the splendid importations from mid-Asia and the neo-Tulips of France and Italy had still further familiarized the Tulip-loving public with the great breakaways from the past. Consequently when Siren was brought to London to show itself in 1913, it was received with open arms, and was awarded straight off the distinguished honor of a first-class certificate by the Royal Horticultural Society of England. And that a prophet is not without honor save in his own country does not hold good of flowers, for the Lily-flowered race has received awards in its home—Holland—and it has richly deserved them. Only those who have seen its flowers can appreciate the exquisite shape of the bloom, with wide recurving segments and symmetrical, yet far from stiff, contour.

There is no mystery about the parentage. It has been produced by crossing retroflexa with Darwin—which one or ones I cannot say; but in the case of Siren, it might well be such an one as Louise de la Valliere or it might have been Clara Butt. As far as I can see any Darwin might be chosen, and possibly any Cottage. The very thought of the possibilities which a continued usage of retroflexa conjures up makes one's mouth water! Just imagine a pretty delicate silver-mauve—a broad, recurved-petalled Solomon; or a rich, broad, recurved-petalled orange like the President—to mention only two exceedingly beautiful and rare Cottage varieties!

LAST autumn three Lily-flowered varieties were offered by the firm of Messrs. E. H. Krelage and Son, of Holland. Siren, which is undoubtedly the pick of the bunch, with broad, silvery-rose petals gracefully recurved—like that marvel of flower beauty

the immaculate Madonna Lily—and with an exterior surface rather deeper in tone than the interior; Adonis also having broad petals which reflex, rosy red in color; and Artemis, similar in shape but more of a carmine, and having a pure white base; (might Loveliness have been one of its parents? Of all the Darwins it has the purest base). A white base is undoubtedly a big asset in a Tulip, and the strict florists tell us that it (or a pure yellow base) connotes purity of color.

But to return to the Lily-flowered race. It is satisfactory to know that they are every bit as hardy as the Darwins. They are also very good increasers. Too much stress cannot be laid upon this point, for to the gardening public it means popularity and, before long, reasonable prices. The slow increasers like Zomerschoom, Conranti Fulgens, or even Goldfinder are only collectors' flowers and will never be numerous enough to be employed to any extent in color schemes, or large masses. But Siren, Adonis, and Artemis bid fair to be in everybody's garden in a few years' time.

AN ADDITIONAL point in favor of the first named is its suitability for growing in pots for flowering in February—Photographs, like facts, are stubborn things, and Mr. Krelage has sent me a photograph of a pot of this variety taken in February, 1919, which leaves no doubt in my mind of its suitability. Ever since it was discovered that William Copland (syn: Sweet Lavender) was "forceable," our Dutch friends don't, I imagine, leave many untested. Neither do I, in my little way. One of my finds is the pretty, deep rose Cottage variety, Cassandra. Few know its capacities for forcing or it would be in greater request.

I am told that these three varieties—Siren, Adonis, and Artemis—are not the only ones of this race in existence. There are others which are being brought on to follow them. What will they be like? Will there be mauves and oranges and pure pinks? Will there be a pure white to eclipse altogether Didieri alba? Will there be a yellow like Walter T. Ware?

"We are coming, we are coming, As our fathers came of yore" —and not these alone. I have seen lists of other new Dutch seedlings, which so far have never crossed the North Sea. I have seen the fine seedlings raised by the late Walter T. Ware, which were exhibited at the Tulip Conference of 1915; and I have three or four in my own garden that, with luck, ought in time to make a name for themselves.—Yes, indeed! "We *are* coming, Father Abraham. Six hundred thousand more."

THE MARGIN TREATMENT OF INFORMAL POOLS

LEONIDAS WILLING RAMSEY
Landscape Architect

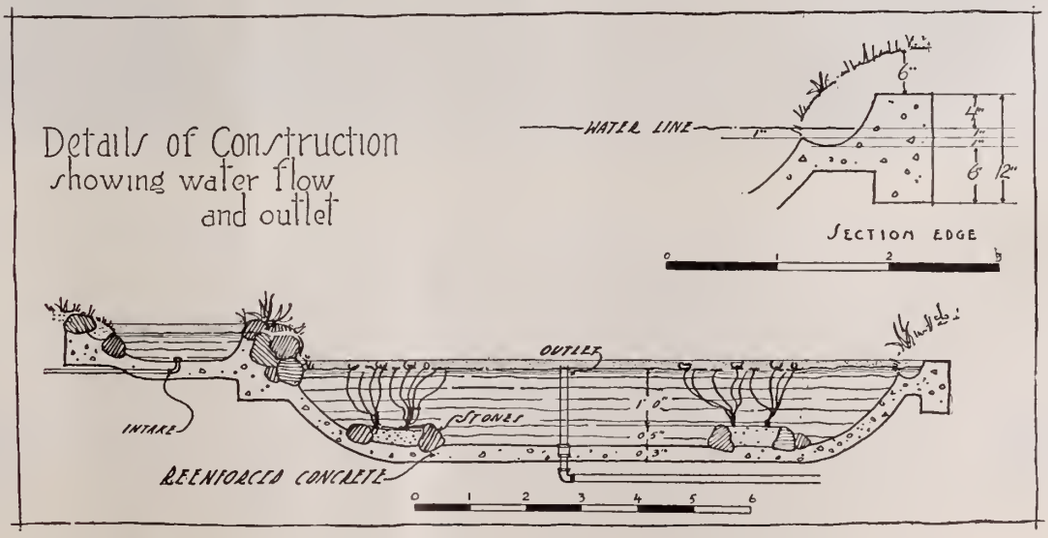
Without Strict Attention to Definite Details There Will Be Structural Faults Which No Amount of Planting Can Correct or Obscure

MOST artificial pools seem to be lacking in one thing; that is a proper treatment of their bare, concrete sides. And however good the form of the pool may be, if its margins are not well handled it is almost worse than nothing at all.

Any area which suits the demands and desires of the builder is proper for a pool; but it should never be less than seventeen inches deep in order to insure twelve inches of water above the five inches of soil in which the water plants are planted. A very good size is approximately 8 by 12 feet. Shallow tubs may be used for the plants, or rocks may be placed in the concrete when it is fresh, to form a "tub," this to be filled with earth when the time to plant arrives. If actual aquatic soil cannot be secured, good, rich loam with one-third well decayed cow manure is a good substitute. Hardy water plants need not be removed in the winter, but the pool should be drained and filled with straw.

If the upper edges of a pool are constructed as shown in the accompanying diagram, successful margins will result, whether aquatic or bog plants are used all around it or not. For intervening spaces may be sodded and thus the concrete will not be in evidence. Make the sides of at least three inches of concrete reinforced with wire mesh and small rods, and likewise the bottom. The concrete mixture should be one part cement to two parts sand and three parts pebble or crushed stone. When the excavation is dug the ground itself will serve as the form for the pool. The outlet, which is usually a pipe, should have a connection at the bottom in order that when it is unscrewed the pool will drain.

A small additional pool at one end of the larger one, whence the water may enter, placed just a little above the other so that it may trickle over a number of rocks in reaching the lower level is a good arrangement—and the sound of the water will add much to the charm of the whole. This water should not be allowed to run too freely however, for Waterlilies do not thrive well where



water is too active. The objection to a pool based upon the argument that any body of water will breed mosquitoes is of course met by the addition of a few gold fish which feed upon mosquito larvae.

The cost of such a pool as the above is governed by the ease with which the piping connections can be made as well as the area of the pool. Very charming little ones on this order have been constructed and the water plants secured, for the sum of twenty-five dollars; and from this they may of course run up to almost any amount. But if you simply want the water for the sake of growing a few water plants—if you do not care for it as a garden feature itself—I may say in closing that even the expense of a tiny pool may be avoided by the simple expedient of sinking a half-keg or the half of a hogshead into the ground. Such a "pool" is perfectly practical, horticulturally speaking, and many splendid specimens of water plants are cultivated in precisely this way.

Where the open water surface is desired, on the other hand, a pool of the sort herein described is of course necessary. Then be careful that you do not overplant it and thus lose the effect of water, which is lost if completely grown over, even though you have a quantity of it.

HIDDEN BY CLUSTERING CEDARS THIS EXOTIC BIT IS LITERALLY AND WHOLLY A WATER-FLOWER GARDEN

The frank artificiality of the pool could not be combined successfully with naturalistic planting in this fashion if the whole were not sequestered and set apart from everything else, not only in the garden but in the outlying landscape. For here, grouped in and about this small body of water, are Kansas Gayfeather, low-growing Cedars, Iris, Cannas, Caladiums, Cotoneaster (on bank before seat), Cyperus, Water-lilies, Arrowhead and several less striking plants, all uniting to convey an impression of tropical abundance and richness. In surroundings of this character, individually planted, the Canna finds its true place rather than in great beds and masses set upon a lawn. Garden of Mr. Charles Grilk, Davenport, Iowa. Paul Mueller, Landscape Architect

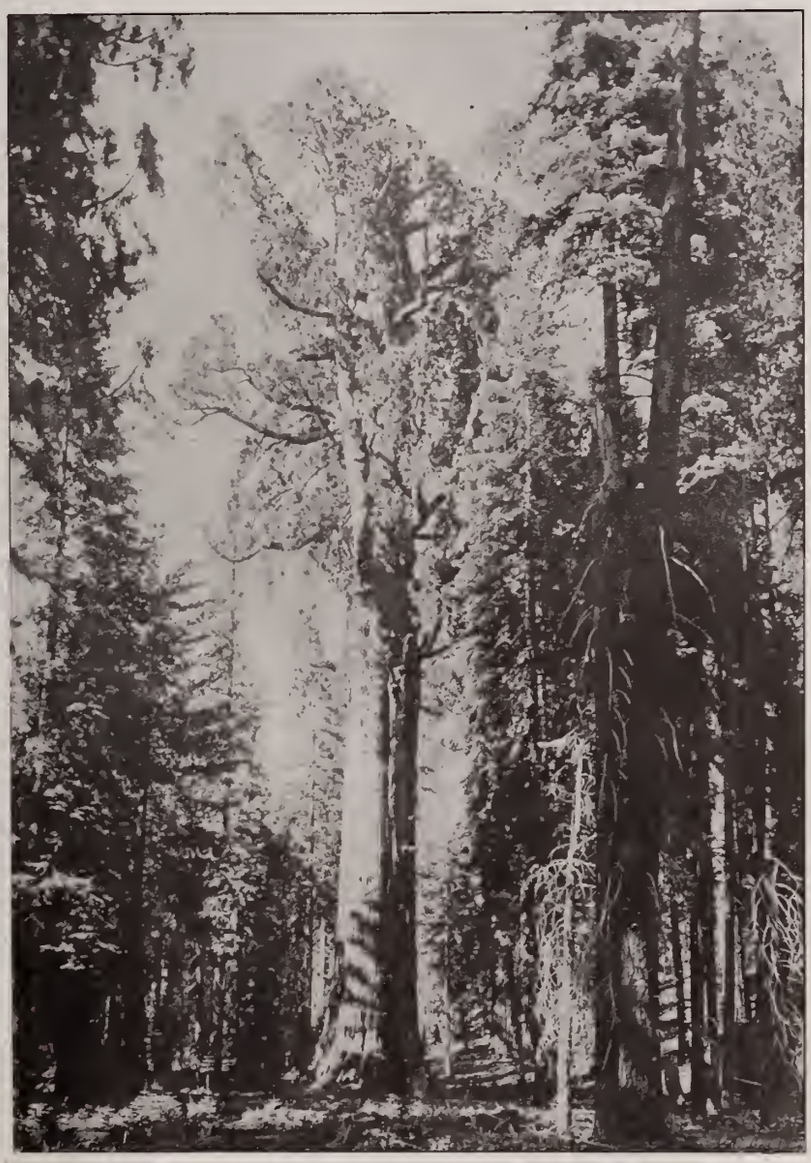
THE MEMORIAL TREES OF THE UNITED STATES

PERCIVAL SHELDON RIDSDALE
Secretary, American Forestry Association

Woven by the Great Avenues of These Living Monuments Which Stretch Across Our Land, the Web of a Common Devotion Binds Us into Closer Unity of Which Arbor Day Is the Annual Reminder and Renewal

THE planting of memorial trees is of course an idea as old as the idea of memorials at all, as we were reminded when the Prince of Wales set out a small Cedar last autumn in front of the tomb of Washington at Mount Vernon, near the spot where his grandfather had planted a Magnolia some sixty years earlier. But with the adoption of tree memorials generally for the dead of the Great War, under the system of registration inaugurated by the American Forestry Association in their Honor Roll, we come to perhaps the finest as well as the most extensive application of it that has ever been made. And many unique ideas have been evolved, ranging from the Roads of Remembrance and country-wide Cross of Living Trees to the simple school memorials of many kinds.

Of the latter, one of the most interesting and appealing is the Lieut. Quentin Roosevelt Memorial Tree at the Force School in Washington, where, as a lad living at the White House, he attended. The pupils of the School have planted a tree in memory of the former pupil—the only one to lose his life in the World War—and Miss Janet McWilliam has appointed one member from each class on a committee to care for it. Each one of these twelve pupils, upon graduating from his class, appoints his successor in the incoming class. Thus there will be at Force School forever a Quentin Roosevelt Memorial Tree Committee to care for this living memorial of the son of the former president.



THE OLDEST LIVING THING IN THE WORLD—A TREE!

The famous "General Sherman" of Sequoia National Park which was already a goodly specimen when Moses led the Children of Israel out of the land of Egypt, and was two thousand years old when Jesus of Nazareth was born. When last measured this great Sequoia gigantea was 279.9 feet high, 102.8 feet in circumference, and 36.5 feet in diameter

Armistice Day was celebrated in Washington by the planting of memorial trees in Lafayette Park directly across Pennsylvania Avenue from the White House Grounds. Special exercises were held, with music and speeches, two Redwoods from Humboldt County, California, being the trees planted. The "civic" Redwood was placed on the east side of the Park, and the "military" Redwood on the west side. Gen. Pershing turned the first spadeful of earth for planting each of the trees—and earth was sent from Maine, Florida, Texas, and the shores of Puget Sound in which to set them, so that each tree stands in soil from the four corners of the United States.

A list of the women's clubs which have definitely included the planting and care of memorial trees in their activities reads almost like a list of the women's clubs of the United States; for every one, practically, is engaged, in one way or another, in promoting the idea, and the ideal for which it stands. And at the Biennial Convention which is to assemble in Des Moines, Iowa, in June, a large part of the conservation programme will be given over to forestry, as a result of the stimulus supplied by a consideration of trees as memorials.

This is precisely as it should be. For it has been truly said that "our forests are like a bank, and we must deposit in them if we hope to draw out." Only by intelligent and sympathetic interest in trees, *and planting them*, will nation-wide appreciation of them, be developed.

It is no exaggeraton to say that in each of the many phases which it has taken, the intrinsic value of property is being increased, whether this be a school yard or a highway. A properly planted road means a better road, invariably; and a better road means better transportation between towns. That all means more business, better living conditions, and a better country. And Chambers of Commerce and similar bodies have been quick to see this. In many places fruit and nut-bearing trees are being used for the memorial groves and along the memorial highways. The state of Michigan, for example, will plant its Victory Highway from Port Huron to Chicago with Apple trees. One can easily picture what such a highway will look like when those trees are in bloom.

"But," say the pessimists, "tourists will pick the apples."

"That they will!" answer the optimists, "or at any rate we hope so." For that is just why the state of Michigan is using them. She wants the world to see, take, taste and thus to know about her most famous crop!

The Rotary Club at Tampa, Fla., is planting a fifteen mile stretch of the West Coast Road as a memorial highway in honor of the men of Hillsborough County. The Dixie Highway is being planted in many places. The Women's Club of York, Pa., has taken over the planting of twenty-five miles of the Lincoln Highway in and out of that city. The Jefferson Highway from New Orleans to Winnipeg has been planted with Victory Oaks for the distance of the road in Louisiana. The Technical High School of Indianapolis has planted two hundred and twenty-three memorial trees in honor of her boys in the service, the occasion being marked by a remarkable tree planting service, and in Minnesota a campaign for memorial tree planting among the school children has been started by the Minnesota State Forest Service. Instructions have been issued to the rangers who will be allowed a certain number of trees and aid in their distribution.

THESE are just a few examples of what is going on all over the country, which will serve to indicate something of the splendid highways which will be the country's pride within the coming generation. As to the planting of trees itself, the first question of course is what kind shall be selected. The answer depends upon a few factors which can easily be ascertained. One of these is the character of the soil in which the tree must grow. There are a few trees, such as the American Elm, that are adaptable to a wide range of soils; but there are others, such as the Tulip tree, which require a special condition of deep, rich soil if they are to thrive. Then climate is to be considered. We know that a Live-oak grows in the South and that the Sugar Maple does best in New England and the North generally. Hence it is safest to use the kind of trees that are already thriving in the section where the proposed planting is to be made.

But even with the general soil conditions and the matter of climatic requirements well satisfied, the special situation to be occupied by the tree should be considered. If there is but a small space which can be devoted to the future development of a solitary tree it would be folly to plant a group or one which will attain huge proportions. So the immediate location of the tree may determine its selection as much as soil and climate. Quite as important too as any other factor in tree selection is the tree's function, as a tree. A Spruce will be less a success if planted for shade than an Elm, but the Spruce is admirable for shelter. A tree that is part of the landscape scheme of a place must be coordinated with its surroundings and the other trees or objects adjacent.

There is another phase that is often not given sufficient thought at the time of selecting trees for planting and that is their longevity—otherwise their permanency. For this reason entire streets—sometimes whole towns—have been planted with short-lived and otherwise inferior trees. It is always much more desirable to plant trees of considerable permanency such as Oak and Sycamore than to select quick growing, hence fast maturing and comparatively short-lived trees, such as Silver Maple and many of the Poplars. And of course this is especially the case in making memorial plantings.

Then as the cultural requirements of some trees are less exacting than those of others, it is well to select varieties that will require no more attention than the planter is prepared to give them. Beyond the first two or three years after planting, the Oaks, Maples, Elms, and Sycamores require very little cultural treatment.

In sections where the surrounding woodlands offer countless young evergreens and saplings at no more trouble than the digging, it has been customary for tree planters to go to these near-by woodlots and dig up the stock with which to plant streets, home grounds, school grounds, and country roadsides. This method has in these days one—and only one!—special feature to commend it, however satisfactory it may have been once upon a time. It provides a variety of trees that are a product of the locality. But inasmuch as transplanting a tree is a shock to it at best and not infrequently fatal unless it has been especially grown for the purpose, the right way is to buy, from some near-by nurseryman if possible the same variety of trees which have been especially grown for the purpose. In the nursery trees are transplanted often, root pruned and otherwise handled with the express purpose of preparing them for transplanting. This method of handling furnishes a tree that for one thing, begins growth with less set-back than when the same size tree is taken directly from the woods and that, for another, is not likely to succumb to the operation.

AS TO the proper size of the tree to plant, this will depend to a great extent upon the kind of tree that is used and especially whether evergreen or deciduous. Nursery-grown evergreen trees up to five feet in height and deciduous trees of the same quality up to twelve feet in height, are the best sizes to plant. In the case of deciduous trees for lawns, either in groups or planted singly, there need not be the regularity and uniformity in shape which is required of trees for a street. In fact it is preferable to have in a group of trees, for lawn or country road planting, individuals which are not too regular in form. For a street the lowest branches must eventually be trimmed away to twelve or fourteen feet from the ground after the tree has grown to a fair size, of course, but on a lawn lower branches may be allowed to persist if desired. And in the case of evergreens the lowest branches should never be cut away.

After obtaining the trees certain preparations should be made for planting. Whether the tree is taken from a near-by woodland or is purchased from a nursery, its roots must be carefully protected both as regards drying out and as to injury from scraping and bruises. When trees are shipped from a nursery their roots are covered with moist materials. Keep this covering around the roots until immediately before planting. The roots of trees locally dug should be similarly covered and protected, for the exposure of the uncovered roots *for five minutes* may be sufficient to injure a tree beyond recovery. This cannot be overemphasized; and remember that the wind will dry them as well as the sun.

Unless the trees have been given better than ordinary handling in the operations of digging and transporting, their roots will need some trimming. Those that are broken and badly bruised should be pruned off with a clean cut; and the tops of deciduous trees should also be shaped up at this time and reduced to conform to root loss. It is liable to be the case that too little pruning of the top is given rather than too much. In fact, many successful planters remove all of the side branches of a deciduous tree, leaving only the main shoot or leader at the time of planting. But never prune back or remove the leader of any tree! And evergreen trees need no top pruning at time of transplanting. All of this pruning should be done with a *sharp* pruner, such as can be secured at any hardware store if it is not already among the everyday tools of the planter.

While some trees will undoubtedly grow in a poor soil after they have become established, there is certainly no advantage in starting them in anything except the best obtainable. That referred to usually as "top soil" is desirable to have on hand in sufficient quantity to cover the roots, in place of the subsoil taken from the excavation made to receive them.

THE two normal seasons for planting deciduous trees are spring and fall. The special advocates for either season have many arguments to advance for one or the other, and the inexperienced planter will find the early spring the better in the northern states. But as a rule it is safe to say that all deciduous trees may be planted at any time during the dormant period when it is possible to work the soil, i.e., when the ground is not

Photo. E. H. Wilson

THE GREATEST MEMORIAL AVENUE IN THE WORLD

The Cryptomeria avenue at Nikko, Japan, extends for 24 miles along the old highway leading to the tomb of Ieyasu, father of the second Shogun of the Tokugawa dynasty, who died in 1616 when Jigen Daishi was abbot. It was a gift in honor of the mausoleum of Ieyasu, planted by Matsudaira Masatsuna, a petty daimyo who, being poor, could not afford to make costly offerings to the shrines as other greater and richer daimyos did; hence he devised the less expensive though more laborious and tedious plan of forming avenues. The planting, completed in 1651, took twenty years to carry out. Fires in houses near the avenue here and there have caused gaps in the otherwise uninterrupted stately lines, but as existing at present the Cryptomerias, counted from Imaichi to Nikko, number 18,308 If this tradition as to its origin be true, this avenue teaches a useful lesson, and carries hope to the heart of the planter of trees, who will see in it a monument more significant and inspiring, if not more lasting, than those which men sometimes erect in stone or bronze.—E. H. W.

frozen. This period begins with the dropping of the foliage in the autumn and ends when the buds burst in the spring.

Evergreens are usually planted in late spring and during the latter part of August and the first part of September. If large balls of earth are secured intact around the roots, evergreens may be planted successfully at times earlier and later than the above seasons. The day to select, where this is possible, is a cool, cloudy one. On other days greater care must be devoted to the details of planting to prevent the drying out of the roots through the necessary handling of the plants.

The excavation for the individual trees should be large enough in width, length, and depth to receive the roots of the tree extended in their natural positions. But the depth of the hole excavated must be more actually than enough to receive the roots, for there should be space for a layer of six inches of good loam before the roots are placed in the hole. Then the hole is gradually filled with the "top soil" which is carefully worked among the fine roots so that no air spaces shall be left anywhere. When the hole is filled the earth should be three inches higher on its bole than it was in its nursery or woodland situation, to allow for settling. And never be afraid of getting the soil too firm. It should be packed with a round-pointed stick so that the tree cannot be shaken from its position. Finally, just before the last four inches of soil is filled in, it may well be soaked down with a generous application of water.

THE spacing of trees is something that cannot be governed by fixed rules. Street trees may be placed from thirty to eighty feet apart, depending upon the variety used. Catalpas and Lombardy Poplars (which are not very commendable for street use) may be planted at the minimum distance while Sycamore and Elm would require the maximum. For lawn planting in groups, trees may be placed as near each other as ten feet, while for windbreaks the individuals are set from four to six feet apart. And for all purposes other than along streets it is better to plant rather close with the idea of cutting out the superfluous ones when this becomes necessary.

Regardless of how thoughtfully they have been selected and how thoroughly the planting has been done, there remains intelligent care to be bestowed upon trees to have them live and thrive. Many planters have been disappointed with the results of their work because they considered their job completed when the last shovelful of soil was placed around the tree. Actually this is the beginning of a two to three year job, instead. Young trees in situations exposed to strong winds—and always along streets—should be staked with a strong pole reaching up to their first branches when it is driven into the soil to a depth of two feet. In addition to the stake, street trees need some sort of a guard. There are many types on the market and examples of good ones may be found in any progressive community. Trees that are planted in groups, however, or where they receive natural protection, will need neither the guard nor the stake to maintain them in an upright position.

In the Middle West, or other districts where there are hot winds during early summer, the surface of smooth-bark trees such as the Linden, Birch, or Beech will need protection of their trunks for a year, possibly two. This protection may be afforded by plastering with a thin coating of mud; winding burlap or other cloth about them; or enclosing with tar paper.

In any section of the country the soil around the base of newly planted trees should have some cultivation the first year or two especially during the drought season. If trees are planted in large groups ordinary garden cultivation may be given, while trees planted as specimens or scattered, as along a street, should have the soil worked, over a wide circle around them, to a depth of three or four inches. The ground may of course be mulched with leaves, straw, or litter to conserve moisture, but the layer of dust formed by frequent stirring and pulverizing is infinitely to be preferred and will obviate watering in most cases so that only under rare conditions will it be necessary to water or irrigate. (Of course this does not apply to the districts where all cultivated trees must be artifically watered by irrigation).

AS TREES grow they will need pruning. This requirement can be met by going over the trees during the summer when the amount of top to be removed can be more easily determined than in the winter months. The winter is a favorable time for pruning, however, and is devoted to this work by many city foresters and arborists. The matter of pruning is one which should be attended to annually. The amount of pruning is one of individual judgment but should be based on the shape of the tree it is desired to produce.

There is a host of dangers to which trees are subjected in their struggle for existence, but these are not so menacing that any one need be deterred from planting trees because of them! Neither are the resulting injuries so intricate and incurable that damaged trees should be left to their fate. Most injuries result from insect attack and tree diseases, though there are other sources such as electricity, gas, and improper trimming of the tops to make room for overhead wires.

According to the habits of tree insect enemies, there are two common methods employed in combating them. Insects which feed on the leaves of trees, such as caterpillars, are successfully overcome by the application to the foliage of a solution of arsenate of lead during the period when the insects are feeding. This is in general the best method of holding in control this class of insects, although special means sometimes have to be employed for unusual cases. The other general class of insects, such as plant lice and scales, which do not devour the foliage but suck the juices of the tree, have to be handled by a different method. The treatment for this class is the use of some contact poison which kills the insects it touches. Solutions of soap and kerosene and lime-sulphur compounds are employed for this purpose.

The most common diseases of shade trees are known as fungi. They live upon the tissue of other plants, living or dead. Some fungi are microscopic in size, while others are larger, thread-like structures, with large fruiting bodies such as the commonly known mushrooms or toadstools. The majority of fungous diseases are of little importance to shade tree growers, though a few are highly destructive. In the East the most destructive tree disease that can be mentioned is the Chestnut blight. The White Pine blister rust is another well known, though more recent, forest tree disease.

THE lime-sulphur wash may be used as a fungicide in addition to its value for combating scales, but the control of fungous diseases should be by preventive measures. This means covering all freshly made wounds on trees with a heavy lead paint, and keeping them in a generally thrifty and healthy condition by proper care. This includes spraying when necessary of course. And the three points in spraying are: (1) certainty that the spray material is properly made; (2) thorough application; (3) application at the proper time.

Finally:—Tree planting is not a thing of this year or of the next, but of every year. Let us awake to the possibilities *and the necessities* of tree planting, and go on planting them annually as memorials, for shade, for scenic value, to beautify streets or lawns, for parks, for communal woodlands, and for forests to yield timber under proper methods. Quite apart from utility the beauty of forests maintained under a proper system is one of the greatest and finest assets of a land.

And plant with an appropriate ceremony. The character of this will depend upon the character of the planting of course. For single tree Arbor Day and small group Memorial plantings carefully prepared programmes are available and will be sent upon request to the editors of this magazine. And if roadside planting is done by a community or an organization, a public meeting to inaugurate the work should be locally arranged, with a programme of music and appropriate addresses.

A SIMPLE AND PLEASING VEGETABLE SUPPORT

FRANCES MARKHAM

Fitting Any Location and Easily Made, This Solution of the Problem of Uplift Among the Vegetables Is Quickly Resolved Again into Its Elements When Its Work Is Done

IF YOU live on a farm with a brush pasture or have a wood lot of your own, the question of poles for Beans and brush for Peas is easily settled. Also if you have a head gardener with assistants under him, and a model tool and storage house, elaborate trellises can be made, used and housed for the winter. But a great many of us do not have our garden needs supplied in either of these ways. We have our little gardens, and tend them ourselves. And if the weather is unusually wet and sultry and the Peas mildew or the Beans refuse to accept the supports we offer, we accept the situation and results with such philosophy as we may. It is to these home gardens that this simple solution, which we have found satisfactory, is offered.

The trellis is made of Dahlia stakes six feet long, painted dark green—square ones preferably, though round ones may be used. Some are driven down into the ground two feet apart where the trellis is to be, and the others tied across them horizontally. Figure 3 shows a simple knot at the intersection which does not slip. Use strong cord for these bracing knots; a cheap common string is all that is necessary for the vertical lines, however. In the autumn you can cut these bracing knots and the old vines and string will all pull off together, leaving only clear stakes to tie in bundles of twenty each, requiring little space in the cellar or garage.

Figure 1

For Tomatoes. Calculate the number of stakes you will need according to the number of plants you are to have, setting the plants with their upright stakes two feet apart in the rows. Allow six inches on the end of each cross (horizontal) stake for lapping and 9 inches at the end for projection. As you set out your Tomatoes, drive a stake by each plant and tie it up, even if it is ever so small. This prevents its whipping in the wind or being beaten down by the rain. You will be surprised to see how much more quickly the plants become established and begin to grow than when left loose. Too many people wait until a plant is large before they give it the help it needs.

Figure 2

Tie on the first line of cross stakes twelve inches up from the ground to hold the upright stakes in line. The four lines of cross stakes needed for Tomatoes may all be tied on at first, or added as the plants grow. If you have twelve Tomato plants, make two rows, each row having six plants two feet apart. The cross stakes will lap at the middle and the total length of the row over all (including projection at ends) will be 11 feet 6 inches. Keep the side shoots of the plants pinched out and allow only enough branches to grow to cover the trellis. Then the clusters of red fruit against the dark green leaves, with only slender green stakes showing through, will be as decorative as any of your flowers.

For Beans. Plant the climbing Beans in a row, and drive a stake in at each end, two inches back of the row. Stretch strings between these stakes at top and bottom for guides in driving the other stakes in line. Along the ground lay the cross stakes, lapping the ends six inches. Drive an upright stake at each lap and another between. For Peas and Beans the first cross stakes should be six inches from the ground, and should be tied in place before the seeds come up. Figures 2 and 4 are at the start of Sieva Lima Beans; Figure 1 is the same trellis later in the summer.

For Peas. Build as for Beans, except that only two rows of cross stakes are needed instead of three.

Try Dahlia stake trellises this summer and see if you do not find that they make it easier to cultivate close to the plants, and easier to pick the vegetables. And there is no doubt that the garden itself will look prettier and more finished.

Figure 3—Method of tying the cross stakes securely, and the once-around hitch which anchors the supporting lines

Figure 4—Here the Sieva Limas are getting the right start from the moment they come through the ground

INSECT PESTS OF ORNAMENTAL PLANTS

E. P. FELT
New York State Entomologist

Differing Slightly, Greatly, or Sometimes Not At All, from the Well-known and Common Pests, the Different Principle of Attack on These Sets Them Quite Apart

THERE are two striking facts connected with the war on pests in the ornamental garden which distinguish it from the similar war carried on in the field and orchard. These are, first, that it is frequently advisable and necessary to spend much more than the intrinsic value of the plants in order to accomplish the desired result of protecting them from injury and disease; and second, that the grower of ornamental material is hampered by being obliged to deal with insects which, owing to their commercially relative unimportance, have been given comparatively little study.

The gardener has no difficulty in handling the more common pests since these have come, through experience, to be almost as well known to him as many of the enemies of the vegetable garden. The appearance, for example, of almost any leaf feeder—unless in unusual numbers—warrants the deduction that it can be controlled by spraying with a poison, which is usually supplied by arsenate of lead. And unless the plant is an abnormally tender species about three pounds of the paste to fifty gallons of water are generally used. Everyone knows moreover that the one essential is that this poison be placed where the insect is obliged to eat; otherwise comparatively poor results will follow.

This general rule does not apply to hordes of resistant leaf feeders, however, such as rose beetles, which sometimes appear in swarms and, before they obtain a killing dose, may seriously injure foliage that is fairly well covered with poison. Special methods may be necessary in such cases, such as netting the plants, if these are specimen trees or shrubs important to keep in a satisfactory condition.

THE soft-bodied sucking insects, especially plant lice, are easily controlled with a contact insecticide—notably nicotine-sulphate and soap, applied at the strength generally advised—provided the spray is actually thrown upon the insects. (Recent developments indicate that this preparation remains upon the foliage, and retains its deadly properties for certain insects, for four or five days). And most plant lice are very susceptible to this treatment; but a marked exception exists in some of the woolly aphids, such as the Alder blight. Even here, however, fairly satisfactory results may be secured if a forcible spray is used and the insecticide, by this force, be driven through the protective woolly covering and thus brought into positive contact with the insect itself. Another difficult group are the gall-inhabiting aphids, such as those of the Spruce-cone gall. These can be successfully controlled if the spraying is done while the insects are exposed to the treatment, which of course they are not if protected by the plant tissue of the gall.

There are other more resistant sucking insects—the scale insects especially—which are not so readily controlled. In order successfully to combat these pests some knowledge of their life history is necessary. The San José scale, oyster-shell scale and scurfy bark lice can be checked by winter spraying with a lime-sulphur wash; or the latter two, hibernating in the egg stage, may be controlled by delaying the work until the crawling young appear, in May or early June, and then spraying with a moderately strong insecticide.

BORERS and the general procedure therefor are well understood, and the early signs of their presence—the "sawdust" castings—are easily recognized. It is then simply a question of being able to destroy the enemy in its burrow without inflicting undue injury upon the plant; or else of removing and burning the infested portions. The course to be adopted must be determined by conditions. In some instances, especially with the larger trees and more valuable shrubs, it may be practical to destroy the borer by injecting carbon bisulphide into the burrow and sealing the orifice with soap, putty, or even clay.

The advantage of this treatment is that little or no cutting is necessary, and in many instances even the infested branches or portions of the tree or shrub can be preserved. But there are other cases where the infestation is of such character as to make it impossible to destroy the insect without burning the infested portions. The gardener should be able to recognize these limitations, and should never hesitate about cutting and burning when conditions demand heroic treatment. This is particularly necessary if there be invasion by bark beetles—on Pines for example—or Ambrosia beetle, as in the case of the pitted Ambrosia beetle sometimes injurious to Rhododendrons.

PREPARED INSECTICIDES AVAILABLE

THERE are many commercial preparations of all the insecticides needed on the market, in various sized containers, and those offered under brand or trade names are suitable combinations of the essentials. Each differs somewhat in the proportions of essential ingredients, and close adherence to the manufacturer's directions for each particular kind is essential. Since the task of properly proportioning and mixing the ingredients is a considerable one, and messy into the bargain, it is usually preferable to avail oneself of the ready-mixed preparations, especially as these have now been standardized and may be relied upon as efficient.

THE following are brief accounts of a number of relatively little known insects which have been brought to notice during recent years:

IN THE FLOWER GARDEN

Iris beds are occasionally badly injured by whitish boring caterpillars, some two inches long when full grown. This pest attacks the stems, causing wilting, and gradually works downward into the roots. The eggs are laid in the fall and practical experience has shown that winter burning of the débris on Iris beds, where this can be done without injuring the roots, is the simplest and most effective method of controlling the pest. The removal of injured stalks and their destruction, together with the contained caterpillar, hastens the accomplishment of this end.

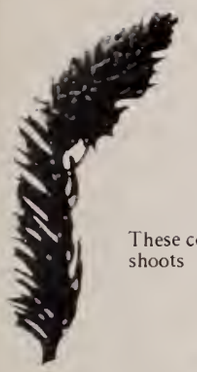
Iris roots and certain bulbs such as those of Amaryllis and Onions, may be attacked by dirty, grayish-yellow maggots, nearly half an inch long when full grown. These are the young of the Lunate onion-fly, an introduced species recorded as quite destructive to Onions in Europe, though in this country its injuries appear to be very limited. It is very probable that attack is favored by the work of the iris borer. Good cultural methods are at present the best preventives that can be advised.

Nasturtiums (Tropaeolum) are occasionally rather badly infested with aphids or plant lice. Spraying with a nicotine-soap preparation before the insects become excessively abundant is the best remedy that can be devised.

KNOW THE CAUSE; APPLY THE CURE

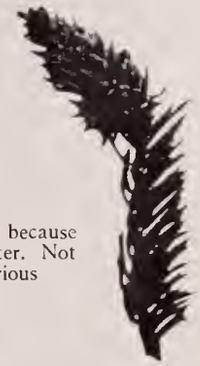
Lawn, shrubbery and flower beds may harbor many kinds of pests

Many are not dealt with in the usual handbooks on garden insects



These cone-like tips of Spruce shoots are the abode of a gall insect

It is quite likely that the sickly appearance of the Box edging may be due to the recently introduced Box-leaf midge as shown enlarged here



Difficult to control because of the secure shelter. Not especially injurious

Brown tips a half-inch long to the Arborvitae shoots in June indicate the presence of the leaf-miner

Clustered bud-like objects on Spruce shoots are really the bud scale, sometimes destructive

The Pine-bark aphid may completely "whitewash" parts of the Pine trunk and branches. It is not to be confused with the blister-rust, a fungus

The Birches on Long Island are being girdled by a European hornet which of course severely injures the tree

The European Pine-bud moth has destroyed all but one shoot. Constant cutting and burning is the effective remedy

Chrysanthemums in the greenhouse are attacked by a midge causing oval galls on leaf and stem, but fumigation or tobacco sprays keep it in control

Pansies and Violets are sometimes injured by dark colored "false" caterpillars or sawfly larvae which are often found in the day time at the base of the plants. This is an insect that is rarely injurious and when troublesome can probably be controlled very satisfactorily by spraying with a tobacco-soap preparation, preferably just at dusk. Arsenical poisons would be equally effective, but these are not advisable on such plants.

IN LATE fall *Asters* are frequently injured by hundreds of rather soft, slender, black or grayish blister beetles about one-half an inch long, known to some as old-fashioned Potato beetles. The grubs of these insects live upon grasshopper eggs; and blister beetles, though occasionally injurious, are as a whole beneficial. This should be kept in mind before unqualified condemnation is given. One of the most practical methods of preventing injury on small plots is hand collecting—that is, jarring the beetles from the plants into shallow vessels containing a little kerosene and water. Repeated collections, especially if made before there has been much feeding, will stop the trouble; and one is frequently surprised at the immunity following.

Asters which fail to make a satisfactory growth, especially if this is restricted to an occasional plant, may be infested by root lice. In most cases it is probably best to pull up the plants and destroy the insects by dipping the roots in any contact insecticide; but if there are special reasons for keeping the plant, a portion of the soil may be removed from about the stem and the pests destroyed by pouring a moderately heavy application of a nicotine-soap solution on the roots.

Dahlias and a variety of *other thick-stemmed plants* are frequently injured by the stalk borer. This is a light brownish, white-striped, blotched caterpillar, usually less than one inch in length, which works in the centre of the stems and usually causes wilting, followed by the death of the part above the burrow. The eggs are laid in the fall on weeds and grasses and consequently the burning of all such débris in and near gardens is one of the best forms of insurance against injury. Wilting tips should be cut and burned whenever found.

Plants of this general character growing in areas where the recently introduced European corn borer has become well established, may be invaded by wandering individuals of this borer even if there is not habitual breeding in the host. The greatest care should be exercised not to ship ornamentals infested by this borer to any point, since such shipment of course facilitates the spread of the highly menacing pest. Furthermore, such action may be a violation of both state and federal quarantines.

ON DECIDUOUS SHRUBS

HONEYSUCKLE (Lonicera) is occasionally somewhat seriously injured in early June by yellowish-gray, black marked "false" caterpillars, especially in the vicinity of New York City. This moderately common insect can be readily controlled by spraying with a poison such as arsenate of lead, though it is very probable that the nicotine-soap solution would be equally effective and leave the foliage practically free from poison.

Lilac twigs and occasionally the *smaller branches of other shrubs* in the vicinity of New York City of late show a curious denuding of the bark. This injury is sometimes confined to one side of the twig but occasionally girdles a small branch, when it is usually followed by the death of the twig beyond the affected part. The cause of the trouble is a recently introduced hornet known in Europe to injure the young stems of a considerable variety of trees and shrubs. The comminuted bark is used in the construction of its underground nests. Occasionally the damage may be enough to justify efforts to locate near-by nests and destroy them and the contained wasps by the use of burning sulphur or carbon bisulphide. The hornets can also be trapped in long necked flasks containing sweetened water.

ALMOST annually *Rose bushes* are infested to a greater or less degree by the small rose aphis, an insect easily controlled with a tobacco-soap spray. The important point is to treat the bushes before there has been serious damage. The yellowish-brown, sprawly-legged rose beetle is usually associated with sandy soils, since the rather small white grubs (resembling those of the May or June beetles only smaller and more slender) live on the roots of grasses growing in sandy areas. The pests often appear in immense swarms at about the time Grapes are in bloom and may remain for three or four weeks, riddling the leaves of a large variety of plants and displaying marked preference for the Rose, Grape, and Apple. They not only destroy the foliage but ruin the developing fruit. Small bushes or trees can be protected from the voracious hordes by mosquito netting—or less effectually by repeated and systematic collecting of the beetles in shallow pans containing a little kerosene. Early and very thorough spraying with arsenate of lead, five to ten pounds to fifty gallons of water, affords a considerable degree of protection.

The leaf hopper, easily recognized in midsummer by the small, whitish or yellowish-white, jumping adults, is another common pest very readily controlled if one will but remember that the eggs of this insect remain in the bark all winter; and that the pale greenish, rather slothful young feed on the *under* side of the lower leaves in particular, and produce a characteristic white spotting which late in the season becoming abundant, is so unsightly. All that is necessary to control this leaf hopper is to watch for the *first evidences* of injury, and then spray the under side of the lower leaves in particular with any good contact insecticide, such as the tobacco-soap combination. This insect is incorrectly called the rose "thrips."

ROSE, *Blackberry* and *Raspberry* bushes, particularly in sheltered locations, may be badly infested with a thin, papery white, oval scale, that of the female being only about $\frac{1}{16}$ of an inch long and that of the male smaller and easily recognized by its elongate shape and three conspicuous ridges. The reddish young appear in early June and the second generation later in the season. Winter spraying with whale-oil soap or the lime-sulphur wash is effective, and the reddish young are rapidly destroyed by weaker applications. Whale-oil soap used at the rate of one pound to six or seven gallons of water, or the usual nicotine-soap combination suffice for them.

Rose slugs are very common in many localities. There are three species. The American rose slug is green, the body having a rather rough surface. When full grown it is about one-third of an inch long. The bristly rose slug is greenish, the surface covered with numerous bristles, and when full grown is a little more than half an inch in length. The coiled rose slug is smooth, mostly green, about three-fourths of an inch when full grown and most easily recognized by the usually curled posterior extremity. All skeletonize the leaves when young and may be readily checked by spraying with a poison or with a contact insecticide such as the tobacco-soap wash. It is important with these pests, as with others, to spray *before* there has been material injury if one would keep the bushes in good condition.

Viburnum or Snowball is frequently badly infested with plant lice and the curled leaves make it almost impossible to secure satisfactory results with any spray. Experience with fruit trees has demonstrated the utility of bud applications; that is spraying shortly after the buds have started and before there is serious injury or an opportunity for the aphids to protect themselves by crawling between the unfolding leaves. Early treatment of this character should mean practical freedom from plant louse injury to this shrub.

ON BROAD LEAVED EVERGREENS

THE *box-leaf* midge or miner produces irregular, oval swellings on the leaf, with more or less of a yellowish or brown discoloration. This condition is most easily noted in Septem-

ber. Badly infested plants bear only a little foliage on the tips of the branches and consequently the appearance of the hedge is seriously marred. An infested leaf may contain one or two to six or more of the miners. These latter winter in the foliage, the small, delicate yellowish flies appearing the latter part of May and depositing eggs in a small slit cut by the blade-like ovipositor. Several sprayings with a contact insecticide, preferably the tobacco-soap preparation, at three to five day intervals beginning when the first insects appear, is the most practical method of controlling this insect. A spray containing four pounds of molasses to fifty gallons of water traps and destroys many insects if applied when the midges are issuing.

Rhododendron leaves that show an unsightly brown spotting on the under surface in May or June, may later reveal the presence of a small insect known as the rhododendron lace bug. The little pest passes the winter in eggs deposited mostly beside the midrib of the leaves. The young hatch probably early in May. Thorough spraying with a tobacco-soap preparation as soon as the young become somewhat numerous, making the application to the under surface of the foliage, is advised.

WILTING or dead *Rhododendron shoots*, specially if they break off easily near the surface of the ground and the break shows a series of blackened, closely set, nearly horizontal galleries about one-sixteenth of an inch in diameter, are victims of the pitted Ambrosia beetle. The stems attacked vary from one-half to one-and-one-fourth inches in diameter. Its operations appear to be confined to shaded localities where there is an abundant mulch. Wilting stems should be carefully cut below the point of injury and burned, and a systematic removal of weakened plants is probably all that is necessary in most cases to prevent serious injury.

The smooth, whitish, boring caterpillars of the rhododendron clear-wing confine their operations largely to stems or branches a foot or more above the ground. Related to the very common currant borer, and like it can be controlled most effectively by cutting and burning infested bushes during the fall and winter.

ON CONIFEROUS EVERGREENS

ARBORVITAE leaves are sometimes tunneled by a small caterpillar known as the arborvitae leaf-miner, the terminal sprays turning brown later. Sometimes a considerable proportion of the foliage is affected and the specimen trees are rendered unsightly and therefore unsatisfactory. The work of this pest is usually confined to the terminal half-inch of the leaves, here and there. The moths emerge about the middle of June. No satisfactory control method is known, though it is possible that spraying with a tobacco-soap preparation the last of June, or early in July, would destroy many young caterpillars.

Junipers of various species are occasionally badly infested by a small, circular, white scale insect. Serious damage rarely follows infestation though the insect is frequently sufficiently numerous to warrant spraying with a contact insecticide such as a nicotine-soap solution applied when the small, yellowish young appear, namely in June or early July.

On the Irish Juniper there is sometimes a reddish-brown, white striped caterpillar about one-fourth of an inch long which webs the leaves together. This little insect apparently thrives upon the dying and dead foliage as well, if not better than upon healthy tissues. It should be easily controlled, when its numbers warrant treatment, by thorough spraying with arsenate of lead; or the nicotine-soap preparation would doubtless prove effective.

OCCASIONALLY very destructive to young Pines is the European pine-shoot moth, owing to its attacking the buds of the terminal cluster, especially the leader. This produces a peculiar bend, because the borers feed mostly upon one side of a shoot. The result is a somewhat characteristic bayonet or post-horn deformity. The early stages of injury are indicated only by a somewhat obscure exudation of pitch, frequently rather granular, at the base of the buds. On examination a brown, black-headed borer about three fourths of an inch in length may be found within. Cut and burn affected tips.

Previously referred to is the spruce-gall aphid, a comparatively new pest easily recognized by the cone-like deformity it produces upon *Norway Spruce* in particular, though some other varieties are also infested. Trees are rarely killed by this insect, though there may be serious deformation because the parts of twigs beyond the galls are very likely to die. Thorough spraying in April with a whale-oil soap solution, one pound to two gallons of water, has proved a very effective check.

The Norway Spruce is also affected by an easily overlooked insect, namely the spruce-bud scale, or Physokermes. This little pest establishes itself at the base of the branchlets, or in a whorl of buds; and owing to its shape and size being so nearly that of a bud it is not readily detected. The young crawl early in July. Like other scale insects this pest withdraws a considerable amount of sap from the parts of the tree whereon it establishes itself and consequently there may be a very sickly, unsatisfactory development. There are reasons for believing that it has caused much damage heretofore supposed to have been the work of the spruce-cone gall louse, especially as it is occasionally so numerous that the exuded honeydew attracts many insects. Spray with a tobacco-soap combination when the small brownish young are numerous, about mid-July.

The pine-bark aphid is occasionally so abundant on the smooth bark of the limbs and trunks of *Pines* as to cover large areas with its white cottony secretion, a development particularly noticeable on the under side of the limbs. The eggs commence to hatch early in May, at which time the young emerge in large numbers from their protective balls of woolly matter and travel actively over the bark. They soon settle down on the young twigs. This insect appears to thrive best upon park trees. Spray thoroughly with a contact insecticide in May.

IN THE GREENHOUSE

CHRYSANTHEMUMS are occasionally very seriously infested by the chrysanthemum midge, a small insect which produces oblique oval swellings about one-twelfth inch long on the leaves and young stems of the plants. When abundant this may dwarf the Chrysanthemums so seriously as to make them practically worthless. It is a recently established greenhouse pest. The galls occur at an oblique angle to the surface of the plant and, when fully developed, are easily seen; but when small they appear as slight, nodular swellings detected best by allowing the leaf to slip through the loosely closed fingers. Breeding is more or less continuous. The best method of control is thorough and repeated sprayings with a nicotine-soap solution, making the first application when the flies begin to issue from the galls, and continuing the treatment at three to five day intervals until the insects are destroyed. Or fumigation may be used, the most effective being done after midnight since most of the flies emerge very early in the morning. Once they are destroyed, it is important to avoid reinfestation, specially in the purchase of plants or cuttings from other greenhouses.

Azaleas in greenhouses are occasionally seriously injured by small yellowish caterpillars only about one-fourth of an inch long when full grown. They draw the leaves over with a white web and skeletonize a portion of the infolded underside. Breeding appears to be more or less continuous under greenhouse conditions. Repeated fumigation or spraying with a tobacco preparation seems to be the most effective method of control.

GARDENS OF THE LATE GENERAL WELD

MARY H. NORTHEND

HIDDEN from the outside world, completely, are the beauties of this estate of the late Gen. Stephen M. Weld, at Dedham, Mass., a large portion of which is one of the most striking examples extant of that art which conceals art. Into nooks and corners all over the extensive grounds too, it creeps, so that everywhere are unexpected effects so cunningly contrived that the flowers seem to have been there since the world began. Yet it is material gathered from all quarters of the globe and blended with native varieties; and thus the groups are studies in botany as well as finished pictures.

The site of much of the present gardens was simply rough pasture land; but Gen. Weld saw, in the general "lay" of these fields, possibilities which would develop most interesting and unusual pleasure grounds—and this development became his recreation. Of the little spring garden, situated on gently sloping land, circular in shape and hedged and secluded by a closely clipped Hemlock wall of living green, it is enough to say that over its rustic entrance climb American Pillar Roses, and around its central sun-dial are circular beds filled with Pansies and Tulips. It is planned entirely for spring and early summer effect, even to the Lilacs which reinforce the perennials in its border—the latter being Peonies, early Phlox and Foxgloves.

But the rock garden and cascades are not to be dealt with so briefly; for these are most unusual. In the wood beyond the house, it seems, there was a valley—one of those minor glacial ravines with sloping sides, not so very high but in places rocky and steep. And up among the hills at the back of the estate was a twenty-five acre meadow, while among the

Up the slope, along the face of rocks hung with Ferns and countless rock plants, trails this path, through masses of English Violets and Primroses

Through a glen so rugged that safety railings are a wise provision against too precipitate intimacy with the Trilliums, Poet's Narcissus, many varieties of Primrose, Galax, Leucothoe, Evonymous, Iris and Ferns, come the waters, leaping and tumbling

hills were numerous small natural springs. By building a dam the meadow was converted into a twenty-five acre reservoir whence the water was sluiced down to the head of the valley. At this point Gen. Weld chose a huge boulder, split with a fairly wide crevice, for the basis of a waterfall. And this is the cornerstone, so to speak, of the whole beautiful wild or rock garden.

IN ALL there is a series of five ponds connected by the artificially rock-bedded stream; and no visitor would dream that this stream which makes the garden the lovely wilderness that it is, was itself anything but the natural overflow from the chain of ponds. Under overhanging shrubs and trees it flows, to the little sheet of water where it comes to rest. Steps descend to the edge of this, and natural bridges are formed by rocks which seem to have been deposited by glacial action in just the right spots.

From the pond is the first real view of the rock garden—and each succeeding view reveals new beauties; here a path with nothing but English Violets for a border, there a solitary Cactus from some far desert, its outlines sharp against a rock. Among the rushes on the pond's bank the Sweetflag and Iris lift graceful spears, Cattails come later, and Pond-lilies sail on the water's surface. Trilliums grow along the banks and also profusely—both the purple and the white—near the brook which is the outlet. Then there are Phlox subulata in lavender-pink and pale pink Azaleas, Primroses in great abundance everywhere, Ferns along the brook, Solomon's-seal where it is partly shady and underneath the unpruned saplings of Birch, Beech, Poplar, Maple and Ash are masses of Star-of-Bethlehem, while Columbines, Bellflowers, Harebells and Anemones grow as if in their native haunts.

Yet notwithstanding this diversified collection, everything seems natural—for everything has been done according to nature's inspiration. The waters, originally stocked with goldfish till these proved too tempting for the epicurean otter who live in the banks of the stream, now have trout in abundance which of course supply the tables of the household.

An interesting and characteristic touch beyond the lake is a wheat field where the breakfast cereal is grown; ground in a coffee mill, this is a delicious product. And the water-tower is really a summer-house as well, where ice-cold buttermilk is a refreshing substitute for tea on a hot day after the climb up the path thereto—another delightful individualism.

Here are Alpine Primroses and Auriculas, Columbines and Violets, False Hellebore, Candytuft, several low and creeping Phlox, and many another, in an open bit of wood

As it leads from the drive the path is marked by a Holly tree, with Tulips of many kinds beneath and beyond it, Iris waiting with full buds to take their place, Pansies, Creeping Phlox and Alyssum saxatile strewn freely before a backing of shrubs

THE GARDEN FROM THE REAL ESTATE VIEWPOINT

WALTER E. ANDREWS; Drawings from sketches by HOWARD E. ANDREWS, Landscape Designer

When a Return More Than Doubles on an Investment it is Obvious That the Latter is Sound, if not Indeed Altogether Gilt-edged

IT WOULD do your heart good to see to-day the place which is the text of this sermon—especially if you had seen it as it used to be. On this page is a ground plan of the yard as it was. Two circular beds of red Geraniums were set down in the bare lawn at G and G with painful exactness. Back of them and around the south side of the house, were long narrow beds of Scarlet Sage. And how their reds clashed!

Near the street on each side of the front entrance were two Norway Spruce trees, which were already threatening to grow much too large for their places. Sooner or later, if left there, they would either have to be mutilated or removed. Farther back on the side lawn were two shrubs set down—like the Geranium beds—with awful geometrical precision.

And that was all! Not another living thing on the grounds, except grass and a few stunted vegetables in one corner of the back yard. Oh, yes! I almost forgot the four clothes-poles. To be sure they weren't living things, but they stood up straight and tried to make you notice them—and I must say they succeeded. Many a time I've heard the owner say they'd look better after he painted 'em green—but it was a job he never quite got around to. The same area as it is to-day is shown on the facing page. Some change!

THE Norway Spruces by the front sidewalk entrance are gone—having been sold to a neighbor who had a place large enough for them! The Geranium beds, too, are delightfully missing, as well as the two solitary shrubs that "adorned" the side yard. And vegetables were moved over to the right, so that the existing concrete walk might lead straight into a little formal garden, down two steps—a very heart's delight, where you are pretty sure to find the owner, unless it's raining.

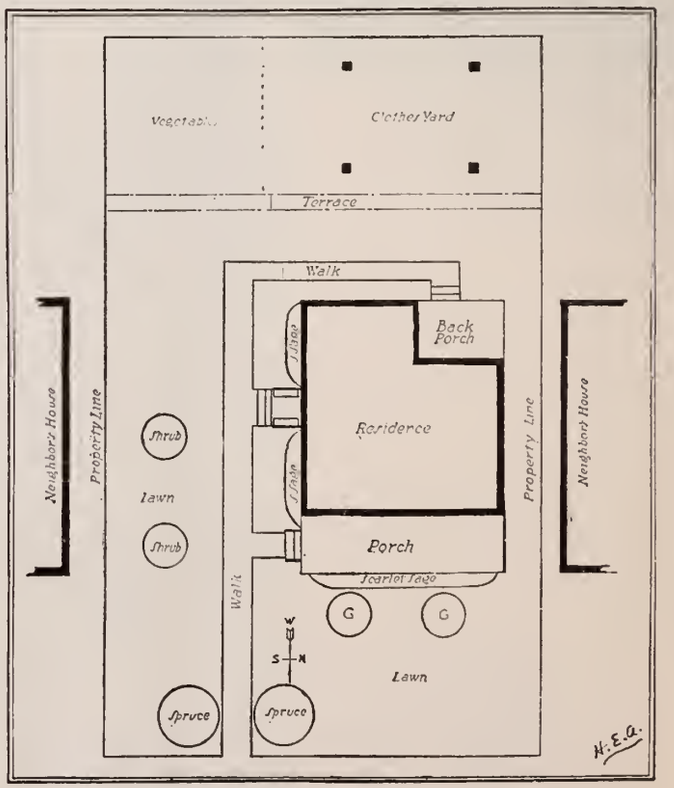
Walk around the pool, view the Pond-lilies with the goldfish hiding beneath them, the quaint stepping-stone path, the Roses and flowers, the vine-covered white lattice fence, and the inviting white seat on the far side. Small it is to be sure, but charming—and the world shut out by lattice and hedge!

The sunken effect was a piece of good luck, for when the house was first built the excavated soil was graded back only to the line marked "Terrace" in the original. It was expected and intended to have enough soil hauled in to bring the back part of the lot up to the same grade, but (fortunately!) this never was done. So it is the same "Terrace" in the developed place with the simple addition of a hedge at the top. Thus you have to go "down into the garden," and from there you pass on into the vegetable yard, while the clothes-yard has been moved close to the house.

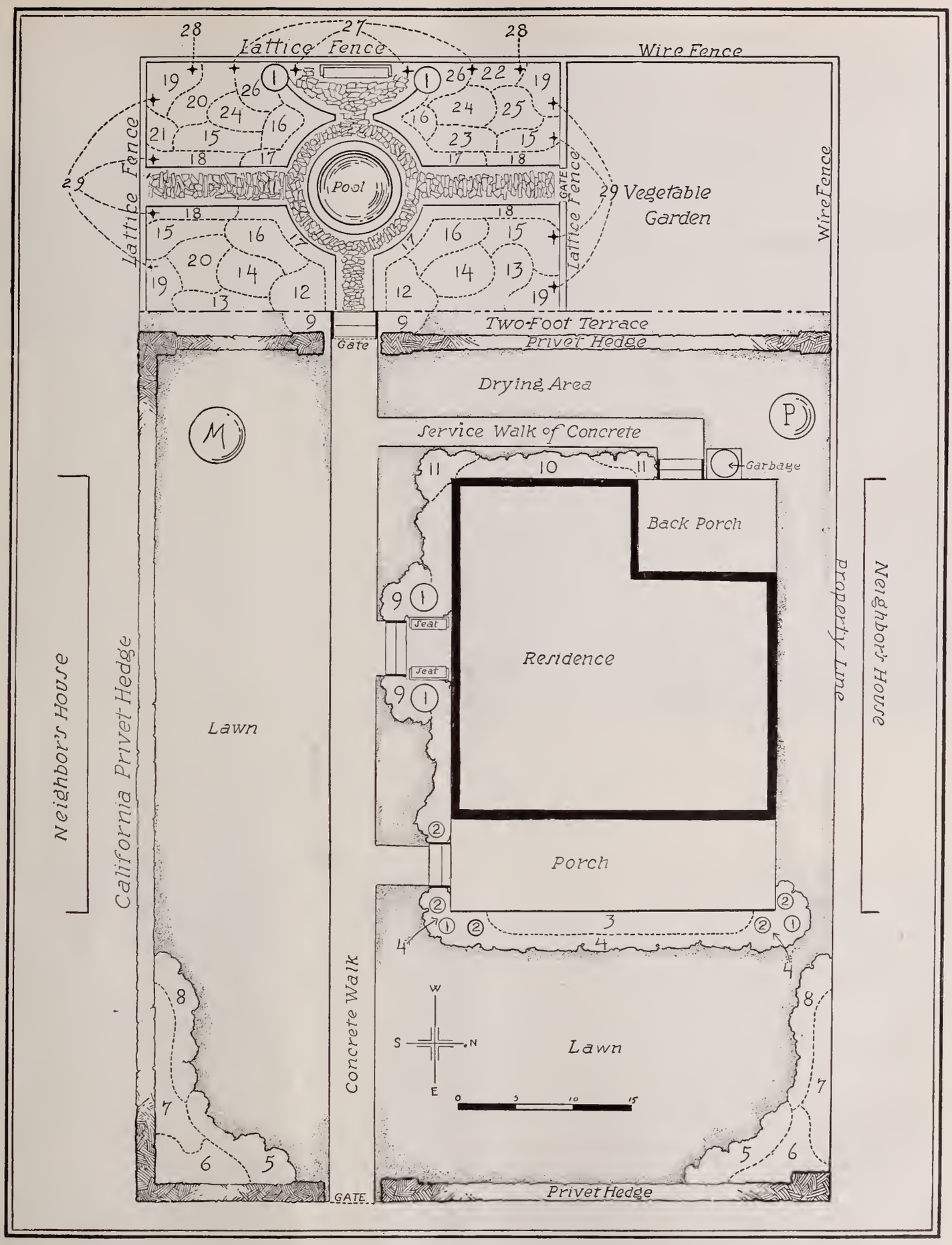
Were all these changes and adornments effected for 10 per cent. on the value of the place? They were. Indeed, including plans, specifications and supervision, the total cost was a little less than the sum representing this amount; and immediately after investing in these outdoor improvements the owner was offered for the place an advance of 26½ per cent. on what it has cost him. [This was not because of housing shortage.—Ed.] But he is so proud of this place to-day, and he and his family enjoy it so much, that you couldn't pry him away from it with double the cost of it.

PLANTING LIST FOR PLAN ON FACING PAGE

	VARIETY	SIZE	QUANTITY
1	Red Cedar	4 to 6 ft.	6
2	Thuya globosa	2 " 3 "	5
3	Azalea amoena	18 " 24 in.	21
4	Juniperus procumbens	18 " 24 "	15
5	Deutzia gracilis	18 " 24 "	13
6	Spiraea Van Houttei	2 " 3 ft.	8
7	Viburnum Opulus	2 " 3 "	10
8	Spiraea Thunbergii	18 " 24 in.	12
9	Juniperus Pfitzeriana	18 " 24 "	10
10	Rosa rugosa	2 " 3 ft.	5
11	Rhodotypos kerrioides	2 " 3 "	8
12	Stokes' Aster	year old plants	20
13	Anemone japonica	" " "	28
14	Digitalis	" " "	22
15	Phlox, tall, pink	" " "	36
16	Columbine	" " "	48
17	Iberis sempervirens	" " "	60
18	Dianthus	" " "	28
19	Hollyhock, double pink	" " "	24
20	Platycodon	" " "	14
21	Dicentra	" " "	5
22	Delphinium	" " "	20
23	Scabiosa alba	" " "	8
24	Peony	" " "	8
25	Lupine	" " "	8
26	Oriental Poppy, pink	" " "	14
27	Dr. W. Van Fleet climbing Rose	" " "	4
28	Climbing American Beauty Rose	" " "	2
29	Hall's Honeysuckle	" " "	8
M	Mountain Ash	8 to 10 ft.	1
P	Peach	one year old	1
Hedge	Privet	2 to 3 ft.	570



THE STEREOTYPED THING—AS THE PLOT WAS ORIGINALLY
The improved form is shown opposite



AFTER THE LANDSCAPE ARCHITECT CAME

The plan shown here is an actual instance in Seattle, Washington, of increased realty value brought about by a little careful planning. The treatment is simple and restrained, yet with ample opportunity for individual expression. For example, a different feature could be substituted for the sunken flower garden and pool

DEVELOPING A WATERFALL

NORMAN K. MORSE
Landscape Gardener & Engineer

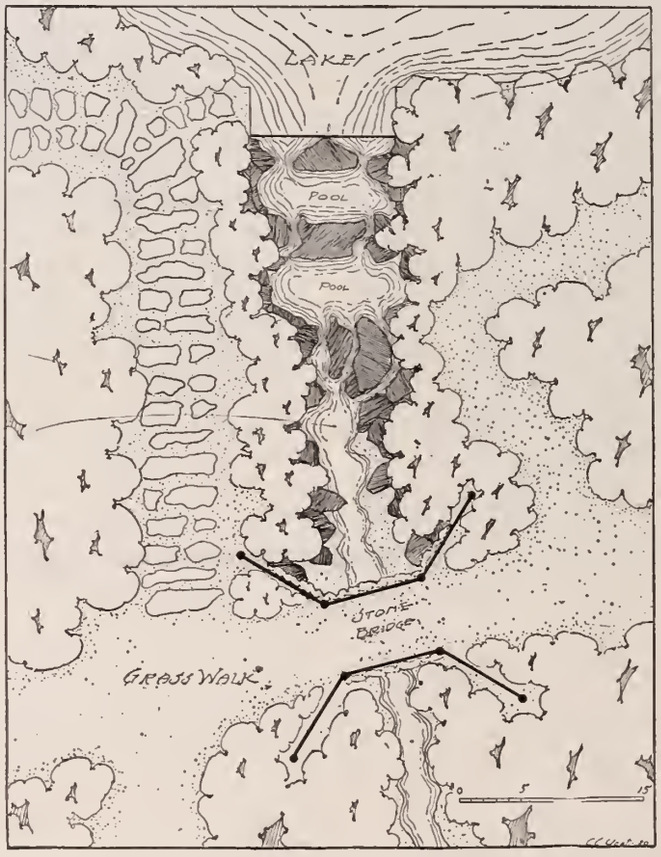
One of the Most Subtle of Natural Features This is One of the Most Difficult to Imitate Successfully, Yet Such Imitation is Possible When a Plan is Made and Followed

[EDITOR'S NOTE:—*The waterfall illustrating this article is the overflow for a concrete dam on the estate of Mr. Clarence Illingworth, near Philadelphia. It is entirely artificial, even the foundation on which the rocks were placed being filled in with about ten feet of earth. The plan shows in detail how the rocks were set to form the pools, and also the series of walks, so placed that the fall can be viewed from different angles. The planting is arranged with an idea of allowing only part of the water to be seen at one time. It makes the feature more interesting and invites further inspection.*]

PROBABLY the very best way to start is to find a natural waterfall which you admire, and then sit down on a log and study it. Notice the pools—deep ones and shallow ones—and the formation of the banks above the fall and below it. Get hints for the planting from the natural vegetation. Note the variety in size and type, and the contrasts in color and texture of the foliage, and notice where it grows.

As to the waterfall itself, it must first be decided where the right setting is and what the general size is to be. The one illustrated herewith is about twelve feet high and twenty-five feet long; and the size generally should be governed by the number of feet the water drops, the flow of water available, and last but not least, the amount of work one wishes to do.

The whole character of a waterfall should be as close to nature as possible; to get this effect it must of course be built in congenial surroundings. Yet certain surroundings are not congenial to start with, even where the waterfall itself may quite naturally come in. But these can usually be made so by studied planting. The point is that the waterfall should not be the only naturalistic feature. There should be winding walks through the trees or shrubbery adjacent and a secluded seat or two near; and all the planting should be such as you would find in the woods—Ferns, Violets, Trilliums, Anemones, Dogwoods, Hemlocks, Junipers, Rhododendrons, etc., which are in keeping with the naturalistic scheme. Cultivated flowers of course are not.



DETAIL PLAN FROM WHICH WORK WAS DONE

The photographs of the finished cascade shown opposite were taken at the foot of the fall and consequently do not show the bridge. Note the stone steps ascending the slope at the side

THE selection of the stones is very important. These should be rough and weather-worn, and as large as can possibly be handled. Some of those used for the fall in the photograph weighed almost two tons, and while such large ones would naturally be out of proportion for a small piece of work, they should scale down accordingly. If there are no suitable rocks on the property and it is necessary to use quarry stones, try to avoid those which are light in color and look "brand new." It is usually possible to get what is known as quarry waste stones that are quite large but because of their rough, rugged formation, or because they are too soft, are not suitable for building purposes. If the stones are bought from a quarry, however, each one should be selected and marked by someone familiar with the requirements of the work.

Before starting decide on a general scheme of strata. Most stones have a grain, noticeable to a more or less marked degree; for nature in forming aqueous rock built it up gradually, layer by layer, like the sand on the beach, and for centuries it slowly hardened. Then through a great upheaval, parts of this rock were raised above the surface of the ground, with the layers thrown entirely out of relation to one another sometimes, and sometimes with the strata remaining intact, still quite even and regular.

With this idea of an upheaval for your motif each stone must be placed carefully and with relation to every other. Imagine that all of them are part of a ledge of rock and visualize the way they would look if a part of this ledge (that where the waterfall is to be) were slowly pushed up from the bottom and broken, leaving jagged ends with quite a space dividing the two sides.

Another scheme, which uses a series of flat ledges, is probably easier to handle successfully. In this case the natural upheaval (imaginary!) raised a solid ledge or backbone of rock bodily, without splitting it in two, then the action of water gradually wore it away, breaking it off in layers—which gives the cascade effect.

As to actual construction, after the soil of the dam that backs up the stream and gives height and volume of water for a waterfall is allowed to settle thoroughly (for several weeks) the foundation is ready for the concrete. All the stones should be laid in crushed-stone concrete, so that none of the water shall be lost between the rocks on the way down (And do not use cinders for this concrete, by the way, as they are very porous).

STARTING at the bottom of the cascade, cut "steps" in the soil, deep enough and wide enough to allow for about eight inches of concrete as a base for each stone. In addition to the base, fill in concrete to make a watertight back for each

An unbroken earth bank covers the dam before the foundation "steps" are cut for the concrete foundation

stone, as it is laid, and ram this in between the joints with a sharp stick. The stones in most cases should overlap the ones below them; and special ones should be selected with care (and by actual trial with water) for making the water leap clear at certain places on its way down.

It is important, as you build up, to make allowance for soil pockets for various kinds of plants —small ones for the creepers, rock plants and ferns, and occasionaly ones large enough for an evergreen or shrub. What these plants themselves shall be it is a little hard to suggest because localities differ so greatly. It is safe to say, however, that the wild plants growing near you are best, with the addition perhaps of some few special things if a certain color or foliage effect is desired.

Without doubt one of the most beautiful objects in the world is a cascade, and to create a rockbed which will break up and attenuate into such misty loveliness as this, the pent-up waters impatient for their liberty, is an achievement bringing man into worthy competition with Nature at her best

The final touch is the planting, done of course before the water is turned in—and in this case, largely evergreen

To form the pools at the top of the fall the rocks must be very carefully laid, and at every point the angle as well as the exact position of each is a matter of patient consideration

SIMPLE CONSTRUCTION OF A CONCRETE POOL

LINDLEY PYLE

Ingenuity Devises an Earthen Mold by the Paradox of Not Excavating Until the Pool Is There!

LET no one deny himself the delights of a water-garden because of any supposed difficulties about simple and inexpensive water-tight cement pools! A year ago I made a pool of thirty-five square feet surface area and twenty inches depth which has not only grown the water plants desired but has withstood the test of zero-weather winter.

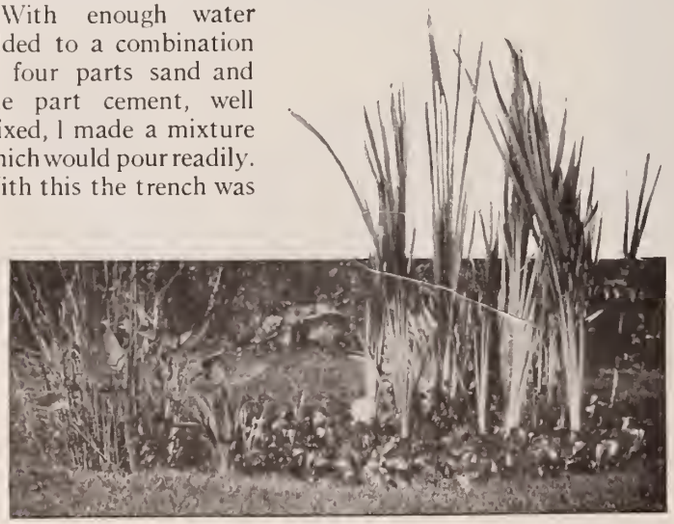
The shape and location of the pool-to-be were laid out with a rope representing the outline of it upon the ground. This was shifted until a satisfactory effect was arrived at. Then a cut straight down into the earth to a depth of two or three inches was made along the line of it with an old carving knife, followed by a second cut parallel to this and outside of it at a distance of approximately four inches. Then we took the rope away and removed the earth from between the two cuts.

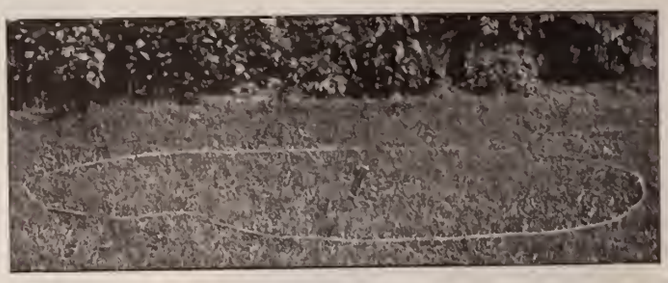
This trench was then deepened until it was three inches deeper than the depth of water desired for the pool—in other words twenty-three or -four inches deep. And as this trench was to serve as the mold for the casting of the cement wall *in situ*, the inner face of it was made vertical and smooth.

With enough water added to a combination of four parts sand and one part cement, well mixed, I made a mixture which would pour readily. With this the trench was filled up to within one inch of the level of the surrounding earth and left for thirty-six hours. At the end of that time the earth enclosed by the hardened concrete walls was dug out to a depth corresponding to the bottom of the side walls. Sand and cement in the aforementioned proportions were then dumped into the hole and thoroughly mixed, water was added in the proper amount, and the mixture was smoothed into a three-inch depth of bottom or floor. Take great care to bring about a close and tight connection of bottom with side walls as you do this, drawing the former up into a rounded union instead of making it a sharp angle.

After a lapse of twenty-four hours the inside surface of the sides and bottom should be coated with a quarter-inch layer of pure cement mixed with water to bring it to the proper working consistency. And when this lining coat is perfectly dry, the water-tight pool may be filled with water and the chosen aquatic plants placed in position.

It will be noticed that no provision is made for running water. The slight amount of water lost by evaporation is replaced once a week by use of a hose, and when I wish to empty the pool I use a garden hose as a syphon, the water flowing to a lower point in the garden. But I find it is well to leave the water in the pool throughout the winter, and the goldfish too for they will live through all right with no attention whatever. The merest trace of copper sulphate—8 grains to 1,000 gallons of water is a proper amount—prevents summer growth of algae; and the gold fish devour any mosquito larvae.





THE GLADIOLUS AND HOW TO GROW IT

C. W. ELLENWOOD
Ohio Agricultural Experiment Station

One of the Most Satisfactory Flowers for Cutting, Also One of the Easiest to Grow

THE culture of the Gladiolus or Sword Lily is so simple that any one can grow good specimens with only a little effort. And there has been so much improvement made in recent years in the quality of varieties that this has become one of the most cherished of summer and autumn flowers. For there have been developed nearly all shapes and colors of flowers from the many original species native to South Africa.

It is better to start with the bulb, or properly speaking corm, than to attempt to use seed or cormels (bulblets). Growing Gladiolus from seed is interesting but not always satisfactory, as they do not come true from seed, while—though the flowers are true to type—it ordinarily requires 2 or 3 years to get well started with cormels. The best blooms are from corms at least an inch in diameter, with the exception of a few varieties which naturally produce weak corms.

PLANT the corms in rows 3 feet apart and 4 or 5 inches apart in the row, covering with about 3 inches of well pulverized dirt. Any good garden soil is satisfactory, but a light,

sandy, fertile soil has some advantages. A good grade of garden fertilizer may be applied at the rate of 5 to 10 lbs. per square rod, broadcasted and cultivated into the soil previous to planting, but manure should not be applied to the soil the year the corms are planted. The writer has used a mixture of 2 parts acid phosphate, 1 part nitrate of soda and 1 part sulphate of ammonia with good results. It is our opinion however that on fertile soil acid phosphate alone will be sufficient.

Gladiolus can be planted any time from early May to the latter part of June. We find it advantageous to plant at several successive dates, for this insures flowers from the last of July until late in September. It takes from 70 to 110 days from planting to produce flowers, depending upon the variety, the soil, and weather conditions.

In cutting be careful to allow three or four leaves to remain on the stalk, to assist in the ripening process of the new bulb or corm, which goes on after the flowers are produced. We make it a practice to cut the spikes as soon as the first flower is open, and take them indoors and place them in a vase of water. By this method the flowers last much longer than if allowed to remain in the garden until in full bloom. Clip a half-inch off the bottom of the spike and add fresh water each day and the blooms may be expected to last a week. We find too that we can ship the flowers a distance not requiring more than a day in transit, by parcel post.

As soon as there is danger of hard freezing the corms should be dug, taking special care to preserve the bulblets or cormels found at the base of the new corm. The corms and cormels can be stored in shallow boxes or paper sacks after they have been dried. Of course each variety should be kept separately; and by carefully saving the cormels one can rapidly accumulate a surplus stock of corms.

The following are some of the varieties which have given us satisfaction and represent a succession in blooming period, and a variety of colors: Halley, Mrs. King, America, Pink Perfection, Panama, Niagara, Schwaben, Mrs. Pendleton, Baron Hulot, Glory, Peace, War, Europa, Chicago, White, Princeps, Ida Van, Empress of India, and Hereda.

GLADIOLUS COMES IN CHARMING VARIETY

Here indeed may the seeker for summer cut flowers find something to fit with any scheme of indoor decoration and new shades in the "primulinus hybrids" greatly increase the range of decorative uses

THE ROMANCE OF OUR TREES— VIII. THE NUT BEARERS OF THE NORTH

ERNEST H. WILSON
Assistant Director, Arnold Arboretum of Harvard University

Furnishing Man With a Rich and Substantial Wild Food Since His Very Beginning, this Group of Trees Has Nevertheless Been Almost Completely Neglected, and Is Only Now Beginning to Receive the Attention Which Its Tremendous Economic Potentialities Merit

[SINCE this résumé is to deal with the nut-bearing trees that grow in north temperate lands, it must disregard the most valuable and most used nut in the world—the Cocoanut, which is the product of a maritime Palm (Cocos nucifera) probably of South American origin, but now cosmopolitan within the tropics of both hemispheres—as well as many other nut trees that grow within the tropics, of which the fruits find their way into our markets. The Brazil-nut for example (Bertholetia excelsa) is familiar to all; and in recent years the Pili-nut (Canarium commune) from the Philippines has been not uncommon in city stores in this country. But these are tropical products, while we are concerned with altogether different material.]

The Most Useful Walnut Group

THE most important of the northern nut-bearing trees is the Walnut, of which —if we include Butternuts—there are about a dozen species (some of them doubtful), one natural variety, and several hybrids. Mexico and South America have several others but they are little known. The European Walnut (Juglans regia), the classical "Jovis glans" and the Nux of Greek poets, stands first. It grows wild in Greece, Bosnia and the Balkan peninsula, eastward through Asia Minor, the Caucasus, Persia to Afghanistan and the Himalayas of Kashmir, and northward to near Bokhara and Ladak. From western Asia it was long, long ago carried to China, where it is abundantly cultivated throughout the cooler parts of that land, and here and there naturalized. From China it has been taken to south Manchuria and Korea, where it is abundant, and to Japan where it is sparingly cultivated only. Also it is much cultivated throughout the temperate region of the Himalayas. It is grown in quantity in all but the coldest countries of Europe and likewise in this country, and especially in California. In the temperate regions of the southern Hemisphere it is also grown.

No other northern nut tree has been so widely planted and no other nut is so much appreciated as an article of food in temperate lands. It is one of the very few exotic economic trees cultivated in the Orient, where its fruit is vastly esteemed. An important desideratum is a type of this Walnut which would be perfectly hardy in northern New England. A few trees are known around Boston, Mass., and a few miles to the northward, but properly speaking the tree is not hardy here. From the colder parts of western China I sent seeds in the hope of securing a hardy type, but I am not sanguine. The trees have grown fairly well but have suffered slightly almost every winter.

Is the disappearing Chestnut but one of the evidences of the evolution of life? Other types have come and gone in ages past

THE European Walnut is one of the noblest of northern trees, at its best a hundred feet tall, with a broad, rounded crown of massive branches and a bold often gnarled trunk full 20 feet in girth. Through long and wide cultivation many varieties have developed and the nuts vary much in size, shape, sculpturing and thickness of shell. The most superior kinds have a thin shell and are fully $2\frac{1}{2}$ inches in diameter. By careful selection it is possible that even greater improvement will result.

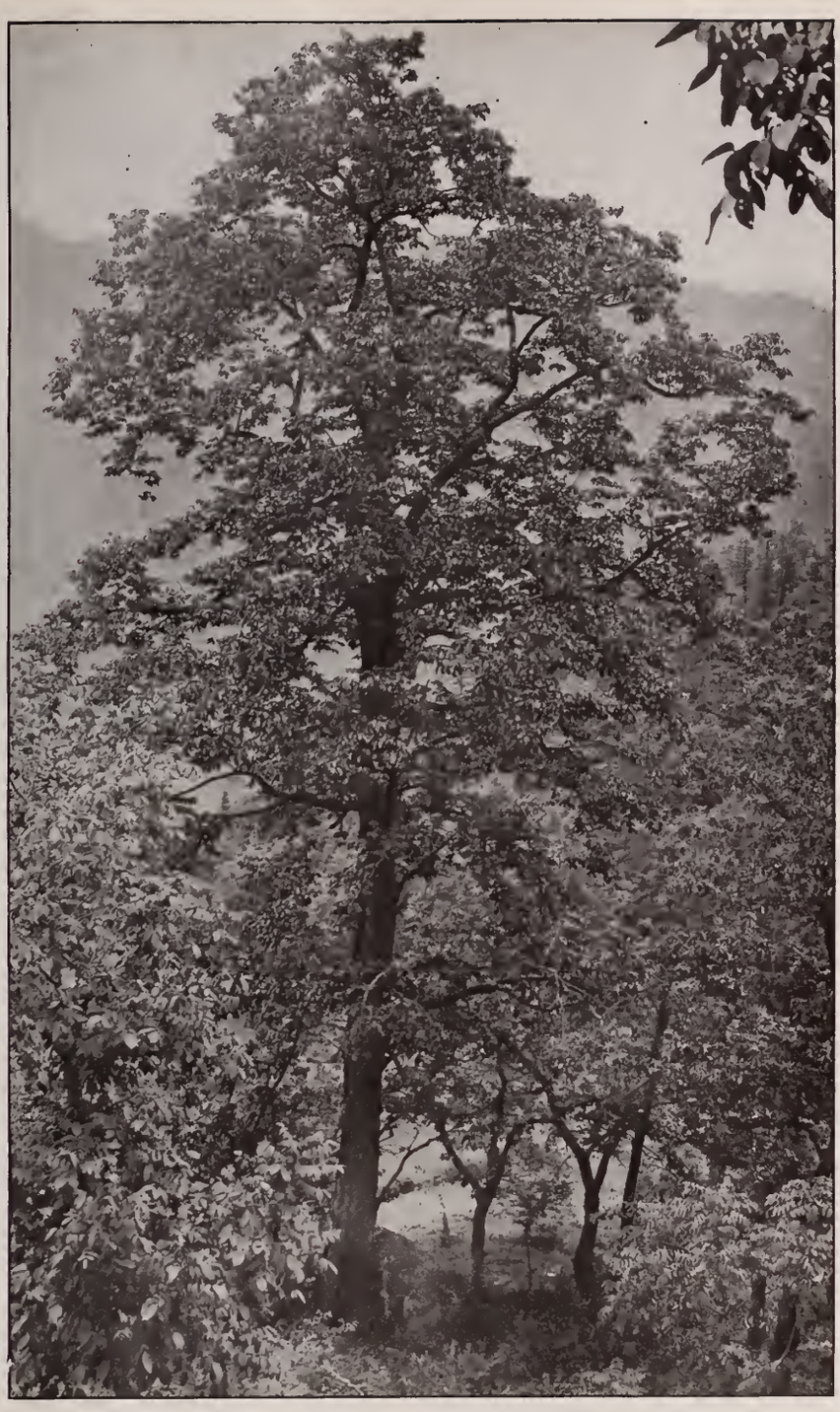
A very interesting variety and one that deserves to be better known is praeparturiens, which originated in the nursery of Louis Chatenay at Doué-la-Fontaine, France, about 1830. Monsieur Chatenay found among a batch of three-year-old seedlings of J. regia an individual plant which bore fruit. This variety was propagated and put on the market by M. Janin of Paris. The nuts are generally thin-shelled and though small, of good flavor. This variety requires to be propagated vegetatively since it does not breed true from seeds. In the garden of Professor Sargent, Brookline, Mass., there is a supposed plant of it, a tree 40 feet tall; this tree fruits freely and is quite hardy. It is not necessary to speak of other varieties, but of the hybrids I shall have something to say later. In passing I may say that I believe that in this country the best results will be obtained by hybridizing with the Japanese J. Sieboldiana and its variety, cordiformis, which are hardier than others. The importance of this fact cannot be over-estimated. We need a hardier race of thin-shelled Walnuts.

FROM the viewpoint of nut fruits the next important Walnut is the Japanese (J. Sieboldiana) which is quite a recent introduction to the west. It was first introduced into Leyden, Holland, about 1864 by von Siebold and taken from there to France in 1866. There is good reason to believe that it was introduced to this country by Dr. G. R. Hall in 1862, but the largest tree I know is in the Arnold Arboretum, where it was raised from seeds received from France in 1879. In Japan this Walnut is known as Kurume, and is distributed from the south to the bitterly cold regions of central Hokkaido. The Kurume grows in moist forests and is a much smaller tree than its European relative. The fruit is borne in long racemes and the nuts are ovoid or globose, rounded at the base and pointed at the apex, very slightly wrinkled and pitted, not ribbed and rather thick-shelled.

Much cultivated in central Japan is the variety cordiformis, characterized by its heart-shaped, much flattened, sharply

two-edged nut which is smooth and rather thin-shelled. In Japan there are two well-marked forms of the type, and intermediate ones which connect it with the parent species J. Sieboldiana. Raised from seed var. cordiformis cannot be depended upon to come true, for many revert to the wild type.

The American Black Walnut (J. regia) is a magnificent tree producing valuable timber, but its nut is small, has a very hard shell and is of little economic value. The Texan Walnut (J. rupestris) is a tree of moderate size and bears small nuts of no particular use. The two Californian Walnuts (J. californica and J. Hindsii) are large trees but the fruits are poor. The Formosan species (J. formosana) is a large tree but the fruit is small and, moreover, the plant will be hardy only in the warmer parts of this country. It is growing in the greenhouses of the Arnold Arboretum from seeds I gathered in 1918.



THE CHINESE HAZEL IS A TREE 120 FEET HIGH

Suggesting the possibility of increasing the size of the bushes that give us the Filberts of commerce

THE other species of Juglans in our purview are best classed as Butternuts, and the best known and most valuable is the American J. cinerea. This is a tree occasionally 100 feet tall and 10 feet in girth of trunk, with a broad, round-topped crown. It is distributed in eastern North America from the valley of the St. Lawrence River southward. It was introduced to England with the Black Walnut as long ago as the middle of the 17th century. The ovate, pointed 8-ribbed nut has a thick shell but the flesh within is sweet. The Chinese J. cathayensis is a bush or slender tree with a small, very rough nut of no particular value. It has not proved very hardy in the Arnold Arboretum. I introduced it first to England in 1903 and to this country in 1908. The Manchurian J. mandshurica rivals the American Butternut in size and the nut shows a decided approach to the true Walnuts. The shell is very thick and the flesh limited in quantity. It is a common tree in the forests of Korea and is very hardy. The little known J. stenocarpa of Russian Manchuria is a form of J. mandshurica.

Having dealt with all the species of Juglans within our province it remains to say a word or two about the hybrids—though none of these are valuable for their nuts. A supposed hybrid between the American J. nigra and J. cinerea was described as long ago as 1857 from a tree in the Botanic Garden at Marburg in Germany. Burbank claims to have raised a hybrid, which he calls "Royal," between J. nigra and J. californica. The other hybrids—there are several—are between the European Walnut (J. regia) and the American species. The oldest of these is a cross between J. regia and J. nigra, known as J. Vilmoriniana. This originated at Verrieres les Buisson, near Paris, about 1805. The original tree is now nearly 100 feet tall and 10 feet in girth; in bark, branches and buds it is intermediate, but in habit and nut it resembles the Black Walnut. Another hybrid of the same parentage is J. pyriformis which has pear-shaped fruits.

The reverse cross, J. nigra with J. regia, has been named J. intermedia. Of this there is on Rowes Farm, James River, opposite Lower Brandon, Virginia, a magnificent specimen which must rank with the largest Walnut trees known; the trunk at 2 feet from the ground measures more than 31 feet and at a height of $6\frac{1}{2}$ feet, 25 feet in girth. The spread of branches is enormous, but the height I have not been able to ascertain. In the neighborhood of Boston, Mass., a number of trees of J. regia x J. cinerea are known, the name for which is J. alata. In California are grown several hybrids between J. regia and J. Hindsii; one of these which Burbank claims to have originated is named "Paradox." I know nothing about the value of the nuts. All these hybrid Walnuts are fast growing, handsome trees, and like the species the wood of all is valuable. However, for nuts the breeder will do well to stick to the Eurasian and the Japanese species and their varieties.

THE most famous and oldest cultivated nut tree native of this country is of course the Pecan (Carya pecan) which grows wild in western Mississippi, in parts of Louisiana, Oklahoma and Texas. The latest authorities consider that it was planted by the Indians in the Mississippi Valley and elsewhere and it is therefore not easy to determine the natural distribution of this tree. The Caryas are among the noblest trees of North America and furnish tough and valuable timber. Up till quite recently the genus has been considered peculiarly North Amer-

ican, but a species (C. cathayensis) that has been discovered in eastern China refutes this.

The Pecan probably exceeds all other species in size. In rich alluvial soils trees 175 feet tall by 16 feet in girth of trunk are not uncommon, the only taller broadleaf trees in American forests being the Tulip Trees and the Scarlet Oaks. In the Arnold Arboretum there is one healthy young Pecan tree which is one of our proudest possessions for its hardiness is a surprise to us. In this connection it is necessary to emphasize the fact that the Pecan is a southern tree which cannot be expected to be hardy in the cold northern states. There is, to be sure, a wide region of the country where the Pecan can be successfully grown, but it does not include New England nor any of the cold northern or middle-west states. If intending nut growers will properly appreciate this fact it will save them money and disappointment. Pecan nuts with their red-brown shell and sweet-flavored kernel are too well-known to need description here. They are borne in clusters of from 3 to 12, and each is contained within a thin, brittle, dark brown, 4-angled husk which is coated with yellow hairs. When ripe this splits nearly to the base.

NEXT in importance is the Shagbark Hickory (C. ovata) which has in the past been confused with the Hickory (C. alba) but is distinguished by its thin-shelled nut, its leaves of 5, rarely 7, leaflets, its scaly bark and other less obvious characters. It is a northern tree, being distributed from the neighborhood of Montreal and southern Minnesota southward to the Carolinas, central Mississippi, southern Arkansas, western Louisiana and eastern Texas—where it is rare. It does not grow wild in the New England states nor in western New York, though in Livingston County, western New York, a natural hybrid between it and the Kingnut (C. laciniosa) and named C. Dunbarii is apparently common.

There are a number of varieties distinquished by their leaves or by the shape of the fruit, which, in the typical form, is short-oblong to sub-globose and depressed at the apex. Also there are a number of named garden forms of this Hickory specially valued for the size and quality of their nuts. Of much potential value is C. Laneyi, a natural hybrid between C. cordiformis and C. ovata. It has a nut with the thin shell of the Bitternut and the large sweet kernel of the Shagbark Hickory, and as the shell is so thin, the kernel is even larger than those usually produced by the latter. The nut keeps remarkably well and C. Laneyi is undoubtedly one of the most valuable of all the Hickory-nuts that have been found. The type tree grows in Riverview Cemetery, Rochester, New York, and it is fitting that this interesting hybrid should be named for the capable superintendent of the park system of that city.

A THIRD species of Carya is C. laciniosa—the Kingnut or Big Shell-bark. This is essentially a tree of the central States, being particularly abundant in the river swamps of central Missouri and the Ohio basin. It exceeds 100 feet in height by 10 feet in girth of trunk. The fruit is solitary or in pairs, about 2 inches long with a hard, woody shell; the nut is compressed, four- to six-ridged with a bony shell and a light brown, sweet kernel. From the viewpoint of their nuts these three are the most important of the fifteen species of Carya now recognized in this country. In several others the kernels are sweet flavored though the nuts are rather small. Seven natural hybrids have received names and there are probably others yet to be distinguished. In the hands of the hybridist other superior forms will assuredly arise.

The Hickories and Pecans are easily raised from seeds, but the seedlings develop long thick tap-roots and in consequence are difficult to transplant. The best plan is to sow the nuts and leave the seedlings to develop in situ. The better varieties are increased by grafting and budding, and old trees can be headed back and top-worked in a satisfactory manner in the warmer states. In the North the propagation is more difficult but yearly it is becoming better understood and in time will probably become as easy as that of the Apple and Peach.

JAPANESE WALNUT

It succeeds in the West, is hardier than the European and will likely yield us the practical American Walnut by hybridization. Tree in Arnold Arboretum

In the Arnold Arboretum we have found the Bitternut (C. cordiformis) to be the best stock. Our work is done under glass in January and side-grafting close to the collar of the stock is favored. The Pecan industry is of course well established in the warmer states but it can never become profitable in New England nor in the colder parts of this country. With Hickories the story is different and there seems to be no reason why they cannot be advantageously established in regions where the Pecan is not hardy.

The Disappearing Chestnut

TO WRITE of the Chestnuts when those here are fast disappearing through disease is not a pleasant task. No cure has been found and it rather looks as if in a few years one of the finest timber trees in eastern North America will have vanished. 'Tis sad, but we may as well realize that it is nothing new. Thousands, yes billions, of types have risen and disappeared since first organic development began and the fittest only survive. The Chestnut-bark disease is a new and deadly thing in this country, but it is an old pest in the Orient. In Korea it has existed beyond the memory of the oldest inhabitant —yet there are today millions of Chestnut trees in Korea, where the nut is a staple article of food. The same is true in Manchuria. In Japan, however, it appears to be a comparatively recent visitant, and very deadly. In Korea and Manchuria the older and larger trees are more resistant than saplings. Doubtless the Chestnut blight (Diaportha parasitica—a fungus) rages in a cycle and when the zenith of the curve is reached decreases in virulence. Let us heartily hope that this zenith will be reached while yet a goodly number of trees remain to us.

MEANWHILE the hybridist should be busy endeavoring to breed Chestnuts immune to the blight. Some good work in this direction has been done by Dr. Van Fleet at Washington, D. C., working with the Chinquapin (Castanea pumila) and the Asiatic species, but it is desirable that additional workers take up the burden, for the task is heavy.

PECAN IN THE NORTH

A tree of the South where it is the oldest cultivated nut, the Pecan is the largest of all nut-bearing trees. This specimen in the Arnold Arboretum is curiously hardy it seems

The fruit of all the Chestnuts—there are seven species—is edible. In eastern Asia grow four species, in this country two and in south Europe and extending to Asia Minor, the Caucasus, and northern Persia the remaining one. There is a strong family likeness between all, so much so that many botanists have united them all into one species; but the seven species may be distinguished by the absence or presence and distribution of minute, round, scale-like glands, and of hairs on the leaves as well as other less obvious technical characters.

The European (C. sativa) is the best known and most famous of Chestnuts, but unfortunately it is not hardy in the colder parts of this country. It is much cultivated in Italy, Spain, and in France, where the nut is a staple article of food. In England it has been widely planted but, except in a few favored localities, the fruit does not properly mature. This Chestnut is one of the largest and noblest of European trees. It is indeed the largest of the genus and trees 100 feet tall and 20 feet in girth of trunk, with a wide-spreading crown of massive branches are not uncommon. The nuts are usually three in each spiney, round husk, occasionally more, sometimes only one. There are many garden varieties and some with a very large nut are grown in Madeira.

Rivalling in size of nut the European species is the Japanese C. crenata, wide-spread in Japan and in Korea. It is hardier than the European Chestnut but is prone to disease. It is not a very large tree but some of the named sorts like Tamba or Mammoth have huge nuts. The flavor is rather inferior, however. The type and the best known varieties have been introduced to this country. The trees grow rapidly and fruit at a comparatively early age, and it is regrettable that they are not more disease resistant.

More valuable is the Chinese Chestnut (C. mollissima) introduced into this country from Peking by Professor Sargent in 1903. The nut is rather smaller than those of the preceding species but is sweet and of excellent flavor. It is a tree of moderate size, wide-spread in China from east to west, and northward into Manchuria. It is cultivated in northwest Korea and is esteemed above the native species. Long shaggy hairs on the shoot distinguish this species from all others. Though subject to Chestnut blight in the Orient, this kind seems to be immune or nearly so in this country and this, combined with its hardiness, makes it a most useful tree for cultivating and breeding purposes here

Common in central and western China, growing in mixed forests of the higher mountains, is the largest of the Asiatic Chestnuts, C. Henryana, which is occasionally 100 ft. tall and 18 ft. in girth of trunk and is characterized by having normally a solitary ovoid nut in each spiney husk. The leaves are smooth without glands and the lateral nerves project beyond the margin in long hair-like points; the petioles and shoots are quite smooth and dark colored. The nut, though small, is very sweet and of most excellent flavor. I introduced it in 1907 to the Arnold Arboretum where it has proved quite hardy.

WE NEED say nothing here about the American C. dentata, but a passing word is due the Chinquapin or shrubby Chestnut (C. pumila). This bush or small tree is distributed south from Pennsylvania to northern Florida and westward to southern Arkansas and eastern Texas. It bears usually a single nut in each husk which, though very small, is very sweet and good eating. This species in the hands of the hybridists may be the progenitor of a race of Bush-chestnuts of great value for orchards. As before mentioned Dr. Van Fleet has already made some very promising crosses, and there is no reason why future generations should not have a strain of Bush-chestnuts bearing fruits as large as the European and Japanese kinds, and as hardy and sweet in flavor as the Chinese.

In the southeastern United States at low elevations from North Carolina to western Florida and west to Louisiana grows the dwarf C. alnifolia in which the husk is only sparingly clad with spines. This is a shrub or low tree from 10 to 30 feet tall. There is in China also a bush Chestnut (C. Seguinii) which ought to be reintroduced to our gardens. It has long been known, and Robert Fortune introduced it to England in the fifties of the last century, but it seems to have soon become lost and its value unappreciated. This also I introduced to the Arnold Arboretum in 1907, but the plants were afterward destroyed by a grass fire caused by a careless visitor. It is abundant on the hills throughout the Yangtsze Valley and there should be no difficulty in securing seeds, though they travel badly. It forms a bush from 10 to 18 feet high and is sometimes a small tree; the husk contains from 3 to 6 small nuts which have a peculiarly sweet and pleasant flavor. I never saw it attacked by the Chestnut blight.

Tree and Bush Hazels

THE genus Corylus, which yields the Hazelnut, is spread throughout the Northern Hemisphere. Some twelve species and several varieties are known, three species in this country, four in Eastern Asia, two in the Himalayas, and three in Europe and Asia Minor. Three of them (C. colurna, C. Jacquemontii, and C. chinensis) are large trees; the others are best described as large bushes, though occasionally they form small trees. The Chinese (C. chinensis) is a very large tree and I have a vivid recollection of one giant growing in central China fully 120 feet tall and 18 feet in girth of trunk, with a broad oval crown. The nuts of all the species are edible but in the tree species the shell is very thick.

FOR orchard culture the European C. avellana only has so far received attention. This is much grown in Italy, Spain, France, and the county of Kent in England, but the bulk of its nuts in commerce are shipped from the Spanish port of Barcelona, hence the name Barcelona nuts. This species is wild in the hedge-rows and coppices of Europe and nuts of the wild tree are excellent eating—and in England much sought after by the country-folk. According to French authorities the nuts of Provence and Italy are preferable to those of Spain and the Levant. A number of varieties are grown and in France the better kinds are called "Avelenes," while the best known are

"Full-beards" or Filberts and Cob-nuts. Both Red and White Filberts are much grown in Kent, England, and are esteemed because they admit of being kept fresh in the husks.

According to the books the Filbert was first known of from Pontus on the Asia Minor shores of the Black Sea, and as called by the ancient Greeks "Nux pontica." The Cob-nuts are short and roundish and have a thick shell, the most familiar being the Barcelona nuts of commerce. A form with large nuts is known in England as the Kentish Cob. Some consider the Cob-nuts to belong to a separate species known as C. pontica but this seems doubtful. The other European species (C. maxima) is a large shrub confined to southern Europe, and a recent view is that the Filberts are hybrids between this and C. avellana. There is also C. intermedia, a hybrid between the common C. avellana and C. colurna, which has been known in Europe since about 1836 but is still rare. It is fairly intermediate in character, though the nut is more like that of C. colurna.

Of the three American species C. rostrata is most widely spread and grows throughout Canada, from the east coast to British Columbia, and in this country as far south as Virginia and west to Minnesota. It is a bush of moderate height producing suckers freely. The husk completely encloses the nut and is contracted beyond into a long tube. Another species (C. californica) grows in Colorado and westward through northern California, Oregon and Washington, and differs in having the husk terminate in a very short tube. The remaining species (C. americana) has a roundish nut contained in an open husk with jagged almost fringed margins. This is a broad shrub from 5 to 12 feet tall, distributed from New England southward to West Virginia and westward to Mississippi, Arkansas, and South Dakota.

THESE native species of Hazel nut have been neglected and ought to be taken in hand for orchard culture. The three Tree Hazels all have roundish nuts with thick, hard shells and small kernels and need to be much improved before they have value as nut trees. The Himalayan C. ferox and the Chinese C. tibetica have spiney husks resembling those of the Chestnut and are unpromising subjects for the nut growers. The two bush Hazels of Eastern Asia (C. heterophylla and C. Sieboldii), each of which has several recognized varieties, are worthy of notice for both are hardy in the Arnold Arboretum and will undoubtedly some day play a part in nut culture in this country, The first has leaves variable in shape, as its name indicates, and an equally variable husk which is lacinated and often crested but open at the summit exposing the roundish thick-shelled nut. It is a low bush seldom more than 6 feet high—usually less—which suckers freely and is a particular feature of open mountain slopes in Korea. It is also widespread in Japan, the Amur region, Manchuria and northern China. In central and western China it is represented by the varieties sutchuenensis and yunnanensis, which are large bushes often 20 feet tall, and differ in technical characters.

The other species (C. Sieboldii) resembles the American C. rostrata in that the husk completely encloses the nut and, moreover, is contracted above the apex of the nut into a narrow tube often twice as long as the nut itself. Several varieties, based largely on the length and shape of the husk, have been distinguished. On Quelpaert, a volcanic island off the south coast of Korea, grows a small fruited form in which the husk is contracted into a very short beak. This has been named C. hallaisanensis. Siebold's Hazel is a large bush, similar in habit and foliage to the European C. avellana and is widely distributed in Japan and on the mainland of Eastern Asia westward to the Chino-Thibetan borderland.

A REALLY HANDSOME BUSH IS THE COMMON HAZEL

All nut fruits are much sought by squirrels and other rodents who store them and thus help to distribute them; for, though they take heavy toll, they seldom devour all. Nevertheless, trees which bear a nut fruit are handicapped in the struggle for existence; and sometimes one is tempted to believe that Mother Nature made a mistake when she evolved this particular kind of fruit. However, man, as well as the rodent, should be thankful—for nuts supply a goodly portion of the race with a wholesome dietary—and are capable of yielding much more if given attention.

And a Handful of Others

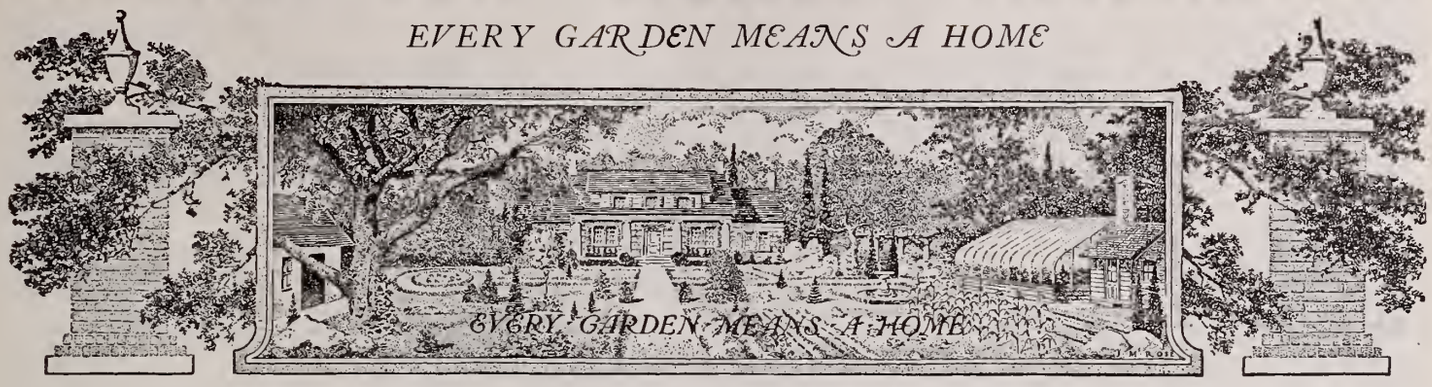
IN THE case of succulent fruits man has for some reason, from the dim and distant early days, striven to improve their size and flavor; and his efforts have been abundantly rewarded. But with nut fruits the story is different. Almost nothing has been done to develop quality and abundance in these, though undoubtedly primitive man ate the acorn, walnut, hazelnut, hickory, pecan, and pine-nut long before he did the succulent fruits. The acorn has fallen generally into disfavor, however, though the peasants in Spain still eat that of Quercus ballota as in the days of Don Quixote. The North American Indians also eat the acorn of certain Oaks; but so far as American people are concerned the acorn will never come back as an article of food. It is of interest, in passing, that the Oak species is much distributed by waterfowl—strange as it may seem—who swallow the acorns and eject them whole.

The nuts of the European and some other Beech trees are of fair size, sweet and good flavored, yet are eaten only sparingly by the peasantry. The seeds of the Swiss Pine (Pinus cembra) are eaten in Europe, and in Siberia they are a very important article of food. The same is true of the Korean Nut-Pine (P. koraiensis). The kernels of this Pine mixed with honey make a delicious sweetmeat. In western North America (including Mexico) the seeds of several species of Pine are eaten, especially those of the Sugar Pine (P. Lambertiana).

For all of this, however, selection and cross-breeding among nut fruits has only quite recently begun to receive attention. The European Hazelnut has been selected and such forms as the Cob and Filbert have been established, and probably the Walnut has also been subject to like treatment; but it is only to-day, especially in this country, that the culture and breeding of nut trees are beginning to receive real attention. Doubtless the future will see a tremendous advance in these fruits. In every case, as it is the fleshy kernel which is sought, I have not for the purpose of this article confined myself to strict botanical morphology. The term "nut" includes any edible kernel, whether it be part of the seed as in the Ginkgo, or of a fruit as in the Hazelnut; and whether the outer covering be hard and woody, as in the Walnut, or thin and fibrous, as in the Chestnut.

AMONG OUR GARDEN NEIGHBORS

EVERY GARDEN MEANS A HOME



THAT people generally are showing a greater interest than ever before in gardens—or at all events, in the things that come out of gardens or have to do with the garden, is clearly demonstrated by the remarkable success that attended both the recent Flower Shows, held in New York and Boston. In the first case 50,000 people or more paid for admission, and in the second case about 10,000; which attendance may be taken as proportionate to the size of the display in each case and also to the community. Judged from the standpoint of the horticulturist, the two displays were developed along entirely different lines. That in New York was the rehabilitation of an effort that had been well established before the war and merely needed to be set going again, whereas the spring show of the Massachusetts Horticultural Society was quite different, was indeed an entirely new venture. That both were received by the public with enthusiasm is a splendid indication (if one were needed) of the growing, wider spreading interest in plants and ornamental horticulture.

With the momentum of an established event the greater metropolis naturally drew attendance and support from all over the country. Meetings in New York of the Garden Club of America, the American Rose Society, the American Dahlia Society, and other similar organizations, held in conjunction with the exhibition all contributed to make a most successful gathering.

Turning to the display itself, certain criticisms are heard; and it may be well that the management give these careful consideration. There is a danger—a very apparent danger—of the New York affair being overwhelmed by a certain monotony of character. The "War of the Roses" as fought out by the two conpeting Piersons has largely usurped all other spectacular displays, with the result that there is a growing similitude as both competitors approach the ideal which seems to be most pleasing to the judges; and this is leading to the dead-level monotony of repetition which begins to pall.

THE immensity of space to be filled in the Grand Central Palace is of course somewhat of a handicap. The building occupies an entire city block; and this year the fag end of winter was still sitting heavily in the lap of spring, and had its effect in lessening the number of exhibits. Railway freight embargoes, too made it impossible for certain exhibitors of the New England States to bring their displays; and the exhibition on the whole suffered from lack of novelty.

The most interesting features were the marvelous Acacias from Mrs. F. A. Constable and the display of fifty kinds of Camellias from the unique collection of Mr. W. R. Coe. Of course, the restrictions on plant importation, due to the operation of Quarantine 37, had a startling effect on the exhibit as a whole—as had already been intimated in these pages would be the case. The absence of fine specimen plants of Azaleas and such like of former years was indeed very marked. But it is not altogether owing to these circumstances that the New York Show becomes essentially a spectacular display of floral decorative art, with its make-believe Rose gardens already mentioned, bulb gardens by Scheepers and the spring-flowering greenhouse material from the ample conservatories of Mr. Adolph Lewisohn and others, brought in at an almost incredible effort in overcoming transportation problems.

There is criticism in some quarters that a horticultural display should be supported by the accessories of the garden—tools, insecticides, structures, mowers, tractors, and such like—but this hardly seems warranted. For to a large proportion of the visiting and supporting public these features are of an absorbing interest. In our opinion they should therefore receive every encouragement; for everything that helps toward the spread of interest and an increased facility in gardening surely finds appropriate place in an annual festival display to which thousands of people are drawn from all parts of the country.

THE feature of the Boston exhibition, announced in advance as the Orchid display, was indeed fully half that. Filling the entire lecture hall, which had been temporarily converted into a "tropical jungle," Mr. A. C. Burrage's marvelous showing of Orchids was probably the greatest and most remarkable single exhibit ever made at any gathering of this kind, anywhere. This was accompanied and supported by a remarkable bibliography of the Orchid. The Boston show as a whole differed from that of New York in being essentially a display of unusual plants and fine specimens of cultural skill. The Roehrs display of Orchids was second only in size to that coming from Pride's Crossing. But interest in novelties and unusual features was not by any means confined to the species and hybrids of Orchids. The Kurume Azaleas, described in detail in last month's GARDEN MAGAZINE were brought into the hall in perfection of condition, and their ethereal quality of coloring vindicated everything that had been said about them. Their best analogy was perhaps given by a lady standing beside them who asked, "Where are the Kurume Azaleas?" "Madam, you are standing right beside them." "My goodness, I thought they were huge bunches of Sweet Peas set in vases!" That is exactly the effect! The colorings of these Azaleas, in the fifty varieties, practically duplicated the colorings of the Sweet Pea exhibit of Burpee as seen in New York.

Horticultural connoisseurs of remote parts who came to Boston to view these Azaleas, saw for once and all (at all events for an indefinite time, so long as the restrictive Quarantine 37 is in force), this group of marvelous plants, an even hundred, all gathered together in one place. The collection has now been broken up, one-half remaining with Professor Sargent the remainder being divided between the plant collections of Mr. Jack Ames, Mr. W. R. Coe and Mr. J. E. Aldred. And so while an opportunity will in due time undoubtedly be given horticulturists in the neighborhoods of the two large cities to

THE KURUME AZALEAS SHOWN FOR THE FIRST TIME AT THE BOSTON SPRING EXHIBITION, MARCH 24 TO 27

The history of these plants, their discovery, origin, etc., was fully told by Mr. E. H. Wilson in last month's GARDEN MAGAZINE. It is indeed curious that these gems, cultivated for a hundred years, should have remained hidden until this time

see these gems, it is true that the richness of the Boston display is not likely to be duplicated within many years. These two features alone, the Orchids and the Azaleas, gave the Boston show a transcendent preëminence of interest to the plant connoisseur. And credit must also be accorded to Mr. Roland's wonderful collection of Acacias in rich variety.

Another plant seen at the Boston show in quantity for the first time was the hybrid Azalea Louisa Hunnewell, raised by Mr. T. D. Hatfield on the Wellesley estate of Mr. Walter Hunnewell. This is of great interest horticulturally as being the first definite American hybrid between the deciduous Azaleas of China and Japan (See illustration page 166).

THESE two great Flower Shows as a matter of fact supplement and complement one another. Each one has its own character that cannot be compared with—indeed can hardly be spoken of in the same breath—with the other. They are totally different; and they reflect, to a large extent, the communities with which they are associated. The spirit of New York is utilitarian—some people say wholly commercialized—and quite naturally, perhaps, New York exhibits the spectacular, decorative use of flowers in season on a gigantic scale—a sort of huge, exalted florist's shop, indeed. In Boston, on the other hand, the standard of merit is intrinsic quality for gardens, and botanical interest of the plants displayed. According to your fancy you may visit one or the other and find ample reward. The all-around horticulturist and gardener must indeed visit both—and he will be probably equally absorbed in each—but along entirely different lines.

WHAT good, it is often asked, comes out of these Flower Shows? It is a difficult question to answer definitely, because the reaction is different with different individuals. But unquestionably the community of interest that is developed, the companionship of fellow craftsmen, the rallying of the clans on a given date at a given place, quickens a new inspiration and enthusiasm which in turn stimulates to more spirited action and progress.

AS AN outcome of the recent meeting in Boston for example we now have an American Orchid Society, the first of its kind anywhere. During the last twenty years, and especially in the last decade, activity in Orchid collections has been dwindling while on the other hand the Orchid has taken on greater importance as a commercial commodity. The establishment of an Orchid Society may be taken as significant evidence of the growing interest in plant affairs. Under the presidency of Mr. Thomas Roland, one of the most successful cultivators and all-around horticulturists of Boston, the American Orchid Society starts out on a clear sea—and may it sail a straight course to success! For every instance of coördinated effort is a step in the right direction. And perhaps one day that dream of an all-embracing, widely founded horticultural society for all America that will include all the amateur activities of garden, greenhouse, and grounds will be an accomplished fact. In the meantime these separate units are doing their part; and in asking the support of those whose interests are in any way touched, they are not asking for anything that should not be given.

PRELIMINARY arrangements are being made for the next National Flower Show under the auspices of the Society of American Florists which it is proposed shall be held in Cleveland, Ohio, in the spring of 1922.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

Looking Into A Plan

AS I am naturally interested in good and wholesome architecture, I am prompted to write you about the plan that appeared in the March issue. I am not trying to criticise your magazine, for on the contrary I am trying to help you, and besides that I have always had a great deal of admiration for the GARDEN MAGAZINE. I am assuming that the designer has sought to show your readers how a property of this size can be designed, and how it can

be utilized to the best advantage. The scheme is possible but not probable or practical to carry out and for these reasons: (*A*), *From an architectural point of view:* The floor arrangement is impractical. The approach to the old-fashioned garden is apparently only through the servants' quarters. The contours that the roof of such a house would assume would be anything but pleasing. (*B*), *From a landscape architectural point of view:* The entrance drive is most impossible if it is to be built as designed. The fundamental principles of design have been eliminated. Let us consider the view from the tile loggia over the out-of-proportion pool and sundial, and having as a background a drive and a stone wall. The design has a somewhat formal aspect. It is without an axis line and other strong features which would tie it in to the house. Therefore the garden does not make for a harmonious whole with the rest of the property as a design of good merit would have it do. The flower garden has not been related to the house in any way. One path has a dead end with the west wall. (*C*), *From a horticultural point of view:* The plan shows a lack of knowledge of plant material and its arrangement. Flower beds planted against the base of the house and under the eaves, from a growing point of view alone, have never been successful. It is on account of my devotion to my profession and deep interest in bringing before the public wholesome and well thought out examples of landscape architecture that I write you these lines.—RALPH M. WEINRICHTER, Fellow American Society of Landscape Architects, *Rochester, N. Y.*

A Greenhouse Heating Problem

I HAVE for several years experimented with kerosene burners in cook stoves, and have finally found one that works to my entire satisfaction. It gives a good, clear flame, and in a large stove or range it gives from five to seven hours of service per gallon of oil. I am just now erecting a greenhouse and will use two double burners in boiler, but am satisfied that in this climate one burner will suffice after water has been heated. The burner in question is known as the Cochran Superior Coal-Oil Burner and is manufactured by the Cochran Manufacturing Co., 96 Harriet St., San Francisco, Cal. A number of these burners are in successful use in hot air furnaces.—J. P. JEFFERSON, *California.*

Hardy Double Buttercups

THE rare and old-fashioned flowers are most desirable in the gardens for the reason that they are admired by most garden folks. In my garden I have a bed—10 by 20 feet—of the old time yellow Hardy Double Buttercups. An elderly lady gave me a few plants from her bed of Buttercups which was more than fifty years old. The flowers are yellow and double and resemble somewhat the Matricaria except in color. The petals look and feel like culluloid and the foliage, too, is very pretty—in shape much like a Geranium leaf. It is dark and glossy and looks as though it were varnished. The plants grow about a foot high and spread rapidly. The Buttercup bed in my garden is a beautiful sight indeed when in bloom (which lasts about 6 weeks) being a solid mass of bright yellow flowers with a dark green blanket of solid leaves just beneath the flowers. We pick the flowers by the half-bushel basket. One of the nicest things about this little plant is the endurance of the flower in water. They make an attractive display when placed in a black vase I have, the yellow and black being such a contrast.—F. SANKSWEIRT, *Norwood, Ohio.*

Fighting Crown Rot

HAVING read so much about crown rot, that hated affliction of the Flag Iris, I have dreaded to find it attacking my collection some day. And at last it came with cold, wet, dull weather that favored it and its spread. I was provoked!—and I began to snatch off the tips of the blighted stalks angrily. Every time one showed a yellow color-tone amongst the thrifty greens, I went for it mercilessly—and I found that *that* is how to fight crown rot.—Up with them and burn! No matter how much it hurts to do it, *pull and incinerate.* And when in doubt as what to do next, do that some more. By pursuing this method, I am able to stand up when the danger period for this year seems ended and say: "Well, that peril has been conquered for this year, at least." Primitive? Well—that's what most successful methods of fighting—and winning a fight—are!—N. B. The above was written at the close of my 1918 fight and the sheet laid away, that I might be able to check up at the end of 1919 on the actual outcome. During this year of 1919 not a speck of crown rot appeared in my Iris; so I think I may fairly claim to have won. ESTELLE M. GILBERT, *Binghamton, N. Y.*

When the Garden Club Meets

AS I have received so many little hints for our garden club from your magazine, perhaps others may glean an idea or two from the subjects we used last season. Our little club meets weekly, usually at my home, and these were the subjects I offered for discussion: "Different Means of Plant Propagation," "A Perennial Garden," "Plan a Blue Garden," "Plan a Garden to Bloom This Year," "Shrubbery and Its Uses," "The Orchard and Fruit Garden," "The Dahlia," "A Bulb Garden," "Garden Planning." One meeting was given over to a talk on birds, for who that loves gardens, does not also love birds? We also studied the wild flowers and offered a prize for the member finding and classifying the greatest number. I would be glad to give names of text books and authors from which we read during the season. In addition to our local memberships we have several non-resident members from Lake Forest and Lake Geneva, Ill., New York, and Lenox.—REBECCA W. GIBBS, *Richmond, Mass.*

An Annual Border for the Vegetable Garden

WHERE the vegetable garden is part of a formal design a border adds greatly to the appearance. Low hedges of shrub would be in most cases undesirable, casting too much shade and interfering with cultivation. On the country place of Mr. Robert Allerton at Monticello, Ill., I saw a very attractive border made by Carrots. As the leaf stalks grow too tall and fall over, the leaves may be trimmed like a hedge. New leaves are put out very quickly so that the miniature hedge is always fresh and green. It has a very soft, airy appearance. It may be trimmed several times during summer and remains green until frost. The cost is inconsiderable.—A. G. ELDREDGE, *Ill.*

AN EDGING OF CARROTS IN THE VEGETABLE GARDEN

And Red Cedars marking the corners, which reminds of the long-ago fashion of using Boxwood for punctuation marks and herbs trimmed to neat, small hedges

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in *a normal season* is taken as standard: but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

MAY—THE MONTH OF FIRST RETURNS

THIS is the month when that tendency to let down, which invariably follows a strenuous season, is most likely to create havoc in the gardens. For work neglected doubles in inverse ratio (seemingly) to the degree of neglect, until a two-hour task of one day becomes a four-hour task two days later. The returns from the garden, whether these be in flowers or vegetables, will be in direct proportion to the attention which it receives; and procrastination is its worst enemy, as well as yours!—not only the thief of time but of food and flowers.

General

It is the last minute literally for any spring seeding of lawns. Indeed it will be better to wait until fall to do anything about a new lawn, because if started so late it is sure to be as full of weeds as of the proper grass.

If any sodding is to be done do not delay it; and keep sod well watered until it has rooted and established itself.

Evergreens may be transplanted until the end of the month, and all broad-leaved evergreens must be moved now rather than in late summer or fall.

Shear hedges and all evergreen topiary material before growth starts.

Greenhouses and Frames

Empty the house as soon as the weather permits, transferring to the frames the things that need hardening before they go outside. Azaleas, Bougainvilleas and other woody plants may be plunged outside when there is no further danger of frost, and will ripen their wood better there.

Spray or fumigate every week and keep the greenhouse free of aphids and other pests.

Leave the sash off the frames more and more as the warm weather advances, and give an abundance of water often.

Set out Carnation plants; bench Roses for winter bloom; pot and bench Chrysanthemums; root Poinsettia cuttings.

Utilize the spaces cleared out by planting Beans or any other vegetable to force along for early use.

Conserve all flowers as far as possible from the middle of the month on, for use on Decoration Day.

Pot up Tomatoes in 5-inch pots to get extra early plants for the garden.

Flower Garden

Perennials that need thinning or that you wish to move for any reason may still be shifted.

Sow out of doors all hardy annuals, and biennials. Plant bulbs of Gladiolus at the first, the middle and the end of the month.

Set out all hardy plants such as Asters, Geraniums, Petunias, Verbena, Sweet Alyssum, Ageratum and Annual Phlox.

Wait until there is no chance of frost before setting out Coleus, Heliotrope, Begonias, Alternanthera and Salvia.

Prepare the ground for summer bulbs by working it over after humus has been applied and dress it with bonemeal.

Prepare a seedbed in a sheltered place in which to sow the annuals for succession, and later, perennials.

Vegetable Garden

Use the weeder or wheel-hoe on the fourth day after sowing any seed, along each side of the row. Take the weeds out of the row itself as soon as the seedlings sprout and can be identified.

Thin (as soon as the second true leaf appears) everything to the proper distance apart. Do not delay a day on this!

Put in poles for Tomatoes, etc., before the plants need them. Nothing will straighten them up, once they have grown crooked for lack of early support.

Fruits

Let nothing interfere with spraying at exactly the right time. A *few hours* in the life of a worm may carry him out of reach. Almost nothing else needs to be done so exactly on schedule.

SPRAYING TO GET GOOD FRUIT

SUCCESSIVE STAGES OF BLOOM

WHEN THE BLOSSOMS SHOW PINK

Lime-sulphur 1-40 (Scale); Lead-arsenate 1 lb. to 20 gal. (Moth); Tobacco Mixture 1 pt. to 100 gals. (Aphis)

AS THE LAST PETALS ARE FALLING

Use the same sprays as at Blossom-pink time, and for the same things. Get the arsenate into the calyx!

Do you borrow Garden Hose *or lend it?*

Whichever you do, you will enjoy Mr. Butler's inimitable garden hose story, "Millingham's Cat-Fooler," which we have obtained permission to reprint for the entertainment of our friends. 32 pages, bound in boards and illustrated with amusing pictures. *Sent FREE to promote your garden hose education.* This book contains no advertising, direct or inferential. With it we enclose a pamphlet:

"The Truth About Garden Hose"

which tells you how to know good hose when you see it, how to get the kind of hose best suited to your needs, and how to care for it to make it wear as long as possible. A book of valuable information for every gardener, florist, garage owner, or other user of hose. Incidentally, it tells you about our three standard brands of garden hose

BULL DOG MILO
GOOD LUCK

and explains why these particular brands have become within 5 years the most widely talked of hose on the market, and why one of them will exactly fit your garden hose needs. Send for these books to-day.

BOSTON WOVEN HOSE & RUBBER CO.
156 Portland Street, Cambridge, Mass.

Largest makers of Garden Hose in the world and manufacturers of the famous GOOD LUCK fruit jar rubbers

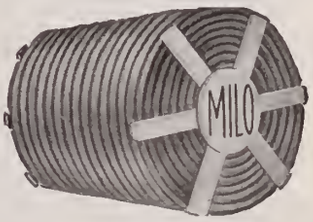
The Standard Brands of
Garden Hose

BULL DOG HOSE

has seven plies of strong rubberized sheeting, the highest grade tube of any hose made and a tough all rubber cover that wears like iron. It has been on the market forty years and letters come to us frequently telling of lengths in service from ten to fifteen years. BULL DOG costs more than ordinary hose but it is the best investment in the long run.

GOOD LUCK HOSE

GOOD LUCK hose is similar in construction to BULL DOG but is slightly lighter. It has six plies and is strong enough to stand high pressure and tough enough for hard service. It is light and easily handled and will wear for a long time.



MILO

A corrugated molded hose, the most popular brand in its class. Your dealer can cut it to any desired length. If you prefer moulded hose by all means specify MILO for its high quality and splendid construction.

Plan for Permanency

Haphazard Planting and Perennial Effects do not go Together

Be prepared or let us help you. If you have in mind a new garden or wish to change the old, this is the time to complete your plans, and we offer our coöperation. Our success in the nursery field is due to the interest we take in each customer's problems.

We are Specialists to Exacting Hobbyists

We specialize in Rock Garden and Old Fashioned Hardy Plants and have thousands to select from. Write us for catalogue, and if you think we can help you in any specific way, do not hesitate to ask.

The PALISADES NURSERIES Inc.
Sparkill, New York

The Best Climber You Can Obtain

Those who know this plant say no other climber approaches it.

EVERGREEN BITTERSWEET
Euonymus radicans vegetus

Red berries brighten it in winter, in summer it needs no color.

My catalogue of this and other novelties will be sent free on request—write to-day.

Adolf Müller DE KALB NURSERIES
Norristown, Penna.

THE GENTLE ART OF DESTROYING INSECT PESTS

SINCE "for every evil under the sun there be a remedy, or there be none," it is simply in the natural course of events that the plant grower promptly sets out to squelch the "evil beasts of small dimensions" that flourish in his garden at the expense of the much coveted flowers or fruits. And the old saw further runs, "if there be one go and find it." Good advice, indeed; and as things are to-day one has not far to seek, since he has only to take advantage of the manufactured articles obtainable in the market. It is well enough of course to know about the constituent elements of such preparations so as to be able to use them with intelligence; but it is generally best to use a branded preparation made on exact formulas and properly mixed, than to undertake mixing with the insufficient appliances of the ordinary home.

Arsenate of lead, two or three pounds of paste or half that of the dry or powdered form, to fifty gallons of water is one of the best and most generally used poisons for leaf-eating insects. It is usually best to add a fungicide such as bordeaux mixture or dilute lime-sulphur wash in order to obtain protection from fungi as well as insects with one spray application. The high grade commercial preparations offered as "complete" sprays contain the two in proper proportion usually.

Tobacco extracts ("Black-leaf forty" being typical), are very generally used as contact insecticides for aphids and other soft-bodied insects, about a pint of the extract and six or eight pounds of any cheap soap being added to one hundred gallons of water. Aphine is one of the commercial preparations having tobacco extract in mixture. Thrip Juice No. 2 is another powerful "contact" insecticide used for both sucking and leaf-chewing insects. Tobacco stalk or leaf is also used as a fumigant in green houses and may be purchased in forms specially prepared for this purpose. Combinations of lime, sulphur, and tobacco are offered in several forms, their brand names usually being suggestive or descriptive.

Lime-sulphur, 32 degrees Beaume, diluted 1 to 8 or 10, is a very generally employed spray for scale insects, and diluted at 1 to 40 is used to some extent with a poison spray because of its fungicidal properties. Besides being offered under its exact name, it is also offered in brands like Horricum. Dry lime-sulphur may be used for scale insects, though this is not recommended for summer treatments.

Miscible oils, such as Scalecide, Sulco V.-B., etc., are used by many for control of scale insects in particular. Since oils may be injurious to plants if carelessly used, directions must be followed *closely*; and never apply it to Sugar Maples.

(Continued on page 206)

SPRING FEVER!

GOT IT?

Send quick for

Home Landscapes

A 64 page book that will satisfy that

Passion for Planting

Free on request. We would appreciate knowing the dimensions of your grounds to aid in mailing future publications.

HICKS NURSERIES
Box M
Westbury, L. I. New York

Trustworthy Trees & Plants
Members American Association of Nurserymen

Now is the Time to Plant DAHLIAS

ARE you one of those who would like a few for a border or to fill in a vacant place in your garden, but are not familiar with the named varieties of this GRAND FLOWER? If so I am making these ***Special Offers*** for your benefit.

These are not inferior sorts, but are the best of the real worth while varieties.

COLLECTIONS

No. 1. 3 Decoratives, 3 Cactus, 3 Peony flowered & Shows.
No. 2. 12 superb new Decoratives.
No. 3. 12 Garden and exhibition Cactus
No. 4. 12 glorious Peony flowered.

Any one of these collections sent prepaid to any part of the U. S. A. for $3.50. Any two for $6.50. The four for $12.

Descriptive catalogue free on request

C. LOUIS ALLING, *Dahlia Specialist*
251 Court St. West Haven, Conn.

Cico Oscillating Irrigator

A Sensational Rain Machine

For Lawns, Hardy Borders, Shrubbery, Vegetable Gardens, Nurseries, Seedbeds, Greenhouses, Putting Greens, Fairways, Parks and General Irrigation.

Home-makers of taste know the enhanced joy of lawn, shrubbery and old-fashioned borders that are irrigated by WATERFAN.

From this wonderful machine streams of water are thrown out in a *fan shaped* plane that sways to-and-fro with each automatic oscillation of the 21-inch brass distributing pipe. It waters a *rectangular* area up to 12 feet wide and 60 feet long. It is instantly adjustable without tools. You simply connect the hose, place the machine to suit, and turn on the water.

From one placement, WATERFAN will wet *either* side of a path and NOT the *other*—or *both* sides by one operation, if desired. It is so designed that the streams can be made to arch over a front-row planting into the bed behind. When set *across* a narrow path between parallel borders, WATERFAN from one placement will thoroughly wet both borders for a distance up to 60 feet long.

Use WATERFAN once in the seedbeds and you will never do without it again. Before the streams fall, they "break up" and the water descends like a gentle rain as a blanket of spray or mist. No washing out of seeds or levels—no packing, no puddling.

Whether it is greenhouse or open nursery row, putting green, or grass court, asparagus, or strawberries—wherever water aplenty is the one unsupplied essential to luxuriant growth—there WATERFAN is the one sure easy way to garden and lawn perfection.

WATERFAN comes in different sizes suited to home and market garden requirements.

WATERFAN Model 5 weighs but 5 pounds and is 21 inches long. Price complete, $15.00 F.O.B. Factory. Transportation paid in U. S. A. if remittance accompanies order. Buy direct or from your dealer. Illustrated circular free on request. 1920 output limited: order now to insure delivery.

CAMPBELL IRRIGATION COMPANY, 573 Curtis Ave., Woodbury, New Jersey

Trustworthy Trees & Plants
MEMBERS
AMERICAN ASSOCIATION OF NURSERYMEN
REG. APPLIED FOR

How This Strong Chain Protects You In Buying Nursery Stock

DID *you* know there's a big constructive move afoot that's going to mean more planting satisfaction to you and to everyone who uses trees or plants?

The men behind this movement have linked themselves together, to make it their business to see that *you* get satisfaction with every tree and plant you buy.

They are the Members of the American Association of Nurserymen: men whose methods and standards come up to the Association measure; men who are permanently established in the business and who seek to give honest stock and dependable service.

Buying from *any Member* of this Association, you have the Association's assurance of satisfaction back of your purchase.

Just what the American Association of Nurserymen is, and how, through its Vigilance Committee, it is aiding buyers of trees and plants to get varieties true-to-name, free from disease and of satisfactory quality, is told in our Booklet, "Looking Both Ways Before You Buy Nursery Stock."

Of the greatest importance to you; it contains a list of the members of the Association.

We will gladly send you a copy.

In doing your part to make America fruitful and beautiful get your trees and plants from a Member whose use of the Association's Trade-Mark links him in the strong chain of coöperative protection to planters.

American Association of Nurserymen
General Offices, Princeton, N. J.

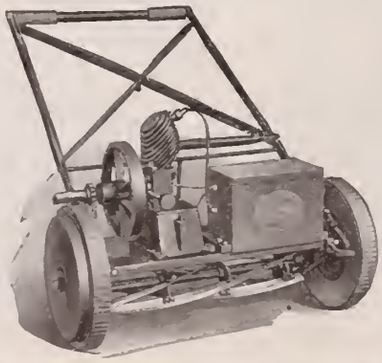
Moto-Mower TRADE MARK

WON FRIENDS WITH A RUSH!

At the recent International Flower Show at Grand Central Palace, New York, the "Moto-Mower" attracted the most favorable attention of thousands. Every one was impressed with its compact handiness, ease of operation and simplicity of construction.

Moto-Mower Advantages Win Every Time

All we ask is an opportunity to tell you more about the machine that is destined to rank among the greatest boons to better lawns. Please send for descriptive circular and learn how simple, yet thorough, effective and economical under all conditions the Moto-Mower will do efficient work for you.



PONTIAC LAWN MOWER COMPANY
Garfield Bldg. Detroit, Michigan

(Continued from page 204)

Soap, particularly strong Ivory soapsuds, is a very safe and satisfactory application for soft-bodied insects on house plants. Whale-oil soap, one pound to five or six gallons of water, is one of the older and more effective remedies for sucking insects; but on account of its disagreeable odor this is better adapted to outdoor than indoor use.

Pyrethrum or insect powder may be used at the rate of one ounce to three gallons of water, or simply as dry powder diluted with flour. In the latter case it should be mixed several hours before application. It is used mostly indoors, and unless fresh is practically worthless.

Slug Shot is, perhaps, the most widely used of all powder preparations compounded to combat leaf-chewing insects.

Hellebore, one ounce to three gallons of water is both a contact and internal insecticide and is particularly valuable for use on nearly ripe fruits when arsenicals cannot be employed with safety.

FERTILIZER AND SPRAY AND ROSES

IF EVERY one has had the trouble I have experienced in discovering the proper proportions for fertilizers, I hope the following may be of help. I use vinegar barrels for its preparation and suspend the manure in gunny sacks and let it stand a week before using. These barrels run about 42 gallons capacity to the barrel.

Liquid hen manure—A scant two pecks to a barrel of water.

Horse manure—Two pecks and a half, the quantity being regulated by the strawiness of the manure.

Cow manure—the same.

Commercial pulverized sheep manure—Two pecks.

Besides applying these alternately each week I hoe lightly and keep the soil broken up.

Slugs, aphids, and mildew, with a sprinkling of Rose beetles, are my only Rose troubles. One good spraying with Pyrox has banished the bugs and mildew for the season with me, although often they may need more than one application. A compressed air sprayer is necessary as it is an arm- and back-breaking job to try to stand on a step ladder and work a plunger over any extent of climbing Rose surface. I tried it—just once!

Poultry manure, by the way, is very rich in nitrogen and should be allowed to dry as quickly as possible and then should be kept dry. In this condition it will lose but a small amount of its valuable constituents. Like ordinary manure, it ferments rapidly when moist and will lose a part of this valuable element—nitrogen—worth on the market 25 to 30 cents a pound, if not dry. So much of its potash, phosphoric acid, and nitrogen is soluble indeed that this manure suffers especially from leaching.

SHERMAN DUFFY

Putting "Salairacine" Where the Trouble Starts

Salairacine is a scientifically prepared remedy to kill tree troubles where most of them start—in the soil around the roots.

If your fruit trees are not giving adequate results; if you have been spending money in sprays and treatments without success; if your shade trees are suffering because of infections from borers, you will welcome "Salairacine."

"Salairacine" destroys the insects in the soil and gives new life to young and old trees. It has been used with great success on trees that were riddled with borers.

"Salairacine" can be purchased from

Peter Henderson & Co., 35 Cortlandt St., New York City
J. M. Thorburn & Co., 53 Barclay St., New York City

Booklet, price list, and further particulars cheerfully furnished on request.

MacGREGOR SALAIRACINE COMPANY
52 Pleasant Street **Stamford, Connecticut**

Merit Fittingly Recognized

Four short years ago the Gilson Weeder was an unknown *Quantity* in most American gardens. To-day its *Quality* work has found for it that recognition throughout this broad land of ours which its many unique characteristics cause it to deserve.

Gilson Garden Tools Serve Nation Everywhere

Gilson tools received relatively little advertising except that done by the tools themselves. But put a Gilson Weeder or Liberty Cultivator in a community and one will sell another. You can find Gilson garden tools in most any hamlet, village, or city.

THE GILSON WEEDER
An implement for surface tillage which works close to the plants and stirs up the half-inch dust mulch, so essential to success, as fast as it can be drawn along the rows

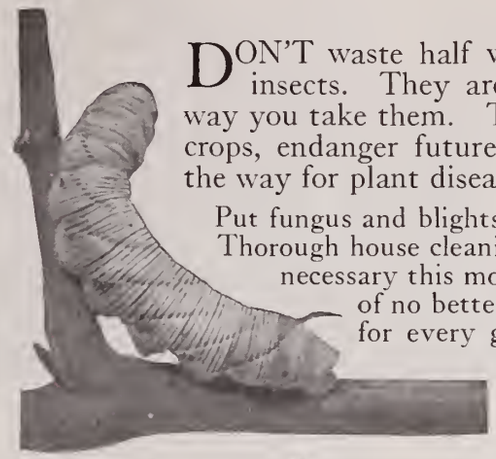
From Editorial Columns, March G. M.

Go to Nearest Seed Store or Write Us

Of course, *not* every dealer handles our labor-saving tools—*yet*. So, if yours cannot supply, please write us. A booklet will come forth promptly and with it the name of dealer nearest you, or a definite offer from us.

J. E. GILSON COMPANY
Makers of Garden Tools
100 Valley Street **Port Washington, Wisconsin**

Meet Them Squarely



DON'T waste half way measures on insects. They are a menace—any way you take them. They reduce your crops, endanger future crops and pave the way for plant diseases!

Put fungus and blights in the same class. Thorough house cleaning in the garden is necessary this month, and we know of no better all round remedy for every garden ill than the combined contact poison and fungicide.

Sulco-V. B.—the Master Spray

Destroys scale, and sucking, profit-sharing garden pests

Stops many fungus diseases in the ornamental and kitchen garden besides keeping scale under perfect control.

The carbolic acid in Sulco-V. B. spells death to plant lice and sap sucking insects, besides preventing and controlling rust and mildew.

Every Rosegrower Needs Sulco-V. B.

It is particularly useful in fighting Aphis (green and black lice) on rose plants, asters, dahlias and nasturtiums.

For Sale at Leading Horticultural Supply Stores

The best seed stores in most cities generally carry Sulco-V.B. Accept no substitutes but, in case *your* dealer cannot supply, write us and we will send you name of dealer nearest you or will supply direct.

Valuable Booklet FREE

Learn how Sulco-V. B. increases garden profits by keeping insect pests under perfect control. There is a bug or pest for every flower, fruit or vegetable *but*—there also is the Master Spray, Sulco-V. B.—to help you meet the garden enemies squarely, to defeat them successfully.

Write for your free copy of our instructive booklet NOW

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148 Front Street **New York City**
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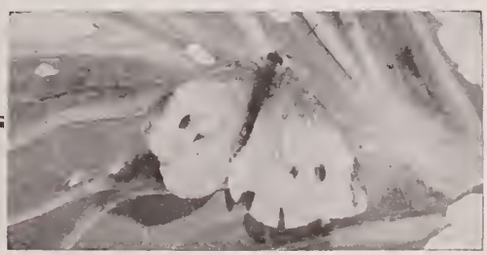


A Wagner Garden in Kentucky

Wagner Plans Beautiful Gardens

THE perfect grounds that you dream of having, don't just happen. They are the logical result of planting according to the original plan of long experienced landscape artists. The lovely garden that you wish is waiting for you. It may cost much less than you expect, too. You have only to call on the Wagner Landscape Gardeners, who will prepare plans and plant for you, if you wish, in the most charming manner, Wagner roses, hardy flowers, vines, shrubs, evergreens, and ornamental trees. No matter whether your grounds are large or small, you will be delighted with Wagner Plans and Planting. If you desire, you may secure Wagner Plans by mail. Send to-day for our new catalogue B B.

WAGNER PARK NURSERIES, BOX B, SIDNEY, OHIO

Nurserymen, Landscape Gardeners, Florists

After Gardening—
Clean, White Hands

EVEN the grimy black line under the nails magically disappears if you clean the hands with Mechanics' Soap Paste (Colgate's). If you love to "fuss around" your own garden, you can still keep the hands nice—for this paste cleans quickly, thoroughly and "kindly."

Send 4c for a trial box—or you can buy large generous cans at your dealer's for 15c.

Trial Box (same size as shown)

4c

SEND THE COUPON

Colgate & Co., 199 Fulton St., New York G. M

Enclosed find 4c for which send trial box of Mechanics' Soap Paste to:

Name.....

Address.....

City.....

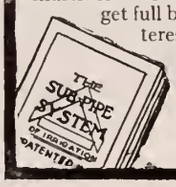
State.....

WATERS THE ROOTS MAKES THINGS GROW

Lay a "Sub-Pipe" line a few inches under the ground between every third or fourth row in your garden. "Sub-Pipes" feed the roots directly—will make your garden produce all ummer long—will keep your lawn fresh and green until frost. The

"SUB-PIPE" SYSTEM
of Irrigation

will make you independent of the weather, produce abundant vegetation with least expenditure of time, water and money. Write for illustrated literature and prices. Act NOW to get full benefit THIS SEASON. If interested in our proposition to demonstrator-agents, so indicate.



SUB-PIPE IRRIGATION CO.
830 A, Mayo Bldg.
Tulsa. Okla.

THE SEVEN LAMPS OF AGRICULTURE

THE Lamps are manure, lime, bone meal, leaf mold, water, cultivation, and common sense.

1. Even if the garden has been fertilized in the autumn, be sure to work in an extra supply of well-rotted manure when setting out Cabbages, Tomatoes, Eggplants and Peppers; and later apply nitrate of soda.

2. Liming is preferably done in the fall and always sparingly.

3. Bone meal is slow, but you get results this year and next too.

4. It is an economic crime to burn dead leaves. Piled on a foundation layer of sods, with manure and Pea and Bean vines thrown in, and topped with soil, they make fine fertilizer.

5. Set your sprinkler and let it play in one place for several hours, the next day in a different place, and so on.

6. Keep the cultivator and hoe busy. Spray!—for beetles and worms never take an afternoon off.

7. Last, a huge headlight indeed, is common sense. There is only one element of luck and that is the weather.

KATE B. BURTON

AUTUMN SHOW OF THE AMERICAN DAHLIA SOCIETY

AT THE meeting of the Executive Committee of the American Dahlia Society held at New York, March 19, it was decided to hold the autumn show in New York during September.

The trial grounds will be continued at the Connecticut State Agricultural College, Storrs, Conn., and will be larger and better than ever. Tubers for the trial gardens should be properly labeled with the name of the variety and exhibitor and sent to Prof. George Fraser.

James Duthie, Oyster Bay, N. Y., moved that a new scale of points be made so that good exhibition varieties and varieties good for cut flowers, be given an equal chance. The motion was carried.

A motion of protest against the quarantine by the States of Illinois and Michigan of Dahlia tubers and bulbs was adopted.

ANNUAL EXHIBITION

The American Dahlia Society has engaged the entire conservatory and roof garden of the Hotel Pennsylvania, opposite the Pennsylvania Station, 32nd—33rd Street and Eighth Avenue, New York, for September 27, 28, and 29 for the Annual Exhibition of the Society. The exhibition will open on the evening of September 27 and close on the evening of the 29th. The roof garden has good daylight on all four sides and the entrance is through the conservatory on the roof. Space is 12,000 square feet.

E. C. VICK, *Secretary.*

Farr's Hardy Plant Specialties

In my comprehensive collection at Wyomissing may be found plants suitable for every phase of gardening. A few are here noted—to list them all would be impossible.

Irises. An unusual and distinctive collection, including many novelties of my own raising (awarded the Panama-Pacific Gold Medal).

Peonies. The most complete collection of Herbaceous and tree Peonies in the world.

Delphiniums, Phloxes, Chrysanthemums, Trollius, Long-Spurred Aquilegia, Hardy Asters, New Astilbe.

New Japanese and **Asiatic Shrubs**—Cotoneasters, Enkianthus, Berberies, flowering Cherries, Corylopsis, etc.

Lilacs, Philadelphus and **Deutzias.** A complete collection of Lemoine's new creation.

Dwarf Evergreens. Rare specimens for formal gardens, lawn groups and rock garden plantings.

An Emergency Edition of Farr's Hardy Plant Specialties (issued because of the great demand for the Sixth Edition) will be sent to those who request a copy.

Bertrand H. Farr
104 Garfield Ave.
Wyomissing, Penna.

Evergreens of Every Variety

For over a century Evergreens have been our most popular specialty. We have thousands of them —all sizes, for every purpose.

The following varieties, suggested by our service department's experts are beyond doubt the most appropriate for this season's planting.

Douglas Spruce
2 to 3 ft.....$2.25 Ea.
3 to 4 ft..... 3.25 Ea.
4 to 5 ft..... 4.50 Ea.

Hemlock Spruce
2 to 3 ft.....$2.50 Ea.
3 to 4 ft..... 4.50 Ea.
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White Pine
2 to 3 ft.....$1.50 Ea.
3 to 4 ft..... 2.50 Ea.
4 to 5 ft..... 3.00 Ea.

Austrian Pine
2 to 3 ft.....$2.25 Ea.
3 to 4 ft..... 3.00 Ea.

We will be pleased to furnish you with our catalogue or any other information you might desire on the subject of Evergreens.

"Successful for over a century"

AMERICAN NURSERIES
SINGER BUILDING
NEW YORK

HELIANTHUS QUESTIFOLIUS
from April Garden Magazine

Novelties of Merit

During the past quarter century, this House has introduced a vast number of new floral creations of wonderful beauty as well as many vegetables and fruits of great economic importance. The name of Childs tied to a horticultural product, corresponds to the Hallmark on Silver. These facts are fittingly acknowledged through recognition in the press of this country and abroad. Last month's editorial columns of Garden Magazine featured our specialty shown alongside.

Helianthus Questifolius or Autumn Glory is the most magnificent late blooming annual on record. Seven to eight feet tall, becoming a massive sheet of golden yellow bloom. Seeds 50 for 50c; 100 seeds $1.00. Root plants 40c. each, 3 for $1.00.

Childs' *Supreme* Muskmelon

Grows to weigh seventeen or eighteen pounds under ordinary conditions; with special care there is no reason why it should not reach twenty-five pounds, or more. Color, deep emerald-green outside, while the flesh is a fine salmon-scarlet, and thicker than the flesh of any other sort. Its quality is like that of Emerald Gem when at its best. The richest and most delicious flavor, tender and melting with absolutely no hard substance. It is also highly aromatic. A strong, vigorous, healthy grower, succeeding under conditions that would bring failure to nearly all high-class varieties. Pkt. 20c.; 3 pkts., 50c.

Our Great May Day Surprise

$1 *Many Dollars' Worth of Fine Bulbs, Plants, and Seeds for* **$1**

Middle of May, at the close of our busy season, we take stock of the surplus of the thousands of good things we handle. We then combine a liberal quantity of quality seeds, bulbs, and plants, often representing four to five times the value asked above, and send them out after *May 15th.* We shall send a Dollar Collection by mail, postpaid *or* a much larger collection by prepaid express for $1.50. Which may we send you? *Satisfaction guaranteed,* and there is a free catalogue of course.

John Lewis Childs,
Inc.

Floral Park,
New York

Childs' Supreme Muskmelon

How To Have a Perfect Lawn

Remove all the dead grass, old bedded leaves, twigs, acorns, stones, etc. And when the dandelions appear, see that they are removed too.

GEM DANDELAWN RAKE

with its curved, blade-like teeth, slips over the sod, clipping off the seed-bearing dandelion heads, and picking up all litter. A self-cleaning stripper operates by easy pressure of finger.

It does everything the ordinary rake does—and a great deal more. *Cannot injure the tenderest grass.*

"The 14 Points of a Rake" will interest any lover of fine lawns. Let us send you a copy.

Most Good Dealers Have It

Made by the Specialty Division of the

CASEMENT HARDWARE COMPANY
7 South Clinton Street, Chicago

Glorious Flowers

The Beautiful Clarkia. Like sprays of apple-blossom, the tall spikes are covered with handsome double flowers, in pale chamois, salmon pink, carmine, orange scarlet, and reddish orange. The collection, 1 packet of each color, 60c.

A new miniature Dahlia, "Peter Pan," wonderfully compact, begins to bloom less than three months from seed; never exceeds 2 ft. in height. Perfectly double-tube shaped or quilled flowers, appearing in greatest abundance constantly, until frost. Packet 75c.

Special Offer!
6 Packets in all, $1.00

A Last Call Offer

Don't forget, we are repeating our previous offers of February, March, and April: — ***Three wonderful novelties,*** The Blue Lace Flower, The Lilliput Poppy, with as many as 120 flowers on one plant, and our Double Hybrid Poppy, as big as a peony, $1.00.

A Perpetual Spinach, developed exclusively by ourselves, that you can cut and recut and it will come and come again, $1.00.

The ADONIS ALEPPICA, The Wild French Poppy, and our new annual Blue Anchusa, like a giant spray of forget-me-not, $1.00.

The complete set including all the above unique flowers (single pkts. of each), regularly priced at $4.00. will cost you only $3.00 if you remit at once. Our Last Call offer!

Mail your order To-day and ask for your free copy of our Garden Lovers' Book!

Schling's Seeds

24 West 59th St. New York

Cultivate Your Garden the "PERFECTION" Way

The "Perfection" Cultivator kills weeds aërates the soil, conserves moisture. Can be adjusted many ways and anybody can work it. Write for full detail to-day.

Satisfaction guaranteed or money refunded

Two sizes
$4.50 each

No. 1, with two discs with 6 inch or 7 inch knives, will work rows 9 to 11 inches wide.

No. 2, with four discs for use with 7½, 8¼ and 8¾ inch knives, will work 11 to 14 inch wide rows.

Descriptive circular FREE

LEONARD SEED CO
226-230 West Kinzie St
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DAHLIAS

The Best All-Season Flower in the World

Dahlias will start blossoming six to eight weeks after planting, and keep on blooming until killed by frost. From some varieties you can cut as many as two hundred blossoms from a single bulb. Your choice in form and coloring is almost unlimited.

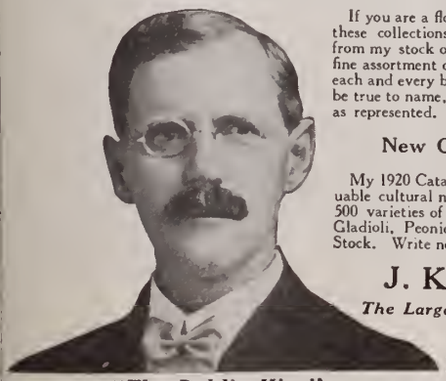
TRY THESE COLLECTIONS

SIX GIANT DAHLIAS FOR $5.00 PREPAID

Bianca (Hybrid Cactus) Rose Pink, very free-flowering
Cardinal (Peony-flowered) Purple-crimson, long stems
Hortulanus Fiet (Giant Decorative) Salmon-pink
Kalif (Hybrid Cactus) Beautiful rich scarlet
Mrs. Brandt (Incurved Cactus) Orange-buff blending
Yellow King (Hybrid Cactus) Giant Yellow, long stems

FIVE CHOICE DAHLIAS FOR $1.00 PREPAID

Ella Kramer (Cactus) Rose-pink, free flowering
J. H. Jackson (Hybrid Cactus) Giant Deep maroon, almost black
Mina Burgle (Decorative) Finest scarlet-red, free-flowering
Queen Wilhelmina (Peony-flowered) Fluffy pure white
Stradella (Show) Double-quilled purple-crimson



"The Dahlia King"

If you are a flower lover, you will be delighted with these collections. They have been carefully selected from my stock of nearly 2,000 varieties and will make a fine assortment of types and colors. You run no risk as each and every bulb is fully guaranteed to grow and to be true to name, and I will replace any that fail to prove as represented.

New Cultural Guide Free

My 1920 Catalogue and Cultural Guide contains valuable cultural notes, and complete descriptions of over 500 varieties of Dahlias, and a complete collection of Gladioli, Peonies, Phlox, Hardy Plants and Nursery Stock. Write now, as it is mailed free to all applicants.

J. K. ALEXANDER
The Largest Dahlia Grower in the World
27-29 Central St.
East Bridgewater Massachusetts

Plant these Montbretias

This Month

The Montbretias are among the brightest of our summer-flowering bulbs, and deserve to be planted extensively. Plant bulbs 3 to 6 inches apart, in clumps of a dozen or more.

Star of the East

Considered by many as the finest of Mr. Davison's hybrid Montbretias. It far outranks in height, luxuriance of foliage, and size of flower any that we offer. The color is a very attractive bright orange, with a light lemon-yellow throat, tinged maroon. The flower measures fully 3 inches across. We offer a limited number of bulbs of our own growing this year at $1.50 each, $15 per doz.

Other Fine New Varieties

will be found listed on page 109 of our free catalogue which also abounds with offerings of other seasonable bulbs, seeds, and plants. Please write for your copy to-day!

Stumpp & Walter Co 30-32 Barclay St. New York

Possibilities

That's all you can get from this picture, but it shows you how splendid a Tulip display may be, if it is properly planned. This border of Darwin and Breeder Tulips can be easily duplicated upon your grounds; you can find all the information you need in

The Blue Book of Bulbs—1920

Many of my patrons are kind enough to say that it is the *only* bulb book; I can assure you that it is the only one of its kind. You can get your copy if you write to me.

CHESTER JAY HUNT, Inc.
Mayfair
Dept. A LITTLE FALLS, NEW JERSEY

BEAUTIFY YOUR GROUNDS
Plant ornamental water plants, wild flowers and ferns. Attract fish and wild game to your waters. Increase the pleasure you take in your property and also its value.
Write for descriptive booklet
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LANDSCAPE ARCHITECT
PLANS, ESTIMATES, DESIGNS, FOR PRIVATE ESTATES, PARKS, INSTITUTIONAL GROUNDS
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WHEN you plant RO-TEST-SEED, you no longer guess—you know. RO-TEST-SEED means in all seeds, the elimination of doubt. This year plant RO-TEST-SEED—the product of the RO-TEST-SEED LABORATORIES.

Full information on request.

S. A. ROGERS COMPANY
453 Broad Street Newark, N. J.

RANDOM OBSERVATION IN THE FLOWER GARDEN

TO FIND a plant which can be propagated by simply cutting off a growing tuft and inserting it in sandy soil, where it never by a drooping leaf or a withering tip intimates that it has been severed from the parent stem, is an experience of unusual novelty. But this is absolutely the case with the Heuchera, or Alum-root. The variety is Pluie de Feu, and I shall soon be able to edge whole borders with the lovely coral bells, as each parent plant presents four or five tufts of dark green leaves which root in just the manner I have described.

VARIED USES FOR VINES

Vines are of so many sorts and serve such various ends, that with a little experience one may find a vine for almost every out-door need. The delicate close-clinging vines are excellent for white stucco backgrounds and to plant around the architectural garden features, such as the wall fountain where the fine tracery of tiny leaves picks out the gorgon's or the satyr's head, with telling contrast. For this the English Ivy or the Ampelopsis or the Kenilworth Ivy are desirable. Vines trained to simulate a low edging for formal beds can be made to produce almost as good an effect as the beloved Box. Vines used to cover arbors and pergolas where we love to sit should have bloom and fragrance, as the Wisteria and the newer climbing Roses which have reached such perfection of form in Dr. Van Fleet and Silver Moon, and such fragrance in Gardenia. Then there are the vines which bear winter fruits and delight us with their color indoors. For this there is nothing so good as the Bittersweet which, placed in a bit of Venetian glass, gathers a new charm from the smoky amber. Vines lose their form and elegance, however, when they become dense and overgrown, and need the most persistent and judicious thinning and tying into place. And as for the Crimson Rambler, it and its tribe should be exterminated root and branch. The finer Roses of the garden I am convinced become infected with the inherent tendency to mildew which characterizes the florid rambler. The Crimson Rambler and its white sister have neither form nor comeliness that we should desire them.

STEPPING STONES ADOWN THE GRASSY WALKS

They bring visions of ringlets and hoop-skirts, yes!—and of pantalettes and strap slippers delicately threading their way through wet grass. Very good flat stones may often be obtained for slight cost in towns where the older brick sidewalks are being removed to give way to the ugly but useful concrete and the great flat curbstones are being discarded. These are usually sent to the stone crusher, but can be rescued and set adown some "faire pleasance," as in the little photograph reproduced in the September 1919 GARDEN MAGAZINE. A most delightful old fashion may be revived too by paving the ground under Rose arbors and pergolas with irregular stones made into a pattern with grass growing in the joints. The woolly-leaved Thyme (Thymus lanuginosus) will make a soft

(Continued on page 222)

Dreer's Roses for the Garden

The bulk of our Roses were field grown in 1919, then carefully dug, planted in pots and stored in cold frames. By this plan the stock is strong and ready to start blooming as soon as planted and much superior to plants forced by high temperature.

The Dreer Dozen Hardy Everblooming Hybrid-Tea Roses

is revised each year to include the best for garden culture. This collection will furnish a constant supply of blooms throughout the Summer and Autumn—the best of every color.

Radiance—Brilliant carmine-pink, with salmon-pink and yellow shadings at the base of the petals; truly a Rose for every garden.

General MacArthur—Flowers of good form, of a warm, rich crimson-scarlet, and delightfully scented.

Duchess of Wellington—Intense saffron-yellow stained with deep crimson, changing to a deep coppery-saffron yellow.

Ophelia—Delicate tint of salmon-flesh, shaded with rose, very floriferous. Long, stiff stems.

Mme. Edouard Herriot—Coral red, shaded with yellow at the base, the open flowers of medium size, semi-double, are a superb coral-red, shaded with yellow and bright rosy-scarlet passing to shrimp-red.

Red Radiance—A counterpart of Radiance except in color which is a clear cerise-red.

Lady Ursula—A delightful tone of flesh-pink, delicately tea-scented.

Lady Alice Stanley—A beautiful shade of coral-rose, inside of petals shading to flesh-pink.

Killarney Queen—Decided improvement on the popular Killarney. Sparkling cerise-pink color, shading lighter at the base of the petals.

Jonkheer J. L. Mock—Deep imperial pink with outside of petals silvery rose-white.

Mme. Jules Bouche—White, at times slightly tinted with blush on the reverse side of petals. Long, stiff stems.

Caroline Testout—One of the most popular bedders. Bright, satiny-rose, very free and fragrant.

Strong two year old plants for immediate results. $1.00 each. $10.00 per Dozen. $75.00 per 100.

DREER'S 1920 GARDEN BOOK

Besides illustrating Roses for every purpose, it is the best guide for your Garden. Its articles for both planting and caring for Flowers and Vegetables were written by experts. The varieties listed are dependable in quality and germination. It is quite as much a Garden Book as a catalogue. Free if you mention this publication.

Henry A. Dreer **714-716 Chestnut Street, Philadelphia, Pa.**

Hardy Native Plants, Ferns and Azaleas

Osmunda Claytoniana

Our Collection of Native Ferns Is The Best In America

Announcement for 1920

My 1920 catalogue with many illustrations of hardy native plants, ferns and azaleas, is now ready, and I should be pleased to send you a copy if you are interested in such plants.

For 40 years I have been growing ferns, wild flowers, orchids, azaleas, and many other hardy native plants that are of great value in the rock garden. It has taken many years of painstaking labor, and a great deal of expense to be able to offer this collection. I am especially proud of my collections of ferns and azaleas.

My stocks not only include these rare plants, but they are sufficiently large to enable me to take care of large as well as small orders.

I also have choice stocks of native rhododendrons, laurels, evergreen shrubs and perennials of all sorts.

EDWARD GILLETT

3 Main St. Southwick, Mass.

A Bigger Yield From Your Truck Garden

Soil strengthened and built up with the marvelous natural silt and leaf loam fertilizer

SODUS HUMUS

"The Essence of Fertility"

yields with a bountifulness that will please and startle you. Absolutely odorless.

Sodus Humus gives prolific growth and productiveness to all plants.

1-peck package for *Home Use.* 2-bushel size for *Garden Use.*

Carload lots for large users like *Farms, Greenhouses, Nurseries* and *Golf Links.* Prices on request.

Send for an interesting folder.

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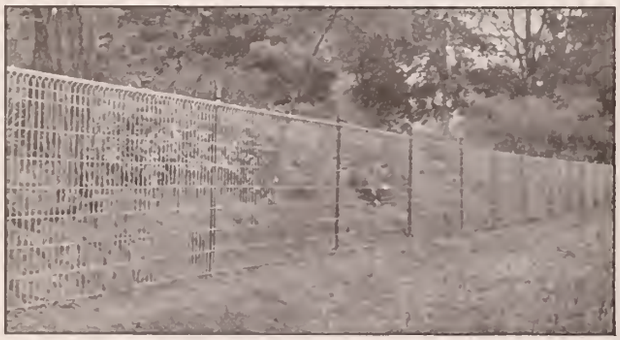
190 MAIN STREET BENTON HARBOR, MICH.

WE MAKE & ERECT **FENCE** FOR LAWNS, DIVISION LINES, ORCHARDS, GARDENS, FARMS, TENNIS COURT INCLOSURES, POULTRY AND DOG RUNS



Entrance Gates

Rose Arches

Catalogue and Prices on Request

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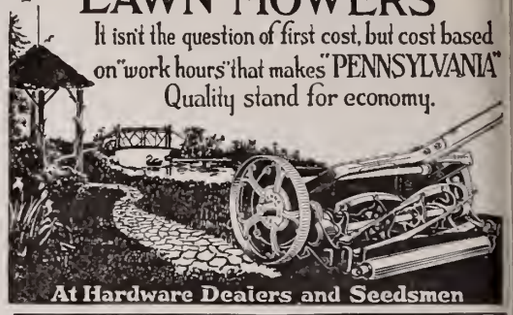
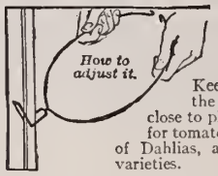
Quality
LAWN MOWERS

It isn't the question of first cost, but cost based on "work hours" that makes "PENNSYLVANIA" Quality stand for economy.



At Hardware Dealers and Seedsmen



A hardwood stake ⅞ inch square, 3, 4 or 5 feet long, with a strong wire support instantly adjustable to any height.

Keeps plants in air and sun, and from the ground. Permits cultivation close to plant. "Adjusto" supports are fine for tomatoes and bring out the full beauty of Dahlias, and all the slender, tall growing varieties.

Buy "Adjustos" at a garden supply store or write direct to us. Ask for our free catalogue

FORREST SEED CO., Cortland, N. Y.
Honest Seeds, Prices, Packets

"ADJUSTO" PLANT SUPPORTS

KEEP THE WEEDS OUT
and Your Garden Growing

It's easy—and a pleasure—with a

Barker Weeder, Mulcher and Cultivator **3 Machines in 1**

Kills the weeds and breaks the hardest crust into a level, porous, moisture-retaining mulch. Works as fast as you can walk. Cuts runners. Aërates the soil. **"Best Weed Killer Ever Used."** Works right up to plants. Guards protect leaves. Has easily attached shovels for deeper cultivation. Requires no skill. A boy can run it, and do more and better work than ten men with hoes. Inexpensive.

Write *to-day* for illustrated book and special Factory-to-User offer.

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Send for our illustrated catalogue of Flower Pots, Boxes, Vases, Benches, Sundials, Gazing Globes, Bird Fonts and other Artistic Pieces for Garden and Interior Decoration.

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MAKING SUCCESSFUL GARDENING A PLEASURE

So Quick and Easy

Simply place a sealed cartridge in the Key Duster Gun—that's all.
The Gun AUTOMATICALLY opens the cartridge effectively spreading Insecticides and Fungicides just as required.

NO HANDLING, MIXING, WEIGHING OR MEASURING OF CHEMICALS and WITHOUT THE USE OF WATER

Now you can have desired vegetables, flowers or fruit—thriving growths—free from insects and blight without all the trouble of old fashioned spraying methods and devices.

All because Insecticides and Fungicides—standard kinds for every purpose—come in handy SEALED CARTRIDGES—just what you need. And they're always ready to use—instantly—without waste. You don't have to bother with water. You don't have to mix disagreeable chemicals. Just use KEY BRAND approved cartridge insecticides to secure satisfying results.

B. A. (15c) for vegetables and small fruit; FLORO (15c) for flowers and shrubs
L. A. S. (15c) for orchard fruit; HELLEBORE (20c) for fruit and vegetables nearly ripe.

It will pay you to investigate Key Duster Gun simplicity and Cartridge convenience because these cost so little—and mean so much to you in maintaining THE PRODUCTIVENESS OF YOUR GARDEN OR FRUIT, THE BEAUTY OF YOUR FAVORITE FLOWERS OR SHRUBS. Write for Free Particulars.

INTERSTATE CHEMICAL COMPANY
Manufacturers of High Grade Spraying Materials for over twelve years
14 Bayview Ave., Jersey City, New Jersey

Send only $3.00 for this KEY DUSTER AUTOMATIC GUN, adding the price of cartridges you need at 15c and 20c each as specified above. Orders shipped direct to you when your dealer cannot supply you.

Your Seedman, Implement Dealer or Hardware Store Can Serve You

Hatch by ELECTRICITY

The Modern Method

LO-GLO
50-Egg Capacity

Write NOW for our 1920 free descriptive catalogue A. It will give you a straightforward story of the development of an idea that marks the greatest advance of recent times, in the hatching and rearing of poultry.

We refer to the application of electricity through the agency of the LO-GLO Electric Incubators and Hovers.

The LO-GLO Electric Incubators have been brought to the highest state of perfection, and mark a marvelous advance in modern hatching.

All of the objectionable features of incubation along the old lines have been eliminated, and a new system has been evolved, which is economical, efficient, and dependable.

Among the many superior features, we draw your attention to the following.

Perfect Control of Heat, Moisture and Ventilation, Economy of Time and Cost, Simplicity of Operation, Elimination of Labor.

Beautiful in appearance, compact, fireproof, can be placed anywhere, and is in its place everywhere, endorsed by the first breeders of the land, the LO-GLO comes to you without a rival.

The LO-GLO Stands Alone

The use of the LO-GLO Electric Incubators will change drudgery to pleasure, failure to success, expense to profit, and you have our word that if any of our machines fail in any particular, the money you have paid will be refunded without question. A trial will convince and convert you.

LO-GLO ELECTRIC INCUBATOR CO., Inc.
76-A Greenwich Street New York, N. Y., U. S. A.

A Suggestion

DON'T let your solicitude for the planting of your lawn stop with a foundation planting and a few shrubs here and there. One thing more, at least, is needed: a group of evergreens in just the right spot *away* from the house—to greet you with its cheerful greenery as you come up the walk—to give you a sense of seclusion and a pleasant outlook as you sit at your window—to give a touch of refinement to your home grounds to the passerby.

A cluster of evergreens is in better taste and richer-looking than several scattered specimens. And they will serve as a windbreak and add cheer and warmth in Winter, when everything else is bare. The cost is surprisingly low; for $25, let us say, we can supply a varied group of five evergreens—chosen from the White Pines, Junipers, Cedars, Spruces, Arborvitae—that you will soon point to with considerable pride. *Write us to-day for further suggestions.*

Moons' Nurseries
THE WM. H. MOON CO.
MORRISVILLE PENNSYLVANIA
which is 1 mile from Trenton, N.J.

"Roses–Roses–Roses"

The new book on Roses by Elinore E. Harde, F.R.H.S.
(Editor OUR GARDEN JOURNAL)

A clear, practical and instructive work conveying all the anxious beginner needs to know about roses to insure their successful growing and management. Together with matter of interest to many who are advanced in the delightful art of rose culture.

Much of the matter contained in "The Rose Number" of OUR GARDEN JOURNAL (the first issue) is included, together with considerable additional matter. Practical and readily comprehended illustrations of the correct and incorrect methods of planting, pruning, etc. Also comprehensive lists of the best roses for beds, hedges, pillars, etc. Mildew-proof roses and the best roses for the Amateur's garden. A carefully edited list of the worthiest roses obtainable in America that have received the Gold Medal of the National Rose Society of England.

"Roses—Roses—Roses"

may be obtained by subscription received prior to publication at Three Dollars the copy. After publication, Five Dollars the copy.

A special Edition De Luxe of Ninety Five copies printed on hand made Japan Paper and bound in light blue or pink crushed levant. Twenty Dollars the copy. Subscribing Forms obtainable by addressing

OUR GARDEN JOURNAL
One East Forty Second St., New York

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Bird Bath No.343 Height 25 in. Bowl 20 in. wide. Price $12.00.

Plans for your Garden should include WHEATLEY GARDEN POTTERY—Bird Baths, Shapely Vases and Pots and Benches.

Our catalogue on request

Wheatley Pottery is weather-proof, and very inexpensive. Order direct from the Pottery.

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Established 1879 DEALERS ATTENTION!

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Gardener—Superintendent

Wishes position: take charge of gentleman's estate, one who has started at the bottom and worked up therefore knows all the details in the upkeep of a large estate; 24 years' experience, good references, Scotch, married.

Box 128, Garden Magazine, Garden City, N. Y.

Box-Barberry

The New Hardy Dwarf Edging and Low Hedge
Originators and Introducers:
The Elm City Nursery Company
Woodmont Nurseries
Box 191 New Haven, Conn.
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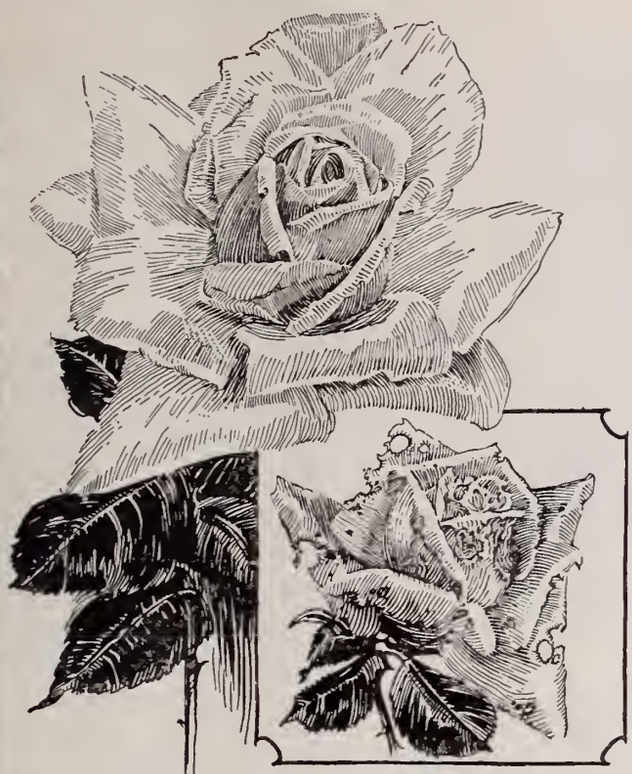

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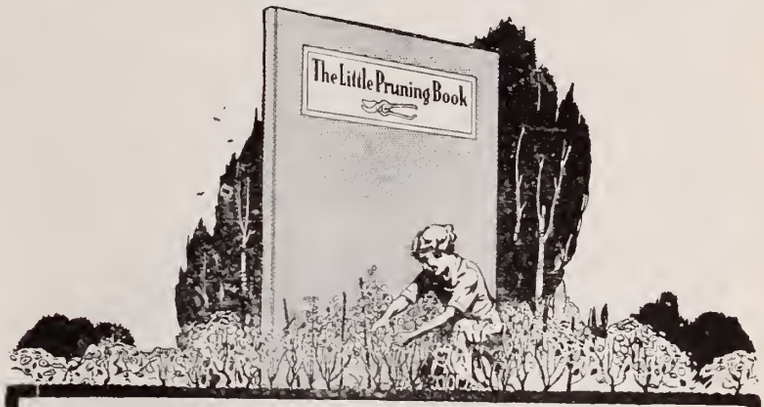

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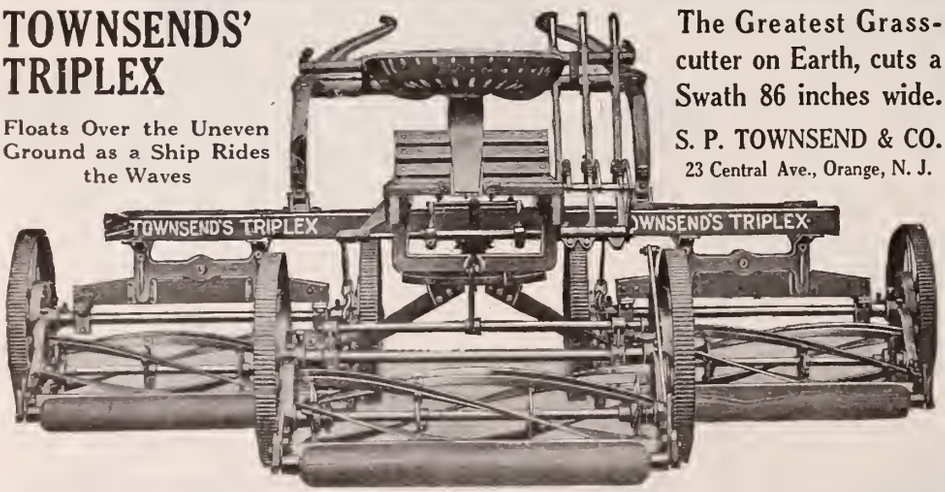

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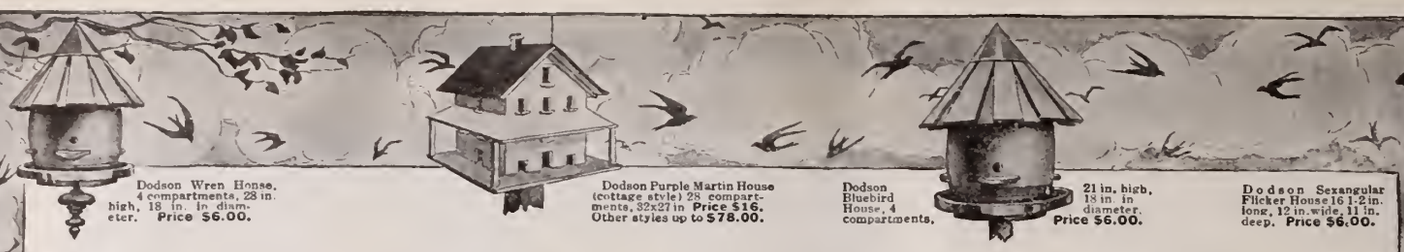

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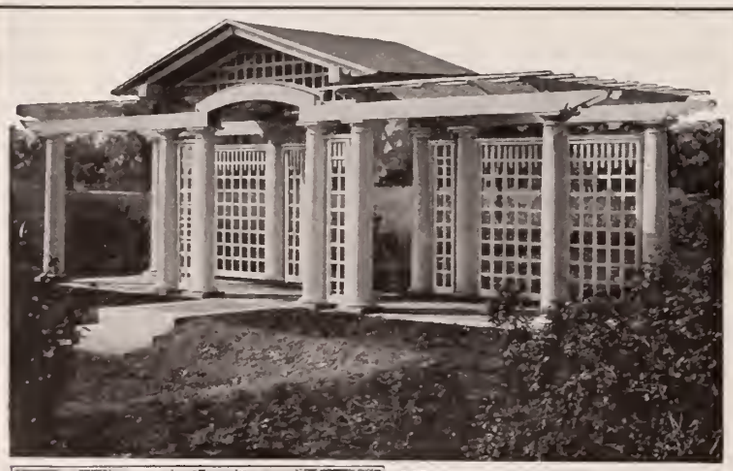

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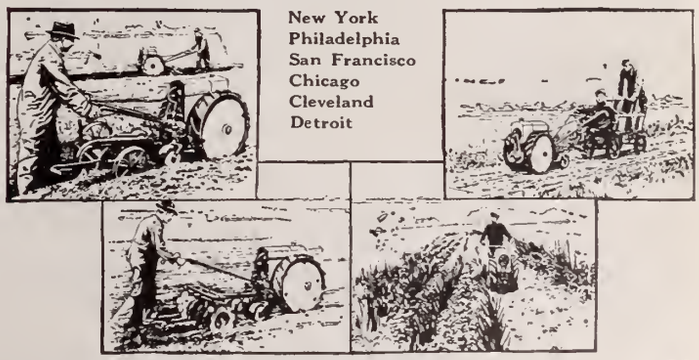

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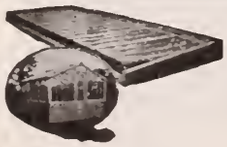

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The Working Principle of Sunlight Double-Glass Sash—two layers of glass enclosing an air space, form a transparent blanket, which lets in all the sunshine and retains all the warmth. Sunlight Double-Glass Sash require no mats or shutters and therefore cut the cost of gardening in half.

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SUNLIGHT Double Glass Sash for Hot-beds and Cold-frames

(*Continued from page 212*)

gray-green joint and will delight with its fragrance when trodden upon. Mrs. Wilder has spoken of this in previous issues. In an old English walk, Thyme is planted alternately in squares with square stones and trimmed into a regularity which matches the stone, so that you are reminded of paving in light and dark marbles. And as you walk, the delightful resilience of the mats of Thyme is most grateful to tired feet, and the clean sweet fragrance of the bruised leaves is like balm to tired nerves. Why do we not have more such quaint features in our gardens to lift them above the commonplace?

HELEN M. SHARPE.

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IT REALLY is a simple matter. The best method is of course to use concrete that is *per se* impervious to water. A mixture which is proportioned so as to be rather rich in cement or one part Portland cement, two parts clean sand and three parts pebbles or crushed stone will give the desired result. The concrete is mixed mushy wet and well spaded, tamped, and churned into the forms, so as to secure a very dense, well compacted concrete. To concrete such as this, designed especially to be watertight, it is sometimes the practice to add one-tenth part hydrated lime, i. e., one-tenth of the volume of cement. Hydrated lime acts as a void filler and tends to make the mixture more plastic and dense.

When concrete work is done along the lines described with careful attention to all details, no additional waterproofing is required. This has been proven by tests of the U. S. Government Bureau of Standards which finds after a long series of tests that such concrete is impervious to water pressure up to a head of 40 feet.

COMPOUNDS USED IN THE MIXTURE

If waterproofing compounds are to be used it should be remembered that there are two general methods of waterproofing: first, integral method; and second, surface treatment. In the integral method the waterproofing is mixed in with the concrete and consists of some material which acts either as a void filler or as a water repellent.

The waterproofing in the surface treatment method consists of paints of paraffine or asphaltic nature, or by some compound which will react with the cement, such as sodium silicate or waterglass. For extremely bad conditions where the work is underground (such as tunnels under rivers), it is the practice to use a membrane waterproofing which consists of several layers of burlap or felt mopped on alternately with layers of coal tar pitch or other bitumen.

As regards the method of waterproofing necessary for the construction of a concrete pool for Water-lilies and smaller uses, there would be no special precautions necessary except to use a mixture of 1:2:3 well mixed and tamped and spaded into the forms. It would of course be best to build the bottom of the pool and the walls monolithic, i. e., to place the concrete continuously without stop; and this is entirely practical for most small pools.

EDW. D. BOYER.

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MAKE PORCHES PLEASANT ALL DAY LONG

MADE of thin linwood splints so constructed as to exclude the heat and glare of the sun, yet admitting plenty of soft, diffused light and allowing free circulation of air through the entire surface of the shade.

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How to Select Porch Shades

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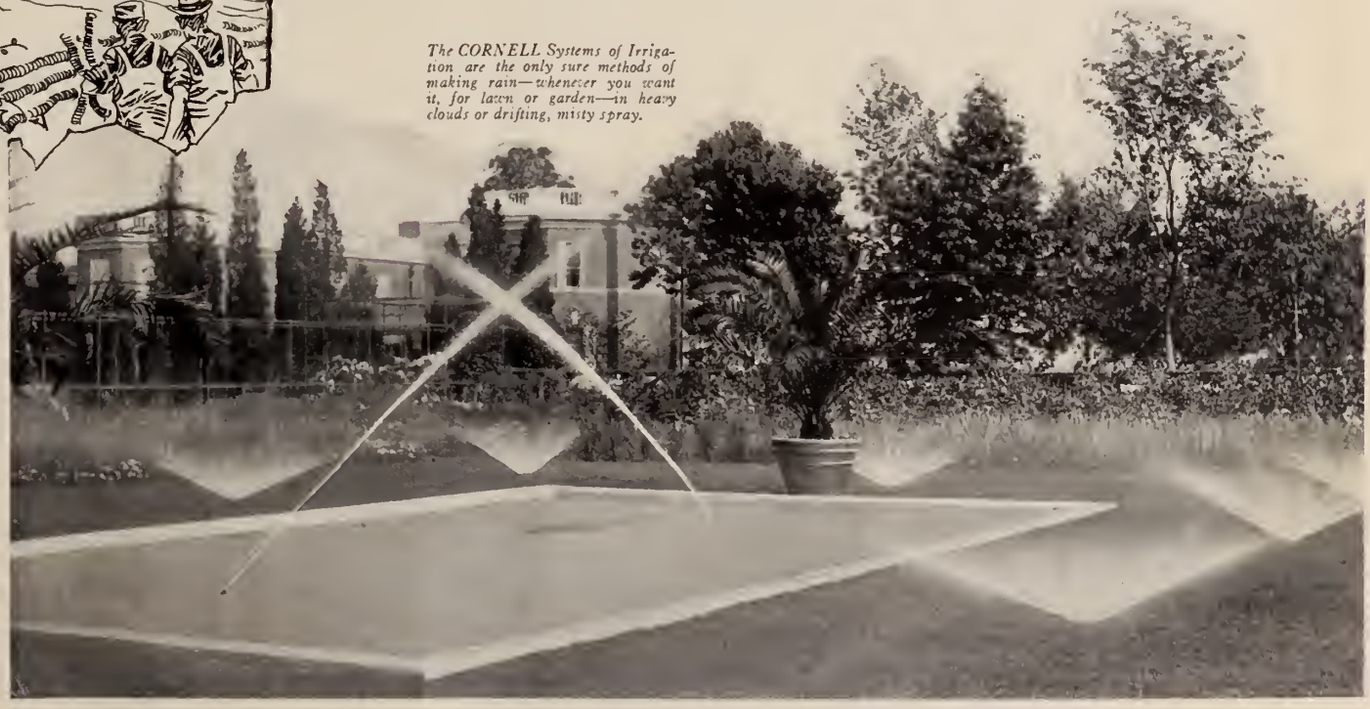

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JUNE 1920

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An Endless Story

THE longer you own a garden the more you will love your perennials—and the newer you are at gardening, the more desirable it is for you to plant them! For they give the biggest return for the least care, hardly ever go back on you, grow tall and profusely and handsomely, and offer an endless variety of form, color, fragrance, and storied charm. It is easy enough to plan a perennial border or garden that will give you never-failing bloom throughout two-thirds of the year—a brilliant procession from the early Columbine of April, through the Irises, the Peonies, and the Phlox to the Anemones and the Chrysanthemums of late November—the "swan-song" of the floral pageant.

Imagine the constant supply of cut flowers of the most fascinating variety that such a perennial garden would give you for indoor adornment—and for your friends! And the fragrant story will repeat itself year after year with hardly a thought or a care on your part! Write us to-day for our price list of perennials and our planting suggestions.

Moons' Nurseries

THE WM. H. MOON CO.

MORRISVILLE PENNSYLVANIA

which is 1 mile from Trenton, N. J.

Weeber & Don

Monthly Handshake

WE WANT to get better acquainted with G. M. readers. Beginning with this, we shall have a message for you each month. We hope that it may be our privilege and pleasure to contribute to the joy which you have a right to expect to get out of your garden. Right now we would urge you to

Make MORE Food Gardens—
Plant MORE Beans

Encourage greater food production by setting a worthy example. Food stocks in our country are sadly depleted. You can help save food by growing more. Either variety offered here can be planted up to the middle of July, and will bear big crops before frost.

Bountiful. Greatest flat green podded sort for the home garden. Extremely prolific, absolutely stringless, of finest flavor.
Half pound 20c., pound 35c., postpaid.

W. & D's Special Golden Wax. Enormous yielder of flat but thick, and very meaty pods. Young pods make handsomest canned product.
Half pound 25c., pound 40c., postpaid.

Special Offer. We will send one-half pound of each for 40c. One pound of each for 75c. postpaid.

Garden Rewards. A handy booklet compiled to help you get greater rewards for your mid-summer garden efforts. Ready for mailing about middle of June, but by all means let us have your order for additional vegetable seeds at once. Complete spring catalogue also gladly mailed on request.

TRADE MARK WEEBER & DON REG. U.S. PAT. OFF.

WEEBER & DON *"Sturdy Seeds"*

114 Chambers Street New York City

MAKING SUCCESSFUL GARDENING A PLEASURE

So Quick and Easy

Simply place a sealed cartridge in the Key Duster Gun—that's all. The Gun AUTOMATICALLY opens the cartridge effectively spreading Insecticides and Fungicides just as required.

NO HANDLING, MIXING, WEIGHING OR MEASURING OF CHEMICALS and WITHOUT THE USE OF WATER

Now you can have desired vegetables, flowers or fruit—thriving growths—free from insects and blight without all the trouble of old fashioned spraying methods and devices.

All because Insecticides and Fungicides—standard kinds for every purpose—come in handy SEALED CARTRIDGES—just what you need. And they're always ready to use—instantly—without waste. You don't have to bother with water. You don't have to mix disagreeable chemicals. Just use KEY BRAND approved cartridge insecticides to secure satisfying results.

B. A. (15c) for vegetables and small fruit; FLORO (15c) for flowers and shrubs.
L. A. S. (15c) for orchard fruit; HELLEBORE (20c) for fruit and vegetables nearly ripe.

It will pay you to investigate Key Duster Gun simplicity and Cartridge convenience because these cost so little—and mean so much to you in maintaining THE PRODUCTIVENESS OF YOUR GARDEN OR FRUIT, THE BEAUTY OF YOUR FAVORITE FLOWERS OR SHRUBS. Write for Free Particulars.

INTERSTATE CHEMICAL COMPANY
Manufacturers of High Grade Spraying Materials for over twelve years
14 Bayview Ave., Jersey City, New Jersey

Send only $3.00 for this KEY DUSTER AUTOMATIC GUN, adding the price of cartridges you need at 15c and 20c each as specified above. Orders shipped direct to you when your dealer cannot supply you.

Your Seedman, Implement Dealer or Hardware Store Can Serve You

Again we offer the Unusual

From time to time we receive from our customers "blanket" orders to send bulbs in varieties *of our choice!* Because of the unusually high quality of the bulbs supplied, we have made many friends. To win additional friends for the late flowering Tulips we have arranged to supply special collections, embracing

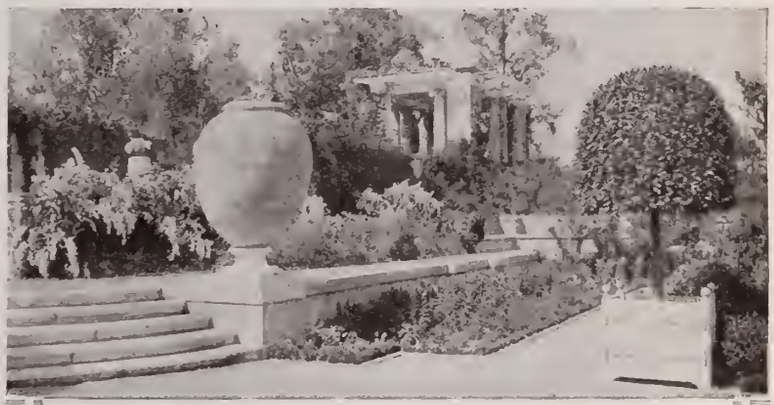
1000 Wonderful Tulips
in 100 Distinct Kinds

These collections will contain good varieties only in Breeder, Cottage, and Darwin Tulips, ten bulbs of each variety properly labeled and packed with painstaking care by our growers in Holland. The colors are chosen with a view of producing harmonious combinations, —no "clashing," all to bloom about same time and of nearly same height. The Tulips can be planted in a continuous border just "as the bags roll out of the case." These collections will be supplied at Sixty Dollars each, but in order to get the benefit of this very special price, we *must* have your

Order *before* July 1st.

It is not necessary to send money now. The bulbs will be shipped about October 1st, at which time we shall notify you. Please favor us with your order at once.

JOHN SCHEEPERS, INC.
Flower Bulb Specialists
522 Fifth Ave. (Corner 44th St.), New York City



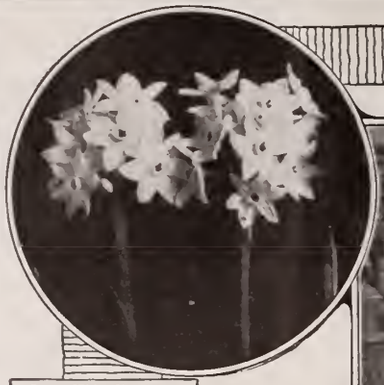
Eternal Fitness

Man's first home was in a garden. And mankind is just beginning to appreciate the meaning of a garden. The garden means *rest.* The *right sort* of a garden means *home!* Does *your* garden properly serve its purpose?

May we serve you fittingly?

It is our business correctly to interpret your wishes and ideas in the garden. We will supply the material that will produce effects that convert a garden from a mediocre affair into a show or rest-place you'll be proud to own. An inquiry as to the character of our service incurs no obligation.

A. W. Smith Company Landscape Engineers
300 Keenan Bldg. Pittsburgh, Pa.



Paper White Narcissus
65c per doz., $3.50 per 100

La Reine Tulips
75c per doz., $5.00 per 100

Exhibition Hyacinths
$2.50 per doz., $17.50 per 100

Empress Narcissus
85c per doz., $5.50 per 100

The Charm of Flowers in a Home

You have felt it—when you have come in from a gray disagreeable day, which made you feel that winter would never end, to the rose glow of tulips and the spring fragrance of the narcissus.

ANY house, every house is more livable for flowers. You want them in your own house, and you look longingly in the florists' windows in the winter time, wondering whether you can afford those yellow narcissi, which would brighten the dark library, or the pink and blue hyacinths for the dining room. But you often feel that you cannot pay several dollars a dozen for flowers that will last only a few days.

Grow Your Own Flowers Easily and Inexpensively

You can afford flowers in your house from Christmas until Easter if you buy your bulbs from us and grow them yourself. The best bulbs of Paper-White Narcissi, among the loveliest flowers for the house, sell for only $3.50 per hundred, and one bulb often produces two flowers. Last winter these flowers sold for $2.00 a dozen in the florists' shops. You can grow flowers for a few cents each for which you would otherwise pay 15 to 20 cents, and your own flowers last from 10 to 12 days.

There Are No Bulbs Like Those From Holland

For hundreds of years Holland has been growing the finest bulbs in the world—the loveliest colors and the widest variety. No one has been able to equal them. There are thousands of growers of bulbs in Holland, but the best flowers come from bulbs grown by specialists, who have spent all their time perfecting certain varieties. Because of our long experience and our many visits there we are able to obtain for our customers from these specialists the finest quality of the finest varieties—even now when the war has greatly reduced the output of bulbs.

Even the most inexperienced gardener need not hesitate to try growing our bulbs. By carefully following the directions successful results are always obtained. Planting the bulbs and watching them grow is a fascinating occupation for flower lovers of all degrees of experience. Hundreds of customers have written us, telling us how successful they have been through following this method. Simply plant your bulbs in shallow boxes in soil from your garden or from a florist's shop if you live in a city. Keep them in a cool dark place and water occasionally until they are well rooted. Then bring them out to the light at intervals of ten days so that you may have a succession of flowers. When the buds are almost ready to open you may transplant them to jardinières, fern dishes, or bowls if you wish.

Our booklet contains complete instructions which will make failure practically impossible.

SPECIAL PRICES
If Ordered Before July 1st

		Dozen	Hundred
Exhibition Hyacinths			
La Grandesse	Pure White	$2.50	$17.50
Grande Blanche	Blush White	2.50	17.50
La Victoire	Brillant Red	2.50	17.50
Rosea Maxima	Delicate Blush	2.50	17.50
Enchantress	Light Blue	2.50	17.50
Charles Dickens	Porcelain Lilac	3.00	20.00
Daylight	Best Yellow	2.75	18.00
First sized Hyacinths in all varieties		2.25	16.00
Second sized Hyacinths in all best varieties		1.75	11.00
Miniature Hyacinths in separate colors		.85	6.00
Tulips			
Chrysolora	Yellow	.75	5.00
Belle Alliance	Scarlet	.75	5.00
La Reine	Rosy White	.75	5.00
Keiserkroon	Red & Yellow	.75	5.00
Rose Grisdelin	Beautiful Pink	.70	4.75
Narcissi or Daffodils			
Paper White	For early blooming	.65	3.50
Golden Spur	Rich Yellow	.80	5.25
Emperor	Monster Bulbs	1.15	8.00
Empress	White & Yellow	.85	5.50
Von Sion	Double Yellow	.75	5.00
Poeticus Ornatus	White	.60	3.75
Sulphur Phoenix	Yellow & White	.85	5.50

Let Us Send You a Copy of Our Free Booklet

Whether or not you have grown bulbs before you will be interested in our booklet. It is profusely illustrated and contains descriptions of almost a thousand varieties of bulbs suitable for both indoor and outdoor growing, as well as hardy plants, perennials, and shrubs which you will want for your garden. It also contains directions for growing all kinds of bulbs.

Why You Must Order Quickly

We import bulbs to order only and must have all our orders not later than July 1st. Our wise customers always order in May to obtain early delivery, which is important if flowers are to be ready at Christmas. By ordering from us now you make a large saving in the cost of your order, get a superior quality of bulbs not usually to be obtained in the United States at any price, and have a large list of varieties from which to choose. All orders are selected and packed in Holland and reach our customers in the best possible condition as soon as possible after we have received them from Holland.

SEND FOR OUR FREE BOOKLET

Use coupon if more convenient. Order your bulbs at once. Order from the list given here if you wish. Special prices will be allowed on all orders received before July 1st.

ELLIOTT NURSERY

Established 30 Years

322 Fourth Avenue Pittsburgh, Pa.

Read What These People Say:

Admiration of the town! "I want to tell you how magnificent my daffodils are. They are the admiration of the town, and have given us untold pleasure. **Each daffodil is the size of a teacup.** Many bulbs have four flowers, and not one has failed to produce two."—G. D. S., Uniontown, Ala.

Beyond Expectations! "I must tell you what excellent results I have had with the bulbs I ordered from you. By Easter, all the hyacinths and tulips showed large, healthy buds, which have matured far beyond all expectation. The quality of bulbs offered by you, even in cheaper mixtures, far surpasses that often sold at much higher prices."—R. C. A., Kansas City, Mo.

Nothing short of wonderful! "I have in my front window, as the admiration of all the passersby, finest group of tulips ever seen in this city. With their gorgeous colors, odd shapes and exquisite shades of color, they are nothing short of wonderful."—J.A.S., Portland, Me.

Elliott Nursery, 322 Fourth Ave., Pittsburgh, Pa.
Kindly send me Free Booklet of Imported Dutch Bulbs with full directions how to grow them in house and garden.

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City .....
State .....

The Garden MAGAZINE

Vol. XXXI, No. 4 — June, 1920

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BOTANICAL
GARDEN

Photograph by John Wallace Gillies

JUN 1 1920

BROADLY OPEN TO ALL OUTDOORS YET DEEP IN SHADOW BY REASON OF ITS AWNING

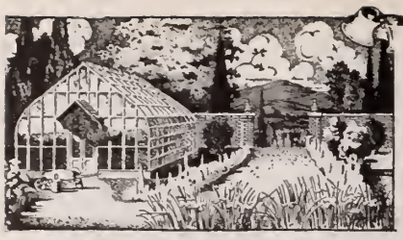
The fine restraint which makes such a utilitarian accessory actually an asset to the garden façade of a dwelling is seldom better exemplified than in this rich and simple example on the residence of Mr. Fred Dana Marsh, the artist, at New Rochelle, N. Y. Henry G. Morse, Architect

A ROADSIDE PLANTING SO WELL ARRANGED THAT IT IS HARD TO REALIZE IT DID NOT, LIKE TOPSY, "JUST GROW"

Here, in addition to being disposed with the delightful ingenuousness of natural masses, the shrubbery is kept well back at the inside of the curve especially, thereby avoiding the creation of a menace to safety in using the road. View at "Hills and Dales," Dayton, Ohio, Mr. John H. Patterson, Owner

THE SPELL OF SYRINGAS
AND ROSES AND JUNE!

Other flowers in equal abundance at other seasons has this garden of Mrs. Julia Schayer, Lawrence Park West, Bronxville, N. Y., but at no time is it lovelier than when the Mock Oranges divide honors with the Roses



PLANT BRIEFS

Ajuga reptans, and **A. genevensis,** the common Bugle Weeds although not strictly rock plants, can with propriety be admitted to the rock garden on account of their habit of growth which is dwarf, and because they are found wild in mountain pastures. The latter has the best flowers. The shining leaves of both species turn a beautiful copper color in late fall. To grow these to best advantage they should be planted in good soil in a moist part of the garden.

Clivia Miniata or as it used to be called Imantophyllum has been so long cultivated in our greenhouses as to be almost an old-fashioned plant; yet for all its age and real use it has not achieved great popularity though at the same time it is fairly common. Nearly everybody knows the plant and it is to be found in a great many window garden collections. Indeed it is an excellent house plant. Perhaps its comparatively high price has been a handicap to its greater distribution. It is nearly always seen in the spring flower show and this year visitors to the New York International were regaled by a display of these plants from Mrs. F. A. Constable's greenhouses which, arranged with Acacias, made one of the striking features of the exhibition. Related to the Amaryllis and a native of South Africa the plant differs from its popular relative in being evergreen and the dark green lustrous strap-like leaves are in themselves quite effective. There is considerable variation in the flowers both in coloring and in breadth of the segment but all are shades of brick to orange-red shading to clear yellow in the throat and crowned by yellow stamens and anthers. In the continent of Europe, especially in Belgium named varieties are much sought for. The plant flowers normally in the early summer but it is easily brought into bloom in spring in a cool greenhouse. It is not hardy and must be kept away from frost and steadily growing at all times. Established plants may be grown on in the same pot for several years, given a good lasting well drained rich soil. They take water in abundance when they are coming into flower and are to be dried off during winter in a temperature not below forty. The name Clivia is given in honor of the Clive (Dukes of Northumberland) family and should seemingly be spelt with an e, but it is not, the correct spelling being as here given.

CLIVIA MINIATA

An evergreen bulb from South Africa having orange-red flowers in a variety of tones and shadings. Useful for the cool greenhouse or the window garden and for porch decoration

Armeria juncea is a European Thrift that grows wild in sandy soil and on dolomite rocks, and is useful as being reluctant to heed the warnings that winter is near. "As late as Thanksgiving after several killing frosts had been experienced," says Mr. Free of the Brooklyn Botanic Garden, "I have seen a display of flowers. An indefatigable bloomer, it shows its first buds about the middle of April. It is in full bloom about the second week in May and continues in good condition until the second week of June. It then has a short rest after which it flowers sporadically until stopped by severe frost. It is a smaller plant than the Common Thrift, with somewhat hoary leaves and bright pink flowers. Give it a sunny position, and well drained, sandy soil."

Chamaecyparis Obtusa Nana, the Japanese Dwarf Cypress, has its especial use in winter, when nothing whatever is blooming outdoors and interest in the rock garden is usually confined to the rocks themselves. Then its evergreen foliage serves a real purpose. The somewhat horizontal lines of this and many other delightful dwarf conifers serve in a measure to suggest the windswept and gnarled Spruces and Firs found along the timberline in the mountains, and of themselves these diminutive trees are altogether charming when associated with a suitable rocky background. There is abundance of material to chose from when selecting worth while evergreens for the rock garden. Pinus montana and its variety Mughus can always be worked in to advantage, also the dwarf forms of Spruce, Juniper, and Fir. Those which show too clearly the selective skill of the nurseryman —those with silver or gold variegation— should be rejected.

GAUGE YOUR FUTURE FOOD REQUIREMENTS

HOWARD EARL and ADOLPH KRUHM

In Face of Lessened Acreage in Common Vegetables a Serious Shortage and Soaring Prices Face Us in the Fall. Turn While There Is Yet Time to Home Production by Planting for Winter Storage to Defeat the Inevitable High Prices of the Market

MORE than five million bushels of Potatoes imported during the past eighteen months from "starving" Europe into this land of plenty! Shiploads of Cabbage, Onions and other vegetables from abroad finding an increasingly profitable market in America—supposedly leading the world in food production. And the prospect of tomatoes at 10 cents apiece is a stern reality that we have to face.

To aggravate matters, the wheat crop of 1920 promises to be 30 per cent. shorter than last year's short crop, while producers —farmers and truckers—have curtailed acreage devoted to vegetable crops because of labor scarcity and high wage demands. This is a calamity—yet why blame the farmer since, with an indifference as amazing as it is fraught with danger for the future, we merrily chase the foot of the rainbow, when we should be preparing our forces to increase the produce of the earth in food supplies?

With these facts in mind THE GARDEN MAGAZINE reader is asked to consider seriously the making of food gardens this month. Unless he is willing to pay exorbitant prices for vegetables of all kinds, he must now at once direct his enthusiasm for the garden toward real work in the humble Potato plot and Cabbage patch. The home garden is a potential gold mine!

Take stock of what you already have provided for in the kitchen garden and make plans to augment the prospective supply with other crops designed to reduce living costs during the fall and coming winter. Plan to grow a liberal surplus of everything fit to be canned or stored away in sand or soil. There are growing in America to-day in commercial fields, several billion less Tomato plants than a year ago. The contract price for tomato pulp at the canning factories is more than $30.00 per ton—an advance of nearly 200 per cent. more than normal. That means that the purchaser will have to pay at least 35 cents a can for tomatoes next winter. But to those who have the land available the future can be discounted. June brings the opportunity of setting out some Tomato plants.

BUT let us tackle the whole problem systematically! Get a pad and a pencil and get busy while there is yet time. Fortunately every vegetable will yield crops from seeds sown during June or later. It is of course too late this month to sow for an early crop of Peas, and too early to sow for a late crop. It is better to wait until July to sow Lettuce for fall use, as well as Chinese Cabbage. And unless you can get extra sturdy, well-rooted plants of Celery, and have an abundant water supply, don't waste time on that crop.

The selection of the proper *variety* of any given vegetable is a matter of real concern if the quantities estimated above, and of good quality as well, are to be realized. And indeed there is no excuse for failure. The latitude given above in number of days required to gather crops is determined according to the time required by different varieties to reach maturity. And be it remembered that *all* sorts requiring the longer periods to reach fair size, are invariably the best keepers. Thus, you can gather Crosby's Beets within fifty days after seeds were sown; but you will find Early Model Beet, needing seventy-five days to reach acceptable size, is a much better keeper.

Among BUSH BEANS, Bountiful, Full Measure, Stringless Green Pod, and Stringless Refugee, will yield green podded crops *in the order mentioned*. Among the wax or yellow-podded kinds, New Kidney Wax, Sure Crop Wax and Brittle Wax will duplicate performance records of the green sorts. Sow all in rows two feet apart, dropping seeds four inches apart in row.

SET TOMATO STAKES WHEN YOU SET OUT THE PLANTS

Trained thus Tomatoes yield the greatest number of fruits of high quality per plant, require less space, and are easily picked

Cover two to three inches deep—and do not go into the patch while the plants are wet.

BUSH LIMAS that yield record crops are Quarter Century or Wonder Bush, Fordhook, and Burpee Improved. Plant all Limas *edge down and eye down*, placing seeds of Bush Limas six inches apart in row, with two and a half to three feet between the rows, while Pole Limas should be given three feet between the hills, with four and five beans per hill. Leviathan and Carpenteria Pole Limas both yield a high quality product.

Among POLE BEANS grown for snapshorts, Dreer's Golden Cluster Wax and Lazy Wife Green Podded will measure up to the highest quality expectations.

This is the logical month to make your principal sowing of SWEET CORN. By sowing Mammoth White Cory, Early Aristocrat, Howling Mob, and White Evergreen, among the white grained varieties, and Golden Bantam, Golden Cream, and De Lue's Golden Giant among the yellow grained sorts, you are insuring yourself a constant supply of delicious sweet corn for table use and canning. (See page 243 for explicit cultural directions).

While it is too early to sow PEAS for a late fall crop, it is advisable to secure seeds at once, since the crop of select varieties was exceedingly short last year. Among the best kinds to sow during July are Laxtonian, Peter Pan, and Blue Bantam. Little Marvel is not included because it is doubtful if seeds can be had at this late date.

For the TOMATO crop secure well rooted (pot grown if possible) plants of Globe, Bonny Best, Chalk's Early Jewel, and Stone or Matchless Tomatoes, setting them two and a half feet apart each way in well enriched soil. These will not only give you an abundance of fruit for immediate use, but the last three varieties will continue in bearing until frost kills the vines and so supply an abundance of large tomatoes for canning. For greatest efficiency, each plant should be provided with a wooden stake five to six feet tall, and each plant reduced to three strong branches. Throughout the growing season mercilessly remove with a knife all side shoots and suckers that develop along the base and branches.

For Storage Against Winter Wants

THE earliest BEETS are Crosby's Egyptian, Eclipse, and Detroit Dark Red. Any of these will reach the desirable two-inch diameter size in from fifty to sixty days, depending on soil and season. However, sorts like Bastian's Blood Turnip, Early Model, and Black Red Ball, while requiring longer in which to reach good size for canning and storing, will be found the better keepers. And bear in mind that no beet roots will keep well in sand or soil if they have been caught by frost.

Sow Beet very thinly, since each ball (in reality a fruit) contains several seeds. Walk over the row after covering with one-half an inch of soil to press that soil in firm contact with the seeds. Thin out the seedlings to stand four inches apart in the row; and any that are pulled up may be transplanted very readily.

The earliest CARROTS such as Amsterdam Forcing and Oxheart do not keep well, hence should be used first. Chantenay, Danvers' Half Long, and Half Long Luc are better keepers but require longer to reach good size. The best keeping qualities however, are found in the long kinds like Long Red Surrey, Long Orange, and Saint Vallery. To be successful with these, however, your soil must be a deep rich loam, free from stones and devoid of a hard sub-soil. In common with Beets and the other root crops described subsequently, Carrots should be thinned out to stand four inches apart in the row, allowing two feet of space between the individual rows.

Every connoisseur will tell you that KOHLRABI is far superior in quality to Turnips or Rutabagas. Early White Vienna and its purple-skinned companion will form two-inch roots in from fifty to sixty days, with the added advantage that they never become tough or bitter, no matter how hot the weather gets. Make repeated sowings of Kohlrabi throughout the summer, the only requirement being that crops maturing during July and August be used promptly.

CROPS FOR PRESENT PLANTING

The classes of vegetables that will mature before frost from seeds sown now are here arranged (as far as practicable), in order of their relative importance (1) for fall crops and canning, (2) for winter use and storing, and (3) for immediate use to afford variety in the menu. Those for immediate use are of least importance, because it is to the necessity of *providing for the future* that attention is most needed.

VEGETABLE TO BE PLANTED	NUMBER OF DAYS TO YIELD THE CROP	AVERAGE YIELD FOR EVERY 15' OF ROW	SEEDS MAY BE SOWN UP TO
For Fall and Canning			
Beans, Bush	55–75	15–30 qts.	July 15th
Beans, Bush Limas	100	8–10 qts.	June 15th
Beans, Pole	100	20 qts. for 10 poles	June 15th
Corn, Sweet	75–100	25–30 ears	July 15th
Peas (sow in July)	55–75	10–15 qts.	July 15th
Tomatoes (get plants)	60 days	¼ bu. per plant.	June 15th
For Storage against Winter			
Beets	50–75	¼ bushel	July 25th
Carrots	45–60	¼ bushel	August 1st
Kohlrabi	50–65	¼ bushel	July 25th
Potatoes (early)	100	¼ bushel	June 15th
Radishes (winter)	85–100	¼ bushel	July 10th
Turnips and Rutabages	60–100	¼ bushel	July 15th
For Immediate Use			
Cabbage (get plants)	100	60–75 lbs.	July 15th
Celery (get plants)	120	3 doz. stalks	June 15th
Endive (sow in July)	60	1 doz. heads	July 15th
Kale (sow in July)	60–80	10 plants	July 15th
Lettuce (sow in July)	60–75	1 doz. heads	Aug. 1st
Mustard (sow in July)	30–45	1 doz. plants	Aug. 15th
Cucumbers	60–75	3 doz. fruits	July 15th
Squashes	60–100	2 doz. fruits	June 15th

Any early variety of POTATOES such as Irish Cobbler, Early Rose, Early Ohio, Carman No. 1, etc., may be planted following such early crops as Lettuce or Onions or in any other space available at this time. By all means provide for additional crops of Potatoes. Every bushel harvested will stand for a substantial saving next winter.

It is really almost too early to sow WINTER RADISHES, excepting the variety called Giant Sakurajima, which requires a long season to perfect its roots, weighing from ten to fifteen pounds each. I am told that this variety is quite palatable cooked in the same way as Turnips. The bulk of the winter Radishes should be sown any time after July 1st.

TURNIPS AND RUTABAGAS are also to be sown any time after July 1st, remembering again as with Beet and Carrots, that the later kinds are the better keepers. Thus, Purple Top White Globe, and Purple Top Strap Leaf should be used before Christmas, reserving the more solid kinds like White Egg, Golden Ball, and the Rutabagas for use later. The very much larger growing Rutabagas should be thinned out to stand six to eight inches apart in the row. Should bugs or green lice (Aphis) bother the tops, spray with bordeaux-lead.

Vegetables for Immediate Use—Salads and Greens

GET the strongest rooted CABBAGE plants obtainable of such varieties as All Seasons, Premium Flat Dutch and Danish Ballhead. All these are good keepers. Copenhagen Market and Enkhuizen Glory are two splendid earlier sorts yielding ten pound heads within one hundred days after seeds are sown, but they have the common fault of all other early vegetables of not keeping well. Hence, crops of them should be used first.

The CELERY most suitable for winter use is Giant Pascal. However, its lateness in reaching full size, and the fact that it makes exceedingly large stalks, cause it to be very difficult to handle under home garden conditions unless you can board it up. The commercial Celery bleachers made of paper board are not large enough for this variety. Dwarf Golden Heart, Winter Queen, and Evans Triumph are three excellent dwarfer varieties of splendid keeping qualities. The prime requisite in connection with Celery is, that it must have a constant and liberal supply of water throughout the growing season, while a rich soil is equally essential.

The Salad Group

IN COMMON with the three classes of Salads and Greens mentioned next, ENDIVE should not be sown until early next month. You *can* sow Endive, Kale, Lettuce, and Mustard this month, but the crops will not amount to much, because August heat is not to the liking of these cool-season crops. It is far better to wait until after July 1st before sowing them, in sections where the average temperature exceeds eighty degrees during the day. Sowing them any time after July 1st will bring their principal period of development into September, when cool nights help toward a splendid product.

Green Curled Endive is the best for salads, while Broad-leaved Batavian is preferred for soups and stews. It is not commonly known that Endive may readily be lifted with the approach of

A VEGETABLE GARDEN IN ILLINOIS WHERE EVERY FOOT OF SPACE IS WORKING

Too often overlooked are the bush fruits that enclose and protect the Corn, Cabbages, Peppers, and Tomatoes of this space. Here the latter are supported by trellises in pairs set to brace each other

cold weather and stored in frames or under any cover, to be used throughout the early winter.

Dwarf Curled Scotch KALE is a splendid sort for early in the season, while Siberian is by far the hardiest. South of New York, Siberian Kale needs no protection, and may be wintered right outdoors in the garden. In common with other frost-proof vegetables, the quality of Kale is improved by frost.

LETTUCE continues to offer the biggest problem to the home gardeners; and yet any one can raise perfect heads. Throughout July such sorts as Wayahead, Allheart, Salamander, and May King among the Butterheads, may again be sown and will yield a perfect product if the seedlings are thinned out as rapidly as they touch each other in the row. Wait until they are about three inches tall and then thin them out to stand four inches apart. Later on, remove every other one, and continue this, hoeing frequently and thoroughly between the rows and between the plants all the time.

Fordhook and Fancy and Elephant Ear MUSTARD should both be sown toward end of July, and they will then be ready throughout late August and September when they will afford splendid material for use in mixed Salads or cooked with Kale or Spinach.

The best variety of SPINACH for immediate sowing is New Zealand. This is really no Spinach at all, but a broadly spreading plant with many succulent leaves and branches. In flavor, it is way ahead of the ordinary Spinach, and a dozen well grown plants will provide a peck of greens a week, from the middle of August until frost. The plants should stand at least a foot or two apart on rich soil, since each plant when fully developed, easily covers twenty-five square feet. As they are high and bushy they will intermingle and form a thick mat almost like a small shrubbery. This is the only exception to the rule that all of above Salad Plants should be sown thinly in rows two feet apart, and the seedlings thinned out as described for Lettuce.

Of course this is *the* month to make the sowing of CUCUMBERS for pickles. For this purpose, Jersey Pickling, Early Green Prolific, and Fordhook Pickling are unsurpassed for the production of small fruits, furnishing ideal material for Sweet Pickles. Where sour or dill pickles are the object, both Davis Perfect and Fordhook Famous are preferable, and these varieties have the additional advantage of bearing fruits equally suitable for furnishing a handsome slicing product, when they reach their full length of eight to twelve inches.

Sow Cucumbers in hills, three feet apart each way, thinning out the seedlings to four of the strongest per hill. If the little striped Beetle bothers them use Slug Shot.

The recent discovery that SUMMER SQUASH is rich in vitamines should help it draw the attention of all home gardeners. The variety called Italian Vegetable Marrow or Cocozelle Bush which occupies very little space and bears an abundance of symmetrical Cucumber shaped fruits is a very good form to grow. A fifteen foot row of this, accommodating fifteen plants a foot apart, will yield enough fruits to afford each person in a family of five, a dish of Squash with two meals a week from early August until late in September. Figure your requirements on this basis.

Sow seeds of all bush varieties of Squash in rows, but place seeds of the very much ranker growing vining winter varieties in hills five feet apart each way, six seeds per hill, to be reduced to three plants per hill when danger of bugs destroying the crop is past.

WHEN YOU HAVE SOWN YOUR BEANS SOW SOME MORE BEANS, AND THEN MORE!

Not because they are the most delicious of vegetables but because they are one of the most nutritious and because food values are going to count for more than ever this winter

The Way to Do It All

BEAR in mind that thorough preparation of the soil is absolutely essential to score any of the results promised above. Deep tillage is most necessary in connection with growing all the root crops, while additional fertilization is most desirable with all salad crops. So unless you can take time to *watch* your plowing done, it is preferable to have the garden dug with fork or spade; digging will give you at least 8 to 10 inches of loose soil, while most plowing merely skims the surface. But where a crop is put in now to follow an earlier crop, it is generally sufficient to turn the soil with a grubbing hoe or a small hand plow.

The matter of crop rotation deserves watching. Do not plant Turnips where Cabbage has grown; maggots in a bed where early Onions grew will also attack late Radishes. By planting the right kind of varieties, it is still possible to make nearly every row yield two crops from now on. Thus Bush Beans sown up to June 5th will have borne the bulk of the crop by August first, which is the ideal time to sow seeds of late salads. Beets sown up to the middle of June will be ready for gathering by the middle of August, to be followed by greens such as Kale, Spinach, etc.

Should the soil be dug in early June it is well to remember that a great deal of your success depends on the prompt sprouting of the seeds. You can't afford to sow seeds and have them lay dormant for several weeks because of lack of moisture. If the season is dry, therefore either water your seedbed before planting or plant deeper than usual. Deep planting late in the season also stands as insurance against midsummer drouths.

Since it is next to impossible to secure either manure or fertilizers, make liberal use of commercial humus. This is available in any quantity. Pound for pound it contains as much plant food as any manure, is easier to handle and has the additional advantage of being devoid of weed seeds. Humus may be sown right into the rows with the seeds and several applications of it along the rows during the season will hasten along maturity of the crops.

Keep the crops growing by frequent and systematic cultivation. It is more important to keep the soil free of weeds and properly tilled than it is to water the garden frequently and hoe only occasionally. All vegetable crops need air at the roots quite as much as moisture and fertility. Many will thrive with surprisingly little moisture—Lettuce for instance—if thorough and constant cultivation is practised.

The months ahead, besides being favorable to plant development, will bring favorable conditions for bugs, blights, and plant diseases. Be handy with the dust gun or spraying apparatus. Spray for prevention as well as cure, and remember that one diseased plant in a row or patch endangers the health of all the rest. Waste no sympathy on disease carriers. Remove them promptly.

Residence at Southampton, L. I. Mr. Goodhue Livingston Owner and Architect

Photograph by Mattie Edwards Hewitt

PORCH FURNISHINGS, FABRICS AND AWNINGS

MARGERY SILL WICKWARE
Consulting Decorator

Partaking of the Garden Yet a Part of the House, the American Porch, Likewise the House Awnings, Should Accept Garden Dominance

IN FURNISHING a porch the first thing of all is to realize its purpose. Is it a general summer living-room, lying between the garden and the house—or perhaps the sea and the house? Or is it a morning lounge? Or an evening rendezvous? Is it designed for warm weather alone, or is it one of the winter-and-summer, casemented affairs that are practically as much a part of the house and its general life as any of its more formal rooms? Is it on the north, south, east, or west side? And finally, what, is its architecture? When these questions are put it is quite evident that the answers are going to have a lot to do with the manner of handling the particular porch in question.

The architecture is a vital matter in two ways. One is in its relation to design and period, the other its effect on exposure. Certain porches are almost wholly protected from hard and driving storms by reason of their design as well as their position, others are almost wholly exposed to them. This perhaps more than anything else must be the first thought, when it comes to the details of furnishing. No greater burden can be imagined than the porch furnished so elaborately or in such a way that a rainstorm is the signal for wild scurrying, in the instant of the first spatter of big drops. On the other hand, it is quite impossible to do anything worthy the name of decorating on a porch unless one has pretty free rein and is unhampered by distracting considerations of this kind, once a scheme is evolved and decided upon. All of which sums up to this; choose your scheme to fit *all* the circumstances—which of course include the purpose of the porch as well as the degree of its exposure to the elements. You cannot start with only one of these in mind—or if you do, you will come to grief.

WHATEVER else may be true of a porch, its sense of outdoors and its inviting coolness on a hot day are requisites. Subdued colors however are not necessary to insure the latter—this cannot be too greatly emphasized—but I do insist on its colors being brought into harmony with its off-lying garden or view. Its lines too—the general basic lines of its entire composition—should be harmonious with the garden or whatever the off-scape may be. And nothing ought ever to be introduced that shuts out the sense of outdoors; yet again this does not mean that beautiful fabrics are taboo, or that everything need be completely open to wind and weather.

My porch ideal indeed consists of several seeming contradictions but I know that they are not actually contradictions, for I have realized them too many times. Suppose we take a case in point—a Southern residence where the purpose of the household was to live on one of the great porches of the house practically day in and day out during five months of the year. Every stray breeze must be caught and made the most of, but no vagrant winds could be allowed to scatter books and papers and tear things to pieces generally. Something better and more genuinely beautiful than the very ordinary and somewhat vulgar "solid comfort" ideal of the tired business man—who is not that sort of person at all, more often than not!—was demanded (and

Walker & Gillette, Architects

Photograph by John Wallace Gillies

THE NOBLE QUALITY OF SIMPLICITY

Of rare beauty as awnings, these are also a rarely perfect textile accompaniment to the brick surface of the house; residence of Mr. H. P. Davison, Locust Valley, L. I., N. Y.

Photograph by Mattie Edwards Hewitt

WHAT MORE AIRY AND COOL THAN CEYLON CHAIRS

Wherein to rest, a South Sea Island rug underfoot, sipping something deliciously iced after a strenuous hour on the courts? Residence of J. E. Berwind, Bridgehampton, L. I., N. Y.

Photograph by John Wallace Gillies

WHEN THE GARDEN ADVANCES UP TO THE VERY DOORS

To keep the open sense of outdoors which such a terraced garden front as this requires, the great umbrella matching the house awnings is well substituted for the all-sheltering canopy. Residence of Mr. D. M. Ferry, Detroit, Mich., Trowbridge & Ackerman, Architects, William Pitkin, Jr., Landscape Architect

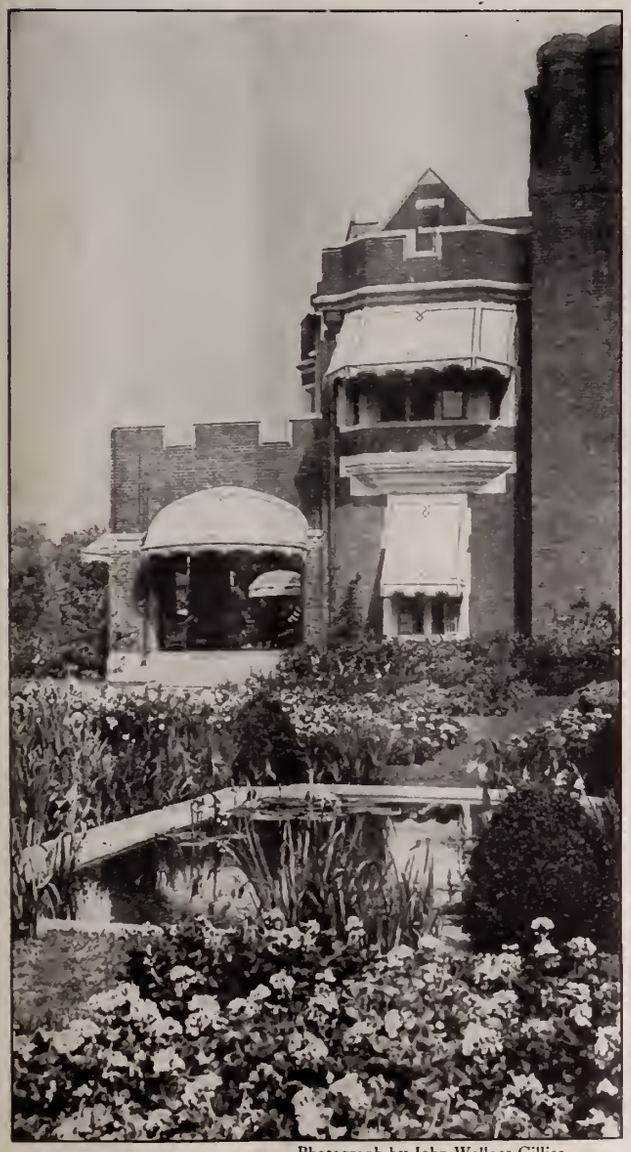
A HARMONY IN LINES

Woven cane furniture in two colors with Navajo rugs and cushions striped and plain, further the rhythm of carefully studied verticals, horizontals and obliques in ceiling, walls and floor, with delightful results. Residence of Mr. Lewis H. Lapham, New Canaan, Conn. (At right)

Photograph by Mattie Edwards Hewitt

BANDED WITH APPLIQUE

In combination with the color and gaiety of flowers that are reflected in a pool, awning fabric plain in color though lively in tone is essential. Residence of Mr. Sterling Postley. Oyster Bay, L. I.; Hoppin & Koen, Architects, Charles W. Leavitt, Landscape Architect. (Below)



Photograph by John Wallace Gillies

THE ROUGH GRAY TEXTURE OF STONEWORK INVITES BRIGHT CONTRASTS

Against such a surface awnings of the most vivid stripes are always welcome, since they soften the stern impression conveyed by the inflexible and uncompromising character of the stone, much as do the flowers clustered below. At Two Pines Farm, estate of Mr. Edwin O. Holter, Mt. Kisco, N. Y. (Below)

Photograph by Mattie Edwards Hewitt

always should be demanded, let it be parenthetically added), and violent rainstorms were not to be reckoned with since the exposed sides were to be provided with casements that would be closed in the event of rain.

In the South this is always essential because torrential rains are frequent occurrences; and it is impossible to conceive a place that is open at all that is yet so sheltered that it can possibly escape a drenching. These casements were also the wind protection, being divided transversely into three sections that closed independently, so that top, bottom, or middle could be shut according to the wind's character and direction.

Rugs in a cool putty-tan of the kind called Clearflax were used on the floor, it being my aim always to get depth to tread on even on a porch, such as the foot enjoys on a well-kept greensward. The South Sea Island rugs are good, though not so soft. Draw curtains that will really "draw" until they are practically not noticeable when the entire open space is desired, are another of the essentials to that sense of outdoors which ought never to be lost or dimmed. In this instance they were made of Casement cloth with a marginal design in natural linen appliquéd, giving weight as well as finish to them. The furniture was painted that shade of blue that is almost green, best defined perhaps even in this day of new color names as robin's egg, since it is actually nothing else, and the cushions were of Marigold yellows—varying shades combined by the use of appliqués so that the gamut was run from the pale lemon shades to the deep and velvet tones of the little "Legion d'honneur," as I believe one is called.

With a garden just beyond where flowers that were yellow and white predominated, the entire scheme was a great success, especially as sunlight flooded the area all about, practically all day. Which leads me to say that the true theory of color is to work with the light and exposure always instead of against it. There are four colors which confront us everywhere out of doors —or four effects of color. The sky, which is blue; the vegetation generally, which is green; sunlight flooding all of these, which is yellow, and shadow where shadow is, which is purple—or mauve or one of the purple shades of a greater or less intensity according to conditions. Working *with* the light it is plainly blues and greens warmed with yellows that should always be the choice for the bright and sunny side of a building—for the porch exposed all day to the south and to the sun—while the warm purples and the lighter mauves of shade and shadow are what northern exposure demands.

In fabrics for porch cushions there are, I am sorry to say, practically none that are weather and sun proof. But with a wise choice in colors—that is, a choice that takes fading into account and thus insures against dinginess—it is not a matter of such great moment that chintz will fade. The glazed kind is perhaps more satisfactory in the matter of shedding dust than the other.

Photograph by Mattie Edwards Hewitt

CORNERS THAT ESCAPE RAIN AND SUN MAY BE AS GAY WITH CHINTZ AS POSSIBLE

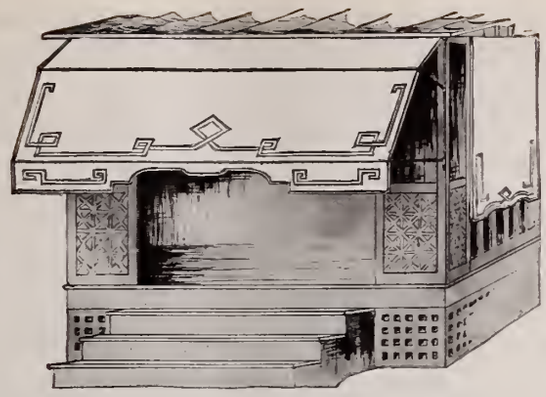
With heavy rugs of deep tread which will not blow about, cushions of varying colors and kind, though one kind should dominate, and potted plants —here are Campanula pyramidalis in bloom, and Aspidistra, Aucuba, Oleander, Polypody Fern and Kentia Palm—the porch combines the best of indoors with the best of outdoors. "Killenworth," estate of Mr. George D Pratt, Glen Cove, L. I., N Y. Trowbridge & Ackerman, Architects

AWNINGS play a more important part from the garden as far as general appearances go, than they do from the house; and yet they are tremendously important in a porch effect, since they filter the light and temper it, thereby setting the atmospheric key. I have spoken of allowing for fading in the materials chosen for cushions for the porch. The same principle holds good when selecting awnings. There are certain colors which fade with less loss than others, notably all shades of brown, yellows, and many blues. Reds and greens are hopeless when dimmed by sun or weather, but brown, yellow or blue is rather more softened than made dingy.

The day is long since past when awnings of vivid and lively stripes may be applied indiscriminately to all kinds of houses, in the belief that it does not matter particularly to the architecture or to the garden.

Actually the most careful study is necessary to determine the

A special design for a special form of window often results in unexpected conceits such as this, which appears to be kin to the sun umbrella. Executed in sail-cloth, with green stencil, for a white Colonial (restored) house having much Boxwood and other evergreen material in its gardens



Porches present many and frequently vexatious problems, sometimes of protection against the rain as well as the sun, which only a flat fold-down awning will meet. The ornament here is in deeper toned appliqué

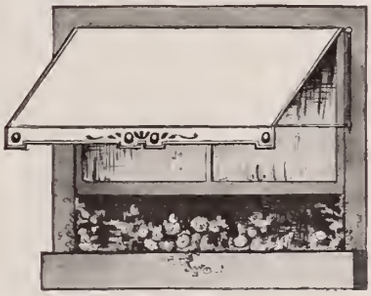
The regulation striped awning material developed with a plain edge or "fringe" in one of its own colors or in a color that harmonizes, which is emphasized in the garden, suits best the house of weathered shingles or similarly colored stone

color and style of awning that will not only be in unobtrusive harmony but will bring out the best in house and garden. In this connection it is only possible to generalize, since each house is a problem by itself; but an interesting development of our climate's necessity for protection from the sun is the use of awnings of plain material—sail-cloth and tent canvas with stencilled ornament.

Herein I think lies the solution of all awning perplexities; and our salvation from the monstrosities of not so very long ago. For the effects possible in this way are unlimited, and the awnings can thus be made the complement of the gardens—which they so obviously should be—in color as well as in line. Pigments applied directly as in stencilling are, moreover, proof against deterioration: hence by this method awnings which will not grow dingy are assured, in addition to fabrics unimpaired by dyeing. And colors that are quite out of the question if regular awning canvas is used, are also easily achieved.

End pieces give finish and the fact that they obstruct the air to a certain degree is no disadvantage in some places, notably by the sea, where the wind blows continuously

Tent canvas stencilled with a conventional design in brilliant blue is effective on a house of cement or stucco, where blue and lemon-white flowers predominate in the garden



SWEET CORN THAT REALLY IS SWEET

ALFRED PUTZ

June Planting for the Very Best of All and What to Do from Start to Finish—Including the Cooking, When the Gardener's Perfect Product is Often Spoilt

(Editors Note: *The author has for some years been in charge of comparative experiments in vegetable varieties on a prominent seed farm and speaks with unquestioned authority. Follow the rules of practice here set down and the sweetest of Sweet Corn is yours.*)

UNLESS it can be picked from the stalks and cooked within an hour it is next to impossible to get Sweet Corn at its best—and therefore most people in this enlightened age have no idea what delicious Sweet Corn really tastes like. A dish "fit for the gods!" And the delight of it all is that any gardener can enjoy the real thing as there are no secrets or difficulties about raising A 1 quality of Sweet Corn in the home garden.

THE time for the first planting of Sweet Corn varies with the locality—in the vicinity of New York about May 10th. This will provide the table during the latter part of July and early August. Succession sowings are to be made at intervals of about ten days up to the end of June.

June sown Sweet Corn usually surpasses the early spring crop in quality as well as in yield. The reason for quality is obvious. On hot and dry days the ears ripen so fast that it is hard to find them right when they are wanted. But in the cooler months the ears grow slowly and remain much longer in the dough stage, so the danger of missing it when at its best is greatly reduced. Corn planted in June will get a good start since the soil is warm and the young plants can grow under the most favorable conditions.

The main requirement is a frost-free period of about three months—which takes in almost the whole United States. Almost any kind of soil can readily be brought into condition to produce a good crop. The preparation does not differ materially from that needed for the average vegetable. Spade the ground from 6 to 8 inches deep and thoroughly pulverize, especially on the top. Light loams are particularly well adapted since they are naturally friable and easily handled. Heavy soils require a little more care in preparation to make them porous and as fine as practicable. Any soil (but mainly the poorer ones) should be enriched with well-rotted manure, spaded in so

that it is altogether covered. Where manure cannot be had use a mixture of dried blood, bonemeal, and wood ashes raked into the top soil.

Always plant more than a single row, as otherwise the ears may not fill out well; the best method is planting in blocks. Early and dwarf varieties can stand as close as two feet between the rows, but the taller ones require 3 to 4 feet between rows. Sometimes the corn is planted in hills with 2 to 3 seeds in each placed 3 to 4 feet apart in each direction. For the home garden sowing in rows seems really better.

There is less danger of planting Sweet Corn too deeply than with any other vegetable. June plantings are usually placed a little deeper than earlier plantings to make sure that plenty of moisture reaches the seed. One-and-a-half inches is about right for the average soil but for sandier soil 2 inches and for heavier ones 1 inch of cover will suffice. When planting in rows drop the seed 3 to 4 inches apart in the furrow—laid out with a line to get it perfectly straight. A half pound of seed planted in this way will plant 5 rows 50 feet long. Cover the seed with the soil to the required depth and use the back of the rake or the full sole of the shoe to bring the seed in firm contact with the soil. After a few days the sprouts will appear and the first cultivation can be given. Always remember that the roots of corn are formed quite close to the surface and that only the very surface of the soil must be loosened up. A fine dust mulch is all that is needed.

Thin when the plants are 3 to 5 inches high, pulling up two out of every three plants, leaving the strongest. With tall growing varieties three of every four plants should be taken out.

When the spears are about a foot tall give an application of nitrate of soda—about a handful thinly sprinkled alongside the row, keeping away from the plants, since it would burn any part with which it came in contact. Then scratch it lightly into the surface soil.

After the corn is 2 to 3 feet high bone meal can be given as a top dressing—a handful to five feet of row. As the plants grow taller draw up some earth to the first node above the soil where you will find short brace-roots are forming. This will strengthen the holds of the plants on the ground and they will not easily break or bend down under high winds.

Corn planted as closely as in the home garden can hardly be cultivated when nearing its full growth, but that does not matter. The dense foliage keeps the hot sun off the ground and prevents drying out. Occasionally work through the patch with a hand hoe to loosen the surface and take out weeds.

"I TELL YOU THAT CORN, TO BE REALLY SWEET MUST BE FRESH"

Don't grow good corn and let it spoil between the garden and the pot! Cook five minutes, within an hour of picking

As the ears get plump keep a close eye on the patch. As soon as the "silk" begins to turn brown open up the tip of a few ears to ascertain if the grains are plump and full. Press the finger nail into the kernels to find out their condition. If they have gone past the milky stage into the dough-stage they are at the highest sugar content period and are ready for the table. But remember that all the soil preparation and cultural attention will go for nought if you neglect to cook the corn within the hour of pulling. The less the elapsed time between pulling the ears from the stalks and placing them in the boiler, the better the taste. Before going into the garden put the kettle on the stove filled with fresh water and add a little salt. By the time you have picked the ears the water will be nearly boiling. Clean the husks and all the silk from the ears, and when the water is actually boiling drop in the ears and cook for about 5 minutes. Don't boil for half an hour if you care to enjoy its tender and sweet flavor. In serving bring it to the table steaming hot and eat it before it cools off.

If you are a stranger to the superior Sweet Corn start with a good standard variety—one that is known for quality, even though the description in the seed catalogue may not be quite as attractive as that of some high priced novelty. To begin with the early sorts I do not hesitate to give the first place to Golden Bantam. It is really the sweetest of all and has a buttery flavor of its own. It is also a typical home garden variety, having stalks 4 feet high usually bearing two ears on a plant. There are records that it has matured in 60 days from planting, but such a short time is exceptional; but you can bet on having it in 75 days from planting. Golden Giant is a cross between Golden Bantam and Howling Mob, with larger ears, a bigger plant, and more leafage than Golden Bantam. Some people claim that it is as early but in my experience it is fully ten days later. These two give a good succession and will appeal to the gardener who appreciates the yellow varieties. Another big yellow is Golden Rod (Bantam and Evergreen). Fordhook Early, a leader among early white varieties, produces ears of medium size with but a small cob and pearly white grains of finest flavor. Another, Aristocrat, grows 4 to 6 feet tall and has ears 8 to 10 inches long. The broad white grains are very sweet. For main crop Country Gentleman and Evergreen can hardly be surpassed. White Evergreen has been selected from Stowell's Evergreen for earlier maturity and the character of keeping its pure white color when put up in cans. Both possess the great advantage of being "ever green"—of holding their quality for an extended period.

Photographed in Illinois

Attaining to a height of fifteen feet the Smooth Sumac (Rhus glabra) is of delicate and lively beauty, even its greenish flower-spikes being showy and its whole character most decorative

Photographed in Massachusetts

The glaucous-grayish berries of Red Cedar (Juniperus Virginiana)

Photographed in Maine

The Crowberries are a dauntless group, carpeting the most inhospitable banks as this growth of Empetrum nigrum, over a rocky promontory between the forest and the waters of Frenchman's Bay, shows

PLANTS FOR GARDENS FARTHEST NORTH

ARTHUR G. ELDREDGE

Beautiful Natives That Languish In the Warmth of the Average Latitude Are Nature's Provision for Less Hospitable Climes

SUITABLE hardy plants for northern latitudes have long been a problem, inasmuch as the use of materials which endure the average low temperature does not insure against failure in an exceptionally cold winter. But the northern tier of states and southern Canada are favored with many fine plants, very noticeable in traversing this region, which will not grow farther south. They have become adapted to the peculiar climate and conditions in which they find themselves through a long, hard struggle since the last glacial period and for this reason they command our attention. These plants are of three distinct classes:—the aquatics; the plants growing in peaty or sphagnum soil; and the plants growing in the upland, rocky or otherwise. We must further divide this whole region into coastal and inland, for there are many things of marked beauty which will thrive only in the moist air by the sea.

This whole cool region is dominated by the Heath family, particularly the Ericoideae and Vaccinoideae. Its members are marked in their variation from creeping vines to strong wooded plants, a large number having great individual beauty. These two groups have a few very noticeable characteristics. The foliage is in most cases coriaceous, the wood hard and of slow growth, and they require an acid soil which for many must also be wet and cold.

Photographed in Northern Wisconsin

A LAKE MARGIN WITH DEEP WATER JUST OFF THE SHORE

Here are Water-lilies, Pickerel-weed and Bog Rosemary —the latter afloat—while the grassy banks are thick with Coreopsis

Far northward desirable aquatics are very few. We might name the two Water-lilies, Nymphae or Castalia, odorata and tuberosa, the Cat-tail (Typhus latifolia), the Arrow-head (Sagittaria) a Bog Rosemary (Andromeda polifolia and glaucophylla) and Chamaedaphne calyculata. The Water-lilies are easily first in favor, but are not common north of 48°. The Cat-tails and Sagittaria are splendid plants for water edges, growing where little else that is attractive will grow. They make a pleasing border at water margins which in dry seasons become unsightly.

It is not usual to think of Andromeda glaucophylla as an aquatic, but having seen it do so well in that capacity I suggest it for that use. In northern Wisconsin this plant is of maximum size, while near the Eastern coast it is smaller. On the coast of Cape Breton I have found A. polifolia growing in rather dry sphagnum soil. It is a rather small recumbent plant and, like glaucophylla, has quite large pink or white flowers. The foliage of both is a delicate light green, some more glaucous than others. Both grow far north to the Arctic, but not south of Pennsylvania. The Leatherleaf, (Chamaedaphne or Andromeda calyculata) grows in locations usually flooded in spring, and on higher banks occasionally. Its drooping branches, strung with pearly flowers for a foot along their lower side with ascending leaves on their upper side,

are most decorative, marking the plant for easy identification. Its foliage becomes rusty where too warm.

FOR upland plants let us name Ledum groenlandicum, Taxus canadensis, Empetrum nigrum, Myrica carolinensis, Cornus stolonifera, Rhododendron canadense, Rhododendron lapponicum, Arctostaphylos Uva-ursi, and Vaccinium corymbosum. Although the Labrador tea (Ledum groenlandicum) grows in wet sphagnum bogs it grows also in drier locations. It is an attractive plant—but spare me from drinking it while there is yet Black Ceylon! The leaves are fragrant when crushed and interesting because of the thick rusty wool on the lower side. Specimens growing in a sphagnum bog in mid-Wisconsin were smaller than those growing in the same latitude on a hard clay bank exposed to all the northerly weather on the eastern shore of Lake Michigan.

A fine trailing evergreen found as far north as Newfoundland is Taxus canadensis. It grows in thick woods customarily, individuals winding among the trees to the length of fifty feet or more. In the shade it is thinly branched, growing waist high. In the open sun it becomes very thick and bushy. It bears a soft red, dimpled berry in the fall of the year.

The Crowberry (Empetrum nigrum) is classed as a degenerate Heath. It has the rare quality of forming a solid evergreen carpet. In the vicinity of Frenchman's Bay, Maine, it grows in solid mats several feet wide, between the evergreen forest and the rocky water edge. Attempts to grow it on the Massachusetts coast have failed, possibly through faulty propagative methods. It will not endure the summer heat of low latitudes, but may be found on mountain tops of New York and New England.

The Bayberry (Myrica carolinensis) is a familiar shrub. The berries are a feast to the birds on cold winter days and the wax is made into candles by patient people. Most property owners consider it a nuisance but to the landscape architect it is a friend and ally. It prefers a well drained soil, thriving on sand and gravel, even down by the salt breath of the sea. In locations where much beaten by the wind it is thicker and finer in foliage. Its range is north to Prince Edward Island.

Photographed in Maine

THE GROUND HEMLOCK IN A CONGENIAL SPOT

Liking shade as it does, this evergreen (Taxus canadensis) adapts itself readily to the sun and the garden, where it becomes less straggling

Its red stalks making a rich mass of color against the snow, Cornus stolonifera is a valuable and much used plant. As we go north it is plentiful in swampy places and by the water courses even to the Mackenzie River. Rhododendron canadense is a deciduous plant growing northward to Newfoundland and very fine when in bloom. In Massachusetts I have seen it in sphagnum moss of low wet hollows but these conditions are not essential to it. The Lapland Rose Bay (R. lapponicum) is a boreal plant growing at high altitudes from New York to the Arctic. It is a small recumbent plant, in broad tufts, evergreen.

One of the finest evergreen ground covers is the Bearberry (Arctostaphylos Uva-ursi) which thrives in sandy places. There is moreover little competition for the ground which it covets, such usually hopeless spots as the sandy slopes of railway cuts suiting it to perfection. It forms large solid mats when young, but as it ages it winterkills with unfavorable winter conditions. Its range is not so far north as that of the plants hitherto mentioned. Like some of its relatives (the Oxycoccus Vacciniums or Cranberries) it is kept in better condition by a yearly light covering of sand, which induces it to throw out much new wood with larger and brighter foliage. The bumblebees are fond of it in blossom, but I have never seen any bears gathering the abundant crop of red berries! More northerly in range is a very similar plant, Vaccinium Vitis-Idaea, the Upland Cranberry. The foliage of this is scanty but much like the Bearberry; its fruit is smaller but solid and acid—quite like the Bog Cranberry indeed, and from Maine northward it is gathered for food, making fine jelly. Except for its fruit the swamp Huckleberry (Vaccinium corymbosum) is shown little consideration, yet give one a chance and see what fine landscape material it becomes; strong wooded and bushy, and white with corymbs of large flowers. Its fragrance is very enticing to bumblebees—and how impatient are their clumsy efforts over the flowers, which are really too small for them.

THE herbaceous plants are not of course to be forgotten. Far north, particularly in Ontario and the western part of Quebec are many plants that are also common southward into the states, but there are in addition some very distinctive ones which do best only in cold situations. There is the Pitcher-plant (Sarracenia purpurea) common in the cold sphagnum bogs from Wisconsin northward, growing to perfection unaffected by summer heat. There are Orchids too, and Lilies resembling Orchids, that hide in the shade of wet woods. (These must be patiently sought for). The Snowberry (Chiogenes hispidula) may be included too, although it is not herbaceous. It dwells in the wet and cold of Tamarack swamps, and though its fruit—waxy white and spotted—is its only attraction, it helps to make interesting the wet, shady places where few plants grow. Cornus canadensis has no competition in its class, and it is a much better plant near its northern limit. Where Spruce forest meets the meadow how often in the north I have seen this plant from a surprising distance, its scarlet berries vivid against the leaves.

I cannot remember that the first acquaintance of any other flower has impressed me as did the Twin-flower (Linnea borealis). The charm of its delicacy and the great fragrance from so small a flower come as a double surprise in the cool wet northern woods where flowers are scarce; and you must get down to mother earth to sense the intimacy of these two exquisitely delicate flowers, borne on a stalk so slender that it would seem to break. They seem to be individuals with responsive faces,

Photographed in middle Wisconsin

NO ONE CAN EVER TAKE THIS PLANT TO BE ANYTHING BUT JUST ITSELF

Uncommon though it is save in its own cool sphagnum bogs, the strange, beautifully veined leaves of Sarracenia purpurea announce it as the Pitcher-plant—why not copy them for cream-mugs?

Photographed in northern Wisconsin

A FASCINATING QUARTER DOMINATED BY THE GHOSTLY INDIAN PIPE

Four stalks of Ledum groenlandicum keep close company with pale Monotropa uniflora in the centre, thin-leaved Andromeda glaucophylla rises taller behind, while Chiogenes hispidula rests on the sphagnum which floors this Tamarack swamp

and you move from flower to flower with an almost personal consideration.

Some of these wild plants are not commonly known; are indeed very little known. For they do not grow by the roadside to be dusted out of recognition by the tramp of those who cannot or will not see. Hence the price of their acquaintance is an interest in, and a sympathy with, the out-of-doors. You must search them out in hidden places, forgetting the distance or the roughness of the way—or at any rate disregarding these. They are worth all the effort and the trouble, each and every one of them, if material for the most forbidding latitudes is desired.

As a last word it may be well to say to the prospective collector that while it is of course natural to judge a plant or a wild flower by its appearance as it is first found in the wild, often it may be in an unfavorable location. Moreover, many wild flowers are not attractive—or at any rate not striking—in their wild state. Preparatory to undertaking the consideration of any wild flower as garden material therefore, remind yourself of this; and also of the fact that a change of conditions will improve a plant in form, color, and general characteristics, providing it is sympathetically treated and will submit to domestication at all.

DRAWING ON NATURE'S SERVICE OF SUPPLY

KATE B. BURTON

And What Garden Can Be Tame When the Wild Flowers of Woods and Fields Contribute Their Local Color?

ON TWO acres of land in Suburbia with a brook as a western boundary this little wild garden simply invited itself—for the large trees bordering the little stream shaded this corner nearly all day; therefore, it was obviously intended for a wilderness. The bank confining our side of the brook was the actual site—and a weedy, unsightly place it was; so the first move, of course, was to spade up the ground, and eliminate these weeds.

One of the cross roads about a mile away is something of a dump and here the contractor who paved the street threw out a great deal of the stone curbing—because it did not fit perhaps, or for some other reason. Anyway it was scattered about; I asked the man in charge if I might have it, he said I might; I engaged a team and wagon, and in four hours was the gratified possessor of the necessary building material.

Sketch by Mrs. Bole

A LOVELY COMPOSITION THE YEAR AROUND

Too seldom is the beauty of bare tree-trunks and branches against the snow a considered part of a scheme

The little drawing shows the irregular slope of the bank, and the two gentle flights of steps coming from the top on each side of the seat, the one on the right continuing to the brook. For the seat the bank was dug out in the centre and the bottom, back, and sides paved with the curbing and cemented; and here is a pleasant place to rest and incidentally to watch the strenuous golfers from the links over the way fishing their golf balls out of the water.

AN OVAL bird bath was easily and inexpensively evolved from cement by home talent, and a number of small boulders were fished up out of the creek and arranged to appear as indigenous as possible beside it and before the seat. Indeed larceny in the matter of non-precious stones is my besetting sin, and no motor trip seems a success unless one good specimen comes home to the wild garden.

The authorities tell us that in laying out a wild garden it is essential to know which plants are lime lovers and which are lime haters. Orchids, Arbutus, Shortia, Blueberries, and Pitcher-plants all belong in the second class, and crave a sour soil. Manure and commercial fertilizers should be shunned like the plague, and every leaf should be saved for their corner.

Apart from this one important point the choice of both shrubs and flowers is a simple matter. Actually it is no trouble but a delight to transplant wild flowers, and there are still groves near every city untouched by allotment men, where Geranium, Hepaticas, Bloodroot, Trillium, and other lovely things may be had for the digging, just one here and there, which will never be missed. Be very careful not to take many from one place; it is only because they are often doomed to extinction near a city, through development and the advance of population, that collecting of any sort is legitimate. Bear this in mind always.

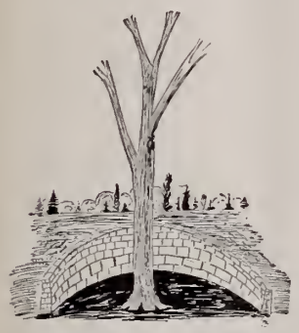
With shrubbery as with flowers only the native born were admitted. Some I chose for tenacity of life, as the soil was poor; and some for spring beauty or autumn color. Laurel and Bayberry make a background for the bird bath, Low-bush Huckleberry edges the steps, and Brier-rose and Steeplebush screen the seat from the house. There is of course a great variety of wild flora to choose from and it is merely a question of suiting the particular location and the individual taste. Among the native Heaths, the Mountain Andromeda, Azalea Vaseyi, Galax, Shortia, Partridge Berry, and Wintergreen should certainly be included if possible. And the combination of Virginia Bluebells (Mertensia) with Wild Geranium in the spring, and masses of purple Asters, Goldenrod, and white Eupatorium in September ought never to be omitted!

PRESERVING THE BEAUTY OF SHADE TREES

GARRETT M. STACK
Horticulturist

Things That Must Be Guarded Against to Give Them a Fair Chance to Live and Thrive and Increase from Generation unto Generation

THE protection of healthy young trees from all possible chances of injury, such as small wounds from driving nails in the bark or larger ones from horses or wagons is life insurance of the best kind, for all such injuries favor inroads by insects or disease or both. Many valuable trees have had their lives imperilled from an insignificant wound, inflicted where water could enter and thus gradually promote disease and a weakening of the trunk soon beyond repair. Trees make a continuous demand on the soil too for air, food, and water. In their forest home the leaves fall and decay and nature returns to the tree a supply of plant food; but on the street or in the home grounds the return of nourishment is not accomplished because leaves are raked up and burned. Thus the tree loses its natural food, and in many instances the diseased condition of public shade trees can be traced directly to starvation. Without sufficient food a tree cannot perform its natural functions any more than any other organism; portions of the framework become weakened and either barely remain alive or die outright, and other parts cannot make a vigorous growth and finally degenerate into such an enfeebled condition that they are susceptible to diseases that destroy the tree so far as beauty and value are concerned.

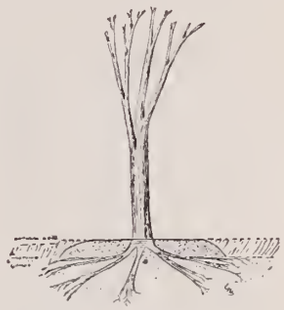


A brick wall retains the grade when this is raised at one side

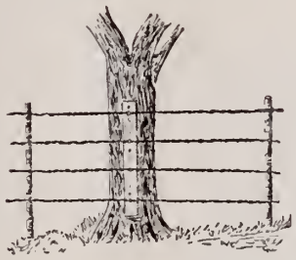
Trees at a corner should always have protection at the base

Water is provided where the roots need it by stone filled holes

Always build a well around a tree if the grade is raised



Leave a mound above the roots if the grade has to be lowered



Fasten wire fencing to a cleat to keep it away from the tree

TAKE as a common instance too, the changed conditions under which a fairly typical Sugar Maple, now growing in an inland city, finds itself. Some seventy-five years or so ago it was planted, when the present street was a mere country roadway lacking even a foot path. In the course of a few years this roadway changed to a street in a village; later to a city street with sidewalks, brick buildings, and a concrete pavement—and the sapling standing on a roadway had grown to a mature tree on a busy street. Presently a brick building occupied space on one side of the tree while on the other side, in addition to concrete sidewalk and paved roadway, were gas and water mains and sewers, below ground. During the tree's early life enough fertility was at hand to supply its need, but when the food reservoir was cut off, growth was retarded and the tree ceased to put out normal annual growth.

A cavity about fifteen feet from the ground shows where a branch was hacked off with an axe or cut with a long "stub" on which a smooth layer of bark could not grow to cover the raw surface; so insects and disease entered, to work their way through and into its heart. Of course the large roots were cut off in digging the cellar of the building, and more were removed in levelling the surface for the sidewalk; others were cut off when the gas and water company piped the street, and above ground injury followed the use of the tree as a hitching post for horses!

Damage caused by lightning is usually beyond control, yet there are instances where trees have been killed because iron railings against the tree have made a direct connection with a continuous fence of wire more than a mile in length and provided a path for lightning to travel from one tree to another. The damage inflicted upon the trunk of the last tree was seemingly greater than where the bolt entered. When lightning enters the tree from the top, it generally takes a spiral course downward and appears to go around the branches. If the damage happens in summer before the tree has completed the season's growth, timely removal of splinters and protection of the wound often saves the tree. It is an interesting fact that evergreens are not as easily killed by lightning as deciduous trees. Pines and Hemlock will generally survive even repeated visitations and continue to grow afterward.

Trees often suffer from extremes of temperature. A sudden change during winter from very cold weather to a warm period will cause buds to enlarge to the extent that they are winter killed. Another disastrous occurrence is a sudden drop from warm weather to extreme cold; the sap in the tree becomes frozen and rapid shrinkage of the bundles of sap tubes cause cracks or fissures to appear in the direction of growth. These cracks close when the weather becomes warmer and generally heal over, but once made the fissures will reopen with less difference in temperature than that which caused them originally. The only guard against this is in the protection of tree trunks that are susceptible to injury by screening them with burlap. This prevents the sun from warming the trunk too suddenly in winter. If the cracks remain open, inviting disease, they should be protected with grafting wax or tree paint until the wound has healed.

ICE storms cause great injury to trees, those that make a long slender growth being more liable to damage than are varieties that produce a stout annual growth. Branches carry many times the normal weight when covered with ice. Telephone lines are often carried down by the weight of ice around the wires, and it is a fact that a thin casing of ice around the branch surface equals many times their weight when in full foliage.

Silver Maples and Elms suffer extensively—more so than Oaks and Sycamores. Very often the last named will escape while the Maples alongside them will be damaged. Unless injured branches are cut back to a point lower than the splintered wood, the wound will not heal readily. On old trees large limbs are often secured against possible loss by bolts through the limbs and chains or wire cable connecting the bolts. This operation should be performed by a specialist, however, or more damage will be in evidence after a couple of years than if the tree were left alone.

Wind damage to trees cannot be controlled, but many specimens contain forked branches that require precautions to guard against splitting down, with the possible tearing off of the entire side of the tree. But in placing chains around branches, caution should be taken to prevent girdling or injuring the bark. Rubber hose or wooden blocks that rest between the tree and the chain are necessities. And after they are placed in position they should be inspected often to ascertain to what extent they are protecting the bark from injury. Always allow slack chain so branches may sway with the wind, instead of resisting it solidly; and remember that most of the successful bolting of trees is performed high up in the tree, rather than down to only a foot or more above the large crotches.

WHERE it is necessary to place cement walks or tar pavements around trees, a space should always be left for the enlargement of the trunk of the tree; and never cut the roots off vigorous trees to make room for a straight sidewalk. Either go around or let the roots come up through. If the surface of the ground around a tree is covered with cement as in a roadway, drains and air holes should be left open not more than ten feet apart, so that water can reach the root system regularly. Corner trees, or those located at the extreme edge of a roadway, or even in paths, should have protection at the base. Many trees are bruised by reckless driving and attempts to shorten the distance of the road, to the extent that cavities are formed in the trunk near the ground. A few stones placed partially in the ground at the base of the tree will protect from such injury and lesser bruises and when a tree stands in the centre of a roadway or at the country four corners it is good public spirit to deed a few square feet of space to the town and place a fence around it for the purpose of protecting it.

Trash in the forks of branches and the accumulation of much rubbish, such as leaves, twigs, bark, and old bird's nests, sooner or later starts to decay, forming a suitable place for breeding all sorts of insects and diseases. If a wound is present in the immediate vicinity of the crotch, especially in Maple trees, infection often occurs. As a preventive all trash should be kept cleared away from crotches where branches leave the trunk.

Wire fences and iron railings nailed to trees or placed against them sooner or later cause trouble. The bark tries to overgrow the wire and an opening right into the growing portion of the bark results, and allows insects and disease to enter. So it is good policy to keep iron fences and railings away from trees because of these cavities and the girdling; and the possibility of damage by lightning adds another reason for doing so. Electric and telephone wires are of course often necessarily placed through a tree canopy. In the case of telephone wires there is not much damage to the small branches but the high-tension wires used to convey electric power will often damage a tree beyond repair. The smallest leakage of current will injure Sugar Maple and I have known an entire row of these trees about thirty feet high, to be practically destroyed.

Grading up near trees—filling in several feet of earth—will often smother the root system, and lowering the grade by taking soil away from the root system will expose it dangerously. In the former case it is advisable to lay a well of stone or brick around the tree, and plow the original surface soil before adding the layer of earth. The plowing prevents the natural layer of soil at the old level which becomes the bottom of the fill, acting as a blanket against the passage of moisture, and the well prevents the new soil from shutting off the circulation of air around the trunk at the base of the tree. Where earth must be removed near a tree, it is advisable to allow a mound to remain out around the tree as far as the spread of its branches. The point is never to change the depth of the roots below the surface; and always to be careful that the bark is not in contact with the soil. In the case of small trees it is a great deal better to transplant them to conform with the grade rather than to have a mound or a tree well about them.

Scanty feeding ground for a large tree often causes it to become weakened until it is easy prey to disease. If the soil lacks fertility, or if natural water supply cannot reach the roots, a system of deep irrigation should be employed, for surface watering compacts the soil and will not penetrate to the roots. The simple method of digging three or four holes three feet deep, placing a few stones in the bottom for drainage and an iron or earthen drain pipe erect upon these, to carry water from the surface down to the subsoil, will help a specimen tree to withstand a drought that might weaken it seriously. The earth must of course be filled in when stones and pipe are in place.

The care of trees and their protection against insects, disease, and mechanical injury has gradually assumed proper importance. No longer need the valuable trees on the home grounds or on the street be left to decay and death for lack of scientific care. Men have been trained in the science and to the business of caring for trees, until this work is now a profession where methods are followed that represent years of investigation. To the expert with reliable credentials, therefore, valuable trees should be entrusted, since he performs a service equally as exact in results as an architect's or a doctor's.

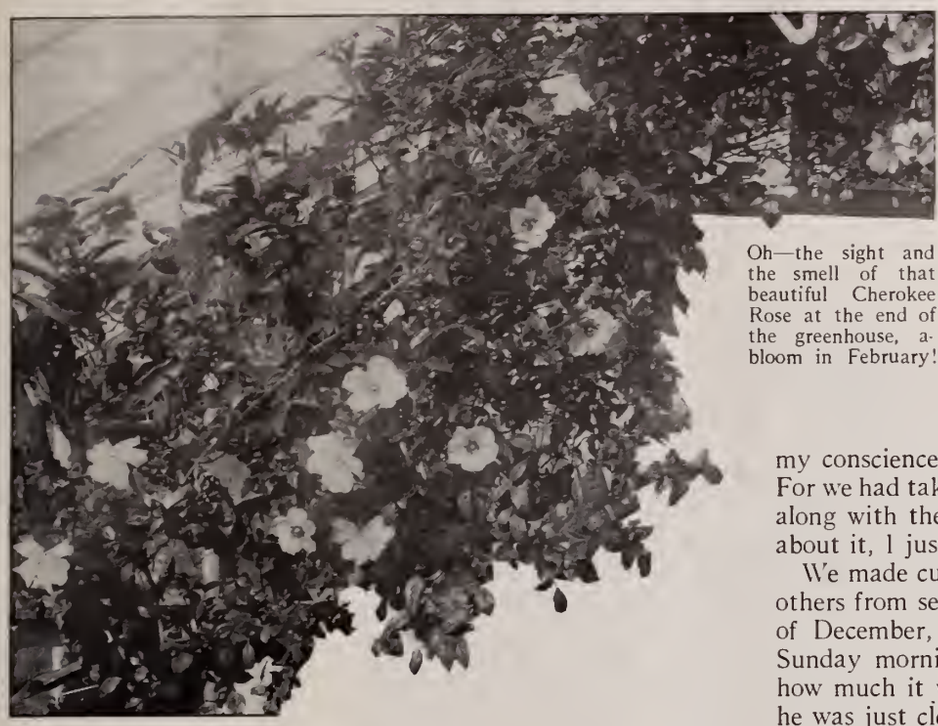
THE BEAUTY OF SHADED STREETS IS A PRICELESS COMMUNITY ASSET

Street trees are subjected to more trying circumstances and to more threatening conditions than others, and should therefore have the watchful care of everyone

THAT LITTLE GREENHOUSE OF MINE

By "MRS. JIM"

Which Turned the First Northern Winter of a Reluctant Discontent into Glorious Summer for a Southern Bride



Oh—the sight and the smell of that beautiful Cherokee Rose at the end of the greenhouse, a-bloom in February!

WHEN the wedding was all over, and I had succeeded in getting the last of the rice and rose-petals out of my hair, and Jim had got all the signs off our luggage,—except the one on the *end* of the suitcase which showed plainest —we went North. And as I had never been farther than Washington before, Massachusetts in early fall was something of a change for me.. Everything was *so* different! We took an apartment in the city—I had always lived in the country—and the houses, the streets, the sky, the people even, all seemed gray and cold. (The people weren't, really; when I got to know them, I found as warm friends as I had ever known.) But even so, everything was different—terribly different.

WE BUY AN OLD PLACE—AND I STEP ON THE MAGIC CARPET

I thought at last maybe the trouble was living in the city. And when I suggested that to Jim, he seemed rather pleased, and said he would like to get back to the open sky himself. And he gave me the address of a "real estate friend" of his, mentioned a price we'd have to stay within, and told me to look around for a place—to keep me busy awhile, I suppose. So, just naturally, next morning I went out and bought one!

When I told him that night he looked a little queer—but Sunday we drove out to see it. And quite to his surprise (I found out afterward) it was just as attractive as I knew it would be.

An old gardener who was acting as care-taker, showed us all through the house and about the grounds; but when Jim and he went off to see the spring I stayed behind because it was raw outdoors and I hated the wind when it blew like that. So it happened that I went poking about alone—and finally found my way to a little door leading out of a room where the heater was, under the garage, which I opened—*and took just one step from Boston to New Orleans!*

I SPRING A LITTLE SURPRISE ON JIM AND HE RETURNS IT

Did you ever get a smell of the inside of a greenhouse when Muscats and Black Hamburgs were plumb for the picking? Mm-mm-my! That's the fragrance I poked my nose into, when I opened that little door! I never knew how those wonderful grapes were grown, until that moment. And how warm and comfortable it was after the autumn chill of the outdoors! I stretched and blinked and felt like I was back home. And Jim always swears that when he got back, I was *purring!*

Well the result of our having that greenhouse was that we moved out the very next week, instead of waiting till spring. We had to put in a new heating system which made my conscience prick a little. But it also gave me an idea. For we had taken over the "Captain"—otherwise the gardener—along with the place and so without saying anything to Jim about it, I just started in to grow all our Christmas presents!

We made cuttings from lots of the plants outside and started others from seed and got some bulbs agoing; and by the middle of December, when I took Jim out to that little house one Sunday morning—after we had figured all through breakfast how much it was going to cost to remember all our friends—he was just clean taken off his feet!

The winter was long, though—frightfully long. And struggle against it as I would, I did get homesick and blue sometimes, especially as my birthday drew near, in late February; and the ground was so cold and white and the earth so bare!

CUCUMBERS ARE REALLY DECORATIVE VINES WHEN OVERHEAD

We tickled Jim's interest first through things *to eat*—just little tastes of delicious vegetables like these big nearly seedless English cucumbers

Then on my birthday morning, Jim turned about and took me out to the greenhouse—and there, against the brick wall at its far end (where I had noticed some bagging hanging for several weeks) was a Cherokee Rose in bloom! That dear boy had sent down home for it, and the Captain had nursed it along; under my nose, without ever letting me know—telling me tales about a draught from that side, to account for the stuff that hid it. Oh—the sight and the smell of that blessed Cherokee Rose!

THE CAPTAIN AND I HATCH A CONSPIRACY

But the little greenhouse *was* draughty and leaky and on very cold nights the Captain would have to stay up half the time. And the slugs, which he couldn't get rid of because of the half decayed boards in the benches, spoiled many of his small plants, and kept him about distracted altogether. And I knew that the Captain wanted—and the Captain knew that I wanted—a new and a bigger greenhouse.

THE OLD GREENHOUSE WAS PICTURESQUE

And sentiment will always cling to it since it was in one sense an initiation as well as a breath of home

The first time I hinted, ever so carefully, at such a possibility however, Jim shook his head. Just the night before though he had been talking about buying a power-boat in the spring that would cost quite as much as the greenhouse. You see he didn't really care greatly—yet—about flowers; but he wanted our place "kept up", just as the former owner had had it. And he told the Captain to go ahead and order the plants that would be needed to do this; and that gave me the idea!

If we were going to spend a lot of money fixing up the place every spring, and considerable more for fresh vegetables in the winter, it seemed to me that I ought to be able to make that new greenhouse *earn* itself—not make any money of course, but make it save so much that it would look like what Jim calls a mighty good "buy." And when I suggested that to the Captain, he jumped at it!

WHAT WE GOT OUT OF AN 18 X 25 FT. HOUSE

So we set to work in dead earnest! And we filled the place with seedlings and cuttings, putting up shelves and brackets on the posts of the old house and hanging brackets from the sash bars, to make room. Furthermore, we did not forget to plant Beans and Cauliflower and Lettuce—and later, Cucumbers and Tomatoes; just a tantalizing *taste* of each, to make Jim hungry for more.

And after everything was done and our place so bedecked with flowers that nearly everyone who passed stopped to look or exclaim over it, I counted up everything in my little green record book. And here are the totals of what we had raised:—628 Geraniums; 344 Petunias; 158 Heliotrope; 500 Pansies; 300 Salvias; 225 Ageratum; 210 Lobelias; 225 Zinnias; 90 Snapdragons; 200 Pinks; 120 Cannas; 175 Phlox; 44 Fuchsias; 110 Daisies; 150 Marigolds; 80 Calendulas; 36 Castor-oil Beans; 200 Coleus; 80 Stocks; 36 Sweet Sultans; 80 Cosmos; 48 Salpiglossis; 48 Dahlias; 100 Kenilworth Ivy; 50 Ice-plants; 24 Canary-bird Vine; 12 Cobea scandens; and 18 Oxalis.

BUT THE NEW ONE DETRACTS NOT AT ALL

Closely joined to the original structure at right angles, its roof lines are good and its interior a veritable houseful of sunlight

THE CONVINCEMENT OF JAMES

And in addition to these flowers, we had all the vegetables we wanted for a good sized garden!—quite an achievement.

Of course, without the Captain's skill and resourcefulness, it would not have been possible. It was really wonderful, the way he kept one lot of things coming on after another, right through until the last Dahlias and Begonias were set out in June. Even Jim became quite enthusiastic and took a personal interest. And when I finally showed him in dollars and cents what the Christmas plants, and the cut flowers (not counting those for his office where the Captain had sent a box daily all winter, Jim's secretary coöperating by putting them on his desk and not telling where they came from) and the bedding and vegetable plants for our spring garden, amounted to, he was very frankly surprised.

"We have to pay the Captain's wages during the winter anyway," I put in, while he pondered over my proposal for a new and larger house, "he might as well be growing vegetables and flowers for us then, as in the summer."

"But how about the boat? We can't do everything at once!"

"The boat" I returned, "we would use maybe twice a week for three or four months in the year. The greenhouse we'd enjoy three hundred and sixty-five days in the year."

"But the coal!" This was his last ditch—and I was ready for him there too.

"We have had to use more to heat this small, leaky, poor little house, than we'd need for a modern one twice its size. Here are the figures, if you want to see."

He glanced them over and capitulated very graciously, and gracefully too, I must say. But that's Jim all over. "Well," said he, "I suppose we can keep the old house for a cool grapery." That was two months ago. To-day they got the new boiler in. And in just a few days more, I'll have the keys to my new, real sunshine kingdom! Already the benches are half filled with Carnation plants, 'Mums, and Roses to be budded, and Tomatoes for fall; and instead of dreading the next northern winter I honestly can hardly wait for it, whenever I look into the place! And Jim is about as eager too, for his interest in flowers has grown with the house, until now he knows their names and helps me check up on things and is altogether getting to be a regular gardener.

When I survey the whole thing generally, I am moved to wonder just how I should be feeling now about living in the North if it had not been for this greenhouse; and to wonder why people don't invest some of the money that goes to sanataria in these health giving, life giving, miracle working glass wonderlands—for even in summer it is a fascinating place, and I find myself wandering out on a rainy day to look at the plants and to watch the rain plashing upon the transparent roof; for it makes rain seem so different.

WILLIAM ROBINSON, THE MAN AND HIS WORK

The Great Genius of the Art of Gardening As We Know It To-day, and His Estate in England Where He Has Made His Dreams Come True

EDITOR'S NOTE: *In a recent personal letter Mr. Robinson reminded me that his retirement from editorial work comes at the end of more than half a century spent in the direction of gardening publications. Hence it seems appropriate to pay a jubilee tribute to this great and influential teacher, inasmuch as the present quickening of interest in gardens and gardening is so noteworthy, and his contributions have so revolutionized gardening the world over by restoring it to its first principle, Nature. So I asked my friend Mr. Arthur Herrington to tell something of the story of Mr. Robinson's life and work, since he knows him better than I do, having worked with him and under his direction, both as a maker of gardens and as a writer about garden plants; and at Mr. Robinson's own request Mr. J. Wilkinson Elliott has been asked to describe the gardens at Gravetye.—L. B.*

I.—THE WORK THAT HE HAS DONE, By ARTHUR HERRINGTON

TO FEW men is it given to labor continuously and with such marked singleness of purpose as has Mr. William Robinson through a period of over half a century, and to sustain and justify convictions in spite of misunderstanding, misrepresentation and even of ridicule. For to understand and appreciate all that this great leader of English gardening has done for the garden art of the world, one must know something about the gardening methods that prevailed when he assumed the self-imposed task of leading the thoughts of people generally, back to truer ideals for the garden. The gardens of England forty years ago, for example, were laid out mechanically by people who knew plants and flowers not at all, and used only such materials as conformed to the lines of their geometric patterns. In some extreme cases no vegetation whatsoever was permitted to soften or obscure the fanciful scroll lines delineated in Box! Indeed the writer has vivid recollections of making over under Mr. Robinson's direction one of these "gardens," where the color scheme of white and blue and yellow had been carried out with white sand instead of flowers, and broken bricks painted blue and yellow. This amazing creation of grass, gravel, Boxwood, sand and painted stones was moreover extolled as the work of a genius!

Such exhibitions could not fail to stir profoundly one who knew the thousands of existent flowers, yet found few or none of them in gardens. So Mr. Robinson wrote a book on "hardy" flowers, in which he described more than a thousand of the most ornamental species; also, having studied Alpine flowers as they grew on the mountains, he gave us "Alpine Flowers for English Gardens," which introduced to us veritable hosts of beautiful things that we had never thought of growing in gardens. Following this came his "Wild Garden" to show how countless flowers from all parts of the temperate and northern world could be permanently established under natural (or wild) conditions and, thus rightly planted, would become gardens in perpetuity and care for themselves.

Immediately there was a great hue and cry, some deriding, others showing actual alarm at what they thought was an attempt to turn the garden into a wilderness, with Nature running riot—but nothing that could be said induced him to change his course. Indeed it seems likely that the spirit of the Crusader has always been his—as well as the vision. For then came the most comprehensive, most helpful and most suggestive of all of Mr. Robinson's works—"The English Flower Garden"—which, first appearing in 1883, has passed through many editions and remains to-day the most complete epitome of good gardening that has ever been written. Mr. Robinson is at present engaged upon a final revision of this great work. The aim of this book was "to uproot the idea that a flower garden is necessarily of set pattern, usually geometrical, placed on one side of the house," to show that "the wants of flowers can be best met, and their varied loveliness shown only in a variety of positions," and to correct "the error of arraying all our flowers in one spot under exactly the same conditions." The treatise "Garden Design" was written to confute two London architects, who undertook to show that formal gardening was the only gardening worthy of consideration, and that the architect of the house should always design the garden. Being usually ignorant of the sizes, habits or requirements of plants, the only garden an architect can design is the formal one whereas the greatest beauty on earth is the natural form and coloring of trees and plants—and the artistic garden will never destroy all this natural beauty.

Books have been only a part of Mr. Robinson's work and of his writings, however, though they may be regarded as the essential beacon lights which have illumined and made clear the way, and their teachings and examples have been of immeasurable value all over the world. "Home Landscapes" was printed and ready for publication when the war broke out, but the publisher considered it useless to offer so expensive a book for sale during the war, so it was stocked up on his shelves to wait a more auspicious time. It is the last word in fine printing and binding, and contains thirty-three superb full page illustrations of scenes in the Gravetye estate and gardens, with explanatory text.

THE GARDENER'S HOUSE BEYOND THE LAKE

Colonies of Daffodils bring early spring to this little pastoral valley

It is not generally remembered perhaps that Mr. Robinson visited America in 1871. In the course of his travels here he of course observed the native flora closely and in some of his early writings he refers to having seen the Cardinal-flower (Lobelia cardinalis) in great beauty, also Lilium superbum. Even at that early date too he recognized the promise of artistic development in the American cemetery, and was so much impressed thereby that shortly afterward he wrote a little book entitled, "God's Acre Beautiful, or The Cemeteries of the Future." Other minor incidents of his American trip that he has mentioned to me at one time and another would indicate that he saw a good deal of the country. And personally I shall always regret that he has not again visited here, for he would see so much now to admire and commend—much that is indeed in a large degree an expression of the ideas and teachings he has persistently put forth for nearly half a century.

In 1872 Mr. Robinson founded *The Garden* as a weekly journal. This he carried on for a period of about 30 years, when it passed into other hands. From its inception he set a high standard for this paper, and maintained it throughout the entire period of his ownership. Its pages were filled with matter of the greatest interest, pertaining to every branch and detail of gardening. Its illustrations were most artistic and the colored plates (one appearing in each issue) were flower and plant pictures in every sense of the word, drawn by artists who became famous; and they were reproduced with truth and fidelity. The first work that Alfred Parsons ever did for example, was for Mr. Robinson, and another (whose fame was posthumous) was Herbert G. Moon, unquestionably the greatest painter of flowers that ever lived. Those of us who are fortunate enough to possess bound volumes of *The Garden* covering a long series of years, treasure them indeed as priceless, since they are not only a most dependable source of information and unfailing means of plant reference, but beautiful as well. And everything that grows out of doors, and much besides, has been at some time or another treated in its pages.

Mr. Robinson's next journalistic adventure was *Gardening Illustrated*, and with this he was a pioneer, for it was the first popular penny weekly journal and there were many who were sure it could not succeed. It can now however in all truth be asserted that *Gardening Illustrated* has made more amateur gardeners than any other publication in the world; and, in addition to this, it has created a vast number of small dealers who cater almost wholly or even entirely to the needs of its readers. Another of his weekly papers, *Farm and Home*, had a wide circulation for many years, and *Flora and Sylva*, a high class monthly journal, was carried on for a few years solely from a desire to portray and discourse upon hardy tree and shrub and flower for the general good. By example as well as by precept too Mr. Robinson has demonstrated the fundamental soundness of his teachings, and at his English home has had for thirty years a garden that has never known a flowerless month. The story of the year is told continuously in flowers, commencing with Snowdrops (Galanthus) in January and ending with Christmas Roses (Helleborus) in December.

When it comes to considering the broader field of the near or distant landscape, especially with regard to proper choice and the rightful ways of planting trees and shrubs, who can tell, at this late day, how much we have been influenced by Mr. Robinson? The bold, free, unconventional groupings of trees, evergreens, and graceful flowering shrubs which we make to-day are undoubtedly very largely a result of his teachings, for it was he who first decried the once prevalent practice of clipping mass plantings into hard, mean-

MEADOWLAND SWEEPS TO THE VERY DOORS OF THE DWELLING

It is characteristic of Mr. Robinson that only a small portion of actual lawn is maintained, the Park generally having its grass uncut until it has grown to hay

ingless, formal monstrosities. At the same time he made his criticisms constructive by showing us what a wealth of material was at our service, and teaching us how to compose it in natural picturesque ways that embellish, instead of mar, the general landscape. And his life work vindicates his dictum that good gardening is a "matter of taste and not of style," to be restricted by man-made conventions and regulations.

Hence to acclaim William Robinson as the great gardening genius of his age is according him only a just and well earned meed of praise; for he, above all men, has had the vision to see, and the faculty to convince the world that, to quote his own words, "of all things made by man for his pleasure a flower garden has the least cause to be ugly, barren, or stereotyped, because in it we may have the fairest of the earth's children in a living and ever changeful state, and not, as in other arts, mere representations of them." Thus to-day we are all his disciples, and gardeners the world over pay homage to this most illustrious of gardeners.

THE HEATH GARDEN AT GRAVETYE IN APRIL, AND ITS PROTECTING PINES

Sheltered by native and ornamental evergreens, masses of white Erica arborea and rose colored Erica mediterranea occupy the background, with pale violet Erica gracilis in the centre and the pink Calluna vulgaris close up

II.—HIS GARDENS AT GRAVETYE MANOR, By J. WILKINSON ELLIOTT

WHEN fortune came to William Robinson, which it has in abundance, he bought a neglected old place known as Gravetye Manor in the hills of north Sussex, with more than a thousand acres of land about it. And to making here one of the loveliest gardens in the world he has devoted a large portion of his time for twenty-five years.

The old gray stone manor house stands about half way up the slope of a hill. This has necessitated a series of terrace walls to secure level spaces where, because paved stone walks and square beds afforded the best treatment of certain areas, he has not hesitated to use them—in which connection let me say, in passing, that some stupid people therefore describe the garden as a "formal" one, though nothing is farther from the truth, or disgusts the owner more. Mr. Robinson's objection never was to terraces where they are needed, as those who wilfully misunderstand him like to assert, but only to their use when there is no necessity for them. These terrace walls of Gravetye are covered with vines and the interstices between the stones are planted with dainty little hardy plants, which rob the walls of all stiffness and formality. Every plant in the garden moreover has been allowed to develop its natural form and beauty.

Beginning at the house the gardens spread in every direction

—and will continue to spread as long as the owner lives! Into the woods, into the orchard, into the meadows they go; where the cultivated gardens end, the wild gardens commence and flow on through woodland and meadowland, and over the entire estate.

The Rose garden devoted to Tea Roses is on the first terrace, The beds were dug to the depth of four feet, and so well prepared that it has rarely been necessary to disturb them since the Roses were planted. This has made it possible to carpet the ground with lovely little dwarf and creeping hardy plants, until no bare earth is to be seen.

Clematis in the numerous small-flowered wild varieties, and the splendid large-flowered kinds from Japan is Mr. Robinson's favorite climber, and thirty or forty varieties are to be found. The small-flowered such as Clematis paniculata are easily grown, but the superb, large-flowered C. Jackmani and its hybrids, are rare in gardens, although hundreds of thousands are grown and sold by the European and American nurserymen. Asked the secret of his success with them, Mr. Robinson says, it is simply, "to get plants grown on their own roots." As only grafted plants of the large-flowered sorts are offered this is not so simple however. They should be propagated by layering of course, thereby securing plants on their own roots.

In the Gravetye garden they are seen at their best, for no stiff and ugly trellises are used to display them. Instead they are allowed to clamber over a shrub or through the branches of an evergreen, which latter furnishes the partial shade they like. The dark green leaves of a Holly tree make splendid background for the scarlet flowers of C. coccinea, for example.

A Holly tree also furnishes support for the most brilliant and lovely of all climbers, Tropaeolum speciosum. This hardy Nasturtium is quite rare in the south of England, but in the north and in Scotland, it is to be found in almost every cottage garden. The Carnation is a popular plant in England, and they are seen in many gardens—mostly tall, lanky plants, with a few very large flowers, stiffly tied to stakes. At Gravetye carnations are grown in great masses; such a profusion of the flowers indeed I have never seen and no stakes! Indeed, I cannot remember seeing any stakes anywhere here, except some to support Sweet Peas, which grew so tall that it was necessary to stand on a chair to pick the flowers.

Perhaps the most unique feature of these gardens, and the one Mr. Robinson is proudest of, is the Heath garden, in which are gathered all the varieties of Heather that are hardy enough for the Sussex climate. This is on a sloping bank, and the different varieties of Heather are planted in masses with just a few picturesque Scotch pines and grass walks leading in and out. In August the place is a mass of pink, purple and white bloom, and I am told that there is not a month in the year when bloom is wholly lacking.

ROSE TIME IN THE ROSE GARDEN AT GRAVETYE MANOR

A homelike structure is the Manor House, built in 1596 and embodying the pleasant traditions of English life, with its terraces and garden walls and sense of warm, friendly intimacy with the ground

EVERYWHERE ARE FLOWERS IN SUCH ABUNDANCE AS NATURE ALONE SHOWS

Along this curving way that leads under the trees to the ponds at the bottom of the meadow-lawn, Narcissus come so early that the shade cannot overtake them, and with the thousands of other bulbs naturalized in the same fashion throughout the estate, make the spring effects at Gravetye comparable to nothing short of the fields Elysian

All the walks of the garden, except those of flag stones in the Rose garden, are of grass kept closely cut. But the grass of the walks and of the bowling green is the only shaven grass on the estate. The broad expanse between the house and the ponds in the valley is never in any sense a "lawn" for close mowing would destroy the bulbs and plants naturalized here. Among the rare plants grown is the so-called great California Poppy (Romneya Coulteri) which makes a great spreading plant five feet high, covered with the poppy-like, white flowers, the beauty of which is greatly enhanced by the mass of yellow stamens in each.

A charming feature is a sunken walk covered with a pergola which goes from the house to a walled fruit garden some distance away. The loose stone walls on either side of this are planted with delightful little hardy plants, while the pergola, roughly built of timber cut on the estate, is covered with vines, notable among which are the great Japanese Grape, Vitis coignetiae, and the Polygonum Baldschuanicum. This Grape is a vigorous, magnificent climber where it is hardy, growing to the tops of the tallest trees, and the crimsons, yellows, and bronzes of its fall coloring are gorgeous beyond description.

Forestry experiments that are extensive and valuable are conducted at Gravetye; and the trees and shrubs in the gardens and everywhere on the estate are seen in all their beauty of natural growth, of course; for topiary work is one of Mr. Robinson's particular aversions.

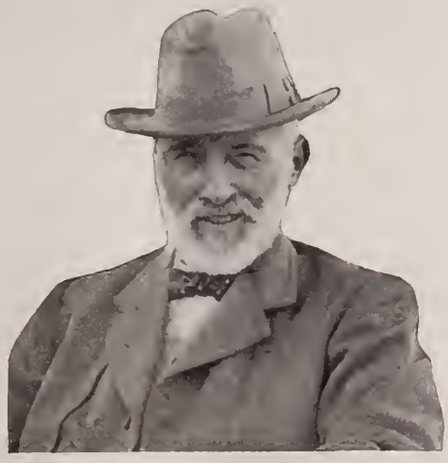
One of the estate's most delightful features is the ponds at the bottom of the meadow-lawn. A small stream has been dammed in two places to make long, narrow ponds, the banks of which have been planted principally with native trees, shrubs and plants. In the water are great colonies of the vigorous growing Water-lilies—Nymphaea candidissima, N. marliacea rosea and N. chromatella—varieties that make true landscape pictures. Mr. Robinson considers the newer hybrids too uncertain in color and too weak in constitution to be of much value for landscape effects. At the head of the ponds and the valley an ancient and very quaint old English timbered house occupied by the gardener sets in a typical English cottage garden. And valley, ponds, and old house make one of the loveliest pictures of quiet rural beauty to be found in all England.

Nowhere has the naturalization of hardy shrubs, plants and bulbs been done so extensively, or effectively as here—and so the spring effects of Gravetye are its great outstanding feature. In the grass on the sloping hillside above and below the house and in the meadows and along the grass-covered woodland roads such bulbs as will take care of themselves when once planted have been scattered by uncounted thousands; and these have of course gone on increasing in numbers and beauty year by year—Snowdrop, Snowflakes, Crocus, Anemone, Scilla, Chionodoxa, Erythronium, Fritillary, Grape Hyacinth, Star-of-Bethlehem, Tulip species, Daffodils, and Narcissus—until beauty beyond words is spread on every side. And this great wild garden comes into bloom year after year without cost or care. May we not well consider the wisdom of avoiding the futile labor and expense which digging and planting large areas of ground at least twice a year involves and give thought to ways and means that develop permanent plantings of lasting character?

Almost every hardy perennial plant and bulb worthy of cultivation is grown at Gravetye and grown in perfection rarely seen elsewhere; these are supplemented by the choicer annuals so easily grown from seed. No greenhouse or glass of any kind is used. Yet the garden is beautiful and interesting throughout the year.

I believe that the "English Flower Garden" has done more than all other books together to improve our gardens and popularly to expound the application of art and beauty in garden planning; and whatever success I personally may have been fortunate enough to have attained as a horticulturist is due to its inspiration.

I have said nothing about fruits and vegetables, but they are grown in the same perfection as the flowers. Here only in all England have I found American Green Corn—and Golden Bantam at that! Protected on three sides by walls, the Corn patch extracts all the heat possible from the somewhat reluctant English sun, and furnishes creditable "roasting ears" by the end of August; not the only distinctively American thing at Gravetye, by the way—for once after luncheon there I was invited into the library to see something that "ought to interest" me, an American. And it did—for it was a set of letters written by George Washington to Arthur Young while the latter was in France studying French methods of horticulture and agriculture!



"Change being the law of life, it is for the young to continue in the right way, never disheartened, and always in the hope that intelligent beings will never return to the Victorian way of degrading the flower garden into rivalry with carpets and even bad carpets"

W. Robinson

Gravetye 1918

A CITY ROOF AS A SUMMER RESORT

MARIAN HURD McNEELY

Under the Shade of Vines Which This Pergola Supported Even the Semi-tropical Climate of New York was Tempered

WE DID it all ourselves! Three women, alone and unaided made it, pergola and all—carried lumber, laid floor, set upright posts, made the boxes and put the earth into them, planted the seeds and the vines and brought the little garden to a lovely maturity that makes us wonder why every city-bound creature does not do likewise.

The garden's site is the roof of a five story old-fashioned dwelling that has become an apartment building; and getting the lumber up those five stories was an achievement that vitalized the Building of the Pyramids into a living reality instead of just a picture in the red geography. But once it was up, the rest was easy.

First, stringers 2" x 3" were laid upon the tin roof 18 inches apart on centres, over a floor space 20 feet long by 12 feet wide. To these the 3" flooring was nailed with half-inch spaces between strips. Wooden bases 3" x 10" for the posts were fastened to the floor by means of iron knees and screws. Upon these the posts, eight in number and of 3" x 4" material, were in turn fastened with similar, though a little smaller, knees. And then each post was topped with a section of itself 15" long, set across it and also fastened with knees.

The overhead portion was built in sections on the floor, of 2" x 2" strips 3 feet long nailed across a pair of stringers of the 2" x 3" material set 15" apart. These sections were then put in place and spiked to the cross pieces atop the posts; and the structure, though light, was as firm and strong as one could possibly desire.

Of the left-over pieces of lumber we made five flower boxes. And then we had two sloppy days with brown stain and paint brushes; and our framework took on a weathered look. Flower boxes and some big lard tubs got the same coat of brown. From the country we had shipped in a dozen bags of good garden earth with which we filled these; and then a swinging hammock was carried up, section by section, and set up, some steamer chairs were added, also a hanging basket. (Woven to be a Chinaman's hat but swinging a pan of Wandering Jew. "Which I should call a mesalliance," said the first guest. But they got on famously!)

EVEN BEFORE THE VINES WERE VISIBLE

Our roof garden caught the most elusive little breezes and was delightfully cool

And so did the garden. In a month's time the vines—Woodbine, Wild Grape, and Moonflower—were at the top of the posts and began to roof us in, and the lard tubs were a mass of green with lusty seedling Marigolds, Daisies, and Rudbeckia. Pansies did not live up to our expectations of them and Nasturtiums died, killing our faith as well; but fortunately we had not relied on either alone. Actually the Moonflowers gave us the greatest pleasure, I think, for they grew by leaps and bounds and blossomed of course nightly, making our garden loveliest when we were best able to enjoy it.

For the benefit of those adventurous souls who may want to follow in our footsteps, here is the page from our book of records labelled "Roof Garden." The total cost was two cents less than $82; probably it would be twice that now—or more.

Lumber:—14 pieces 2" x 3", 12' long for stringers; 4 pieces 3" x 4", 16' long for posts; 1 piece 3" x 4", 10' long for caps; 1 piece 3" x 8", 10' long for bases; 4 pieces 2" x 3", 20' long, 8 pieces 2" x 3", 12' long and 4 pieces 2" x 2", 18' long for over-head. Flooring, 900 sq. ft. 3" wide x 12' long.

Miscellaneous: Hardware, nails, spikes, screws, etc.; 16 pairs 3" knees; 24 pairs 2½" knees; stain and turpentine; hammock and stand; 2 canvas steamer chairs; 2 straight chairs; 6 butter and lard tubs; 12 sacks earth; 2 Woodbine plants (brought from woods); 2 Wild Grape (brought from woods); seeds of Moonflower, Marigold, Nasturtium, Pansies; Daisies (brought from country); Rudbeckia contributed by a friend.

THE HOUSETOPS SEEM SO LOGICAL FOR SUMMER LIVING QUARTERS EVERYWHERE

Here is that privacy which we all set such store by, as well as space and airiness up under the sky and stars

THE ROMANCE OF OUR TREES—
IX. WHENCE CAME THE COMMON FRUITS?

ERNEST H. WILSON
Assistant Director, Arnold Arboretum of Harvard University

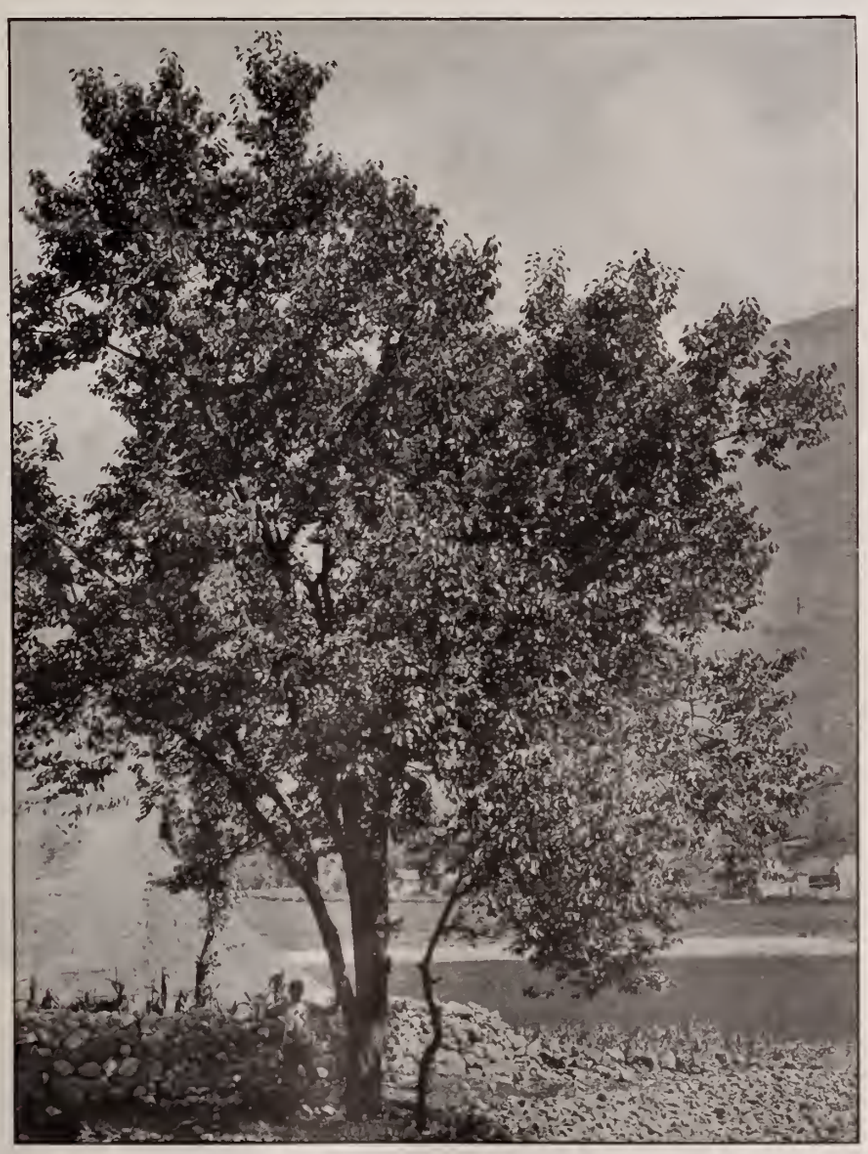
Changed as Greatly from the Earliest Specimens as Man Is Himself Changed and Developed Above His Primitive Prototype, They Still Hold Rich Promise of Further Advance

IN THE northern Hemisphere two forms of civilization have developed during the course of ages, commonly expressed as of the west and of the east, otherwise of Europe and of eastern Asia or the Orient, the dominant factor of the latter being China. So, too, have two distinct stocks of tree fruits. There is the Eurasian group of Apples, Pears, Plums, and Cherries and there is the Chinese group of the same. They are separate and distinct one from another, and have been evolved independently, from the wild species found in their respective areas east and west of the high table-land of central Asia.

The origin of the common fruit trees of our western civilization is lost in the dust of antiquity Some—the Damson for example—can be traced in old Greek literature back to the sixth century before Christ. But they are much older than this, for charred remains of the Apple and stones of the Bullace (Yellow Plum) have been found in the pre-historic lake-dwellings of Switzerland. They are of course the oldest trees cultivated by man; and did we know just where the human race had its cradle we might be a little more sure of the place of origin of our Plums, Apples, Pears, and Cherries. Books generally make them of Eurasian origin, giving their distribution from southeast Europe, the Asiatic shores of the Black Sea, the Caucasus, Persia to Kashmir and north to Bokkara.

Possibly some of them, like the Common Plum, were first cultivated on the shores of the Caspian Sea and on the Plains of Turan where the Huns, Turks, Mongols, and Tartars, flowing back and forth in tides of war-like migration, maintained in times of peace a crude agriculture—probably long before the Greeks and Romans tilled the soil. But all that can be definitely stated today is that our common fruit trees are native of those parts of the Old World west of the highlands of central Asia.

Since the wild habitat of the trees is not clearly understood, it will occasion no surprise to learn that botanists differ in opinion as to which species some of the domesticated fruits belong. Naturally they have become so vastly changed under long cultivation that they bear but a remote resemblance to their ancestral forms. And another fact that adds enormously to the confusion of the problem is that the parts of Europe, western Asia and the Orient where they are supposed to have had their home, have changed completely under long, if intermittent, practice of agricultural husbandry. The ravages of a thousand wars and the migrations of peoples have likewise profoundly influenced the circumstances, until in the case of the common Apple and the Domestica Plums it is indeed doubtful if we shall ever be absolutely sure of the original habitat and identity of the feral types. Reversions toward the wild type or types of Apple—Crab-apples—are found everywhere in the world where Apples have been long cultivated; and casual observers have concluded that these are truly wild. But "naturalized" is the correct term to apply to them since they are possibly all escapes from ancient cultivation.



THE APRICOT IN CHINA IS BOTH WILD AND CULTIVATED

Its story is similar to the story of the Peach, both probably coming from the land of their nativity by the old trade routes across central Asia into Persia, and thence on to the Romans

The latest authority as represented by Bailey's "Standard Cyclopedia of American Horticulture," V, 2870 (1916), gives southeastern Europe to western Asia as the home of the principal, or supposed principal, parent of the Apple, and western and central Europe for its other and lesser parent. The fruit was supposedly introduced into France and Britain by the Romans, as was also the Pear; and like that, probably reintroduced by religious houses on their establishment, after the

introduction of Christianity. Other authorities claim that the Apple was to the Druids a sacred or semi-sacred tree, and that it was cultivated in Britain from the earliest ages.

The Apple tree is mentioned by Theophrastus and Herodotus, and is also distinguished by legends in the mythologies of the Greeks, the Scandinavians, and the Druids. Hercules was worshipped by the Thebans under the name of Melius, and apples were offered at his altars. The ancient Welsh bards were rewarded for excelling in song by "the token of the Apple spray."

The Apples of the east, or Orient, have been derived from Malus asiatica, which grows wild on the margins of woods and on the banks of mountain torrents in Hupeh, central China, where I discovered it in 1907. In habit, general appearance and flowers it resembles M. pumila, but the fruit stalk is much longer and more slender and the fruit is small. When the Chinese first began to cultivate this Apple there is no knowledge; but it was long, long ago; and from China it has been introduced to Korea and Japan—where, however, it is fast being displaced by Apples of the European type, introduced from America.

The Apple, most anciently cultivated of all fruits and richest in tradition, reaches its highest development in the western hemisphere

Dedicated by the ancients to Venus, the Quince is beautiful enough in flower and fruit and delicious enough when properly served, to merit popularity

The history of the Common Pear—Pyrus communis—closely parallels that of the Apple but there is much less folk-lore gathered round it. It is mentioned by the earliest writers as abundant in Syria and Greece, and from the latter country it appears to have been brought to Italy. The Romans introduced it to France and Britain and the early settlers brought it to this country. Theophrastus speaks of the productiveness of the old Pear tree, and Virgil mentions some pears which he received from Cato. Pliny, in his 15th book, describes the varieties in cultivation in his time as being exceedingly numerous.

The parent of our Pears is undoubtedly of Eurasian origin, being found over a considerable portion of Europe and eastward to the Caucasus and northern Persia, but it is difficult to tell between naturalized escapes from cultivation and true wildings.

We are entirely without knowledge as to how long the Chinese have cultivated their Pears, but three thousand years is not an exaggerated estimate. One group known generally as the Sand Pear, was introduced into Japan more than a thousand years ago and is very extensively cultivated there to this day. The Pears of the Orient are not of the familiar pear-shape but are generally flattened and depressed top and bottom like our Apples, though a few are egg-shaped. They are very firm and gritty in texture, and rich in a sweet watery juice. At present it is certain that two species, Pyrus serotina and P. ussuriensis, have been concerned in their evolution; whether others have played a part has yet to be determined.

The Sand Pears, of which there are brown- and green-skinned kinds have apparently all been derived from P. serotina, a common wild tree in central China, where I discovered it in 1900 and introduced it into the Arnold Arboretum in 1909. It has not been found wild elsewhere. The other species (P. ussuriensis) is more northern, being abundant in central and northern Korea, less so in Manchuria; it has recently been found wild in Japan in the region round Mt. Fuji and on the mountains of Shinano province in mid-Japan. Many varieties of this are grown in Korea and Manchuria and the most northern parts of China. Around Peking a variety known as the White Pear having a delicious little, apple-shaped fruit of a pale yellow color is much grown. There are a few hybrids between the Sand Pear and the European Pear, the best known being the Kieffer which we grow largely for the canneries.

The Quince—Cydonia vulgaris—is now-a-days more esteemed in New England than in Britain. A low tree with tortuous, rambling branches, considered native of southern France and central Europe, it was known to the Greeks and Romans and by both nations held in high estimation. By the ancients it was considered the emblem of love, happiness, and fruitfulness. It was dedicated to Venus and the nuptial chambers of the Greeks and Romans were decorated with the fruit, and the bride and bridegroom also ate it as soon as the marriage ceremony was performed. Three species of Quince grow in eastern Asia but their fruits are of little value; they are, however, very decorative garden subjects. Another old fruit tree seldom seen now-a-days is the Medlar (Mespilus germanica) whose fruit is not eaten until it is in a state of incipient decay, when it is very agreeable to some palates.

Now let us consider the stone fruits

Cherries were one of the first fruits planted by the settlers here, just as they were planted by the Romans in Britain sixteen hundred years before

which, like the preceding, all belong to the great Rose family. At the head of these stands the Peach—Prunus persica—unquestionably introduced to this country in the voyages undertaken for exploration and commerce soon after the discovery of America by Columbus. We are sure of this because soon after permanent settlement had been made in the South, the settlers found that this fruit was in widespread cultivation by the Indians, and as early as 1682 William Penn wrote, "there are very good peaches in Pennsylvania, not an Indian plantation is without them."

During the reign of the Emperor Claudius the Romans received the Peach from Persia, and for centuries it was considered native of that country, hence it received a specific name to that effect. Present-day authorities, however, are pretty well agreed that its real home is China, though undisputably wild trees have never been discovered anywhere! Nevertheless, it is found naturalized over the greater part of China, where it has been cultivated for its fruit as far back as records go. And personally, I think there can be no doubt about its having its origin there. I am convinced that it reached Persia and the Caspian region through seeds carried by the old trade route across central Asia. The smooth-skinned Peach—otherwise the Nectarine—is also of Chinese origin, and seems to prefer a rather warm climate. It is much grown in northern Formosa.

Of peculiar interest to us to-day is the Plum, since our native species offer richer promise than anything else of carrying forward the story of fruit development

More widely distributed than any other fruit is the Peach and most generally prized, though it is not certainly known wild anywhere in the world

The delicious and popular Bartlett Pear represents the ancient European type, varieties of which were very numerous even in the time of Pliny

From China the Peach was long ago taken to Korea and Japan, where to-day a great many local varieties are cultivated. To France and Britain it was introduced by the Romans, but it was not much cultivated in England before the 16th century. The Spanish as already mentioned, introduced it to South America; it has been planted in the more temperate parts of Africa (the famous missionary-traveller, Livingston, planted it by the Victoria Falls on the Zambesi River), it has made its way to Australasia and, indeed, no fruit tree is to-day more widely grown.

The Apricot—Prunus armeniaca—is another fruit tree whose specific name is a geographical misnomer. Originally considered native of the Caucasus and Armenia its Chinese origin is now pretty generally accepted. And its history is similar to that of the Peach. The Romans received and cultivated it—it is described by Pliny and Dioscorides—and almost certainly carried it to France and England, though the first mention of its being in England is in Turner's "Herbal," published in 1562. In China I personally know it only as a cultivated tree, but many travellers have seen it wild in the northern provinces. It is much grown in Korea and though I have not yet had time to compare critically the material, I am inclined to think that an Apricot I gathered on cliffs in northern Korea, and unquestionably wild there, represents this species.

A common wild tree in central Korea is the Manchurian Apricot (P. mandshurica) which grows to a very large size. Its fruit is similar to that of the common Apricot but the leaves differ and its bark is thick and corky, black outside and red beneath. Then there is the so-called Black Apricot (P. dasycarpa) of uncertain origin but probably west Asian, introduced into England in 1800. This has white flowers, produced very early, and purplish-black fruit.

In his "History of Plants," written some 300 years before the Christian era, Theophrastus gives a good description of the Sweet Cherry; but in ancient Greece it was little esteemed as a fruit tree. Pliny states that Lucullus, the Roman soldier and epicure, brought them to Rome sixty-five years before the birth of Christ. But Pliny may have been in error since the illustrious Roman scholar, Marcus Terentius Varro, in his book on farming, written in 37 B. C.—only twenty-eight years later—treats of them as commonplace orchard trees of the period, and tells when and how to graft them. The Romans carried cultivated varieties to England and the tree became well established in Kent during their occupation of Britain.

The Cherry trees that are cultivated in gardens and orchards of the West for their fruit, are the product of two species—Prunus avium and Prunus Cerasus—respectively the Sweet and Sour Cherries, both of Eurasian origin. They have been cultivated from very early times and their history is very similar to that of the Apple and the Pear. The Sweet Cherry, Mazzard or Gean, from which the Heart and Bigarreau cherries have been derived, is a native of western Europe (including England and Norway) and eastward to Asia Minor and the Caucasus, but is rare in a wild state in Spain and Italy; in Russia it is appar-

ently confined to the southwestern provinces and to the Crimea. It is less hardy than the Sour Cherry, suckers little from the roots; and to the fact that birds favour its fruit it owes its specific name.

The Sour or Pie Cherry, from which the Kentish Cherries and Morellos have been derived, is native of southeastern Europe, Asia Minor, and the Caucasus. It is naturalized in the colder states of this country and over a great part of Europe. A variety (marasea) native of Dalmatia is worthy of mention as the source of the distilled liqueur Maraschino, much used in Europe and elsewhere in the preparation of Maraschino Cherries.

This was one of the first fruit trees planted in this country, having been brought to New England by the earliest settlers. Francis Higginson, writing in 1629, states that the Red Kentish was the only Cherry cultivated in Massachusetts; but as early as 1641 Cherry trees were on sale in a nursery in Massachusetts. John Josselyn, who made voyages to New England in 1638, 1639, and 1663, writing of "New England Rarities Discovered" says, "It was not long before I left the Country that I made Cherry Wine, and so may others for there are a good store of them both red and black. Their fruit trees are subject to two diseases, the Meazels, which is when they are burned and scorched with the sun, and lowsiness, when the woodpeckers jab holes in their bark; the way to cure them when they are lowsie is to bore a hole in the main root with an augur, and pour in a quantity of Brandie or Rhum and then stop it up with a pin made of the same tree."

HERE EAST MEETS WEST AND THE TWAIN ARE ONE

Lusty and disease resistant are the hybrids between the Chinese Sand Pear and the European variety, of which the Kieffer, valuable for canning, is typical

THE Cherries of China are the product of Prunus pseudocerasus, a small tree, wild in the woods of the province of Hupeh, central China. It is not very hardy but is cultivated over a considerable area in China, and also in the warmer parts of Korea and south Manchuria. Formerly it was much grown in Japan but its place has been taken by European Cherries. It has not proved hardy in the Arnold Arboretum but has fruited in Chico, California.

Much more valuable is the Bush Cherry (P. tomentosa) a common wild shrub in central and western China and much cultivated in northern China, Manchuria, and Korea. It is very hardy and will thrive in the coldest parts of the United States. It has short-stalked, globose, scarlet fruit, very juicy and pleasantly acid. The plant seldom exceeds 6 feet in height and as much in diameter. The Sand Cherry (P. pumila) of eastern North America and its western relative (P. Besseyi) have received a little attention from fruit breeders during recent years, and may ultimately prove of some value.

THE consensus of opinion is that our common Plums have been evolved by long cultivation from two Eurasian species, Prunus insititia and P. domestica. To the first named belong the Damsons, Bullace, Mirabelle, and St. Julien Plums. The second is the more important of the two, and here belong the Green Gages (Reine Claude Plums), the Prunes, the Perdrigon, the Yellow Egg, the Imperatrice, and the Lombard Plums. The Insititia Plum was mentioned by the old Greek poets Archilochus and Hippona in the 6th century B. C. and has been cultivated from the earliest times. Nowadays it grows wild in all the temperate parts of Europe and in western Asia to the Caspian region.

The Damsons derive their name from the old city of Damascus. Old works on pomology state that Alexander the Great brought these Plums from the Orient after his expedition of conquest and that some centuries later Pompey, returning from his invasion of the near East, brought Plums to the Roman Empire. It may be assumed with reasonable probability that the Syrians and Persians were the first to cultivate them.

The Domestica Plums were apparently first known and cultivated in the transcaspian region and did not reach Europe until after the dawn of the Christian era. Pliny is the first to give a clear account of these and he speaks of them as a new introduction from Asia Minor. The Prune group of the Domestica Plums are very rich in sugar, which enables them to be preserved by drying without removing the stone. They probably originated in Turkestan in early times, and were brought to Europe by the Huns and became established in Hungary where, in the 16th century, they were an important trading commodity.

When and where the Reine Claude Plums originated nobody knows. The first were introduced to France about the end of the 15th century. And their name commemorates Queen Claude, wife of Francis I. The English synonym, Green Gage, is for the Gage family who procured trees from the Chartreuse Monastery in Paris early in the 17th century. The Perdrigon Plums are an old group and take their name from an ancient geographical division of Italy. Of the Egg Plums the Imperial or Red Magnum Bonum was known in England in 1629 and the Yellow Egg is described by Rea in 1676. Parkinson in 1629 describes half-a-dozen sorts of Imperatrice Plums, distinguished by blue-black, bloomy fruits. Both Insititia and Domestica Plums were among the earliest fruits planted by the settlers in this country, but they have never attained the importance here that they hold in Europe. Finally, there is one more, the Myrobalan Plum—P. cerasifera—native of Trans-Caucasia, northern Persia and Turkestan. It is a hardy, handsome tree, but its fruit is much inferior to that of the two already mentioned, so it is but little grown.

The Plum cultivated in the temperate parts of eastern Asia is Prunus salicina, better known as P. triflora, or in the vernacular, the Japanese Plum. It is indigenous in central China where I have found it to be fairly common, but is unknown in a wild state from any other region. Curiously enough, it is the only true Plum known from all that vast region. In China it has been cultivated from time immemorial, and there are varieties in quantity, some with greenish, others with yellow, red or bloomy-black fruits. From China it has been taken to south Manchuria, Korea and Japan, where to-day it is extensively cultivated.

It was introduced to this country from Japan about 1870 by a Mr. Hough of Bacaville, California, through the United States Consul to Japan at that time, Mr. Bridges. The first ripe fruit of these East Asiatic Plums was produced in the grounds of Mr. John Kelsey, Berkeley, California, in 1876. So impressed with their value was Mr. Kelsey that he urged upon others to take them up, and this resulted in their propagation being undertaken on a large scale by Messrs. W. P. Hammon & Co., Oakland, California, about 1883. To-day about one hundred varieties of this Japanese Plum are grown in this country.

A hybrid between a cultivated form of the East Asiatic Plum

and the common Apricot, known as Prunus Simonii, has been cultivated for nobody knows how long in the provinces of Shantung and Chihli. It was introduced to France in 1867 and has since been much grown in this country. This Plumcot is short-lived and of no particular value.

In North America there grow wild a great number of species of true Plums. Authorities are not yet agreed as to the exact number in this country and Canada, but undoubtedly they exceed the total found in the rest of the world. The cultivation of none of these was attempted however until early in the 19th century, and even to-day their true worth is not sufficiently appreciated. Virtually all have fruit useful for culinary purposes, if not for dessert, and were so employed by the early settlers; and the Indians knew their value and utilized them. The best known perhaps is Prunus americana which is distributed from the Atlantic coast to the Rocky Mountains. It was known in Europe before 1768, when it is mentioned by Duhamel under the name "Prunier de Virginie," but it has never become important there Among the oldest known is Prunus nigra, the Canada Plum first described in 1789, and undoubtedly the dried plum which Jacques Cartier saw in the canoes of Indians, in his first voyages of discovery up the St. Lawrence in 1534. These primitive prunes were a staple article of diet among the Indians in those early times and it is possible that they planted trees of this species about their habitations.

The comparatively recently recognized P. hortulana and P. Munsoniana are perhaps the most promising and valuable of American Plums, especially for the more southern states of the Middle West. The Pacific Plum (P. subcordata) is one of the staple foods of the Indians east of the Coast range, from southern Oregon to central California, being eaten raw or cooked. It is also sometimes dried in quantity. The Chickasaw Plum (P. angustifolia) and the Beach Plum (P. maritima) were both named by Marshall in 1785, and were known to the earliest settlers along the Atlantic seaboard. There are several other named species and numerous varieties, and intimate study will assuredly result in new discoveries, especially as, in recent years, different Agricultural Experiment Stations have undertaken proper investigations. By selection and hybridizing there is much promise for the future, especially in varieties for the Prairie States and those of the Mississippi Valley where European Plums do not succeed. And a century hence these American Plums will probably be in the first rank.

The Jujube—Zizyphus sativa, the Lotus of Tennyson's poem—I must mention, since many of the best varieties have been introduced to this country by the late Frank N. Meyer, for the Department of Agriculture, and it may some day rank among the important fruits of America. This is extensively cultivated in northern China. And another introduction of Mr. Meyer's is the Persimmon—Diospyros kaki—which is one of the most popular fruits of China, Korea, and Japan. Future generations will undoubtedly enjoy fruits in much greater variety than we know, and as superior in quality to those of to-day, as ours now are to those of the Roman period and the Chinese T'ang dynasty.

A PICTURESQUE GIANT AMONG PEAR TREES, SHELTERING SOME HUTS BY A KOREAN ROADSIDE

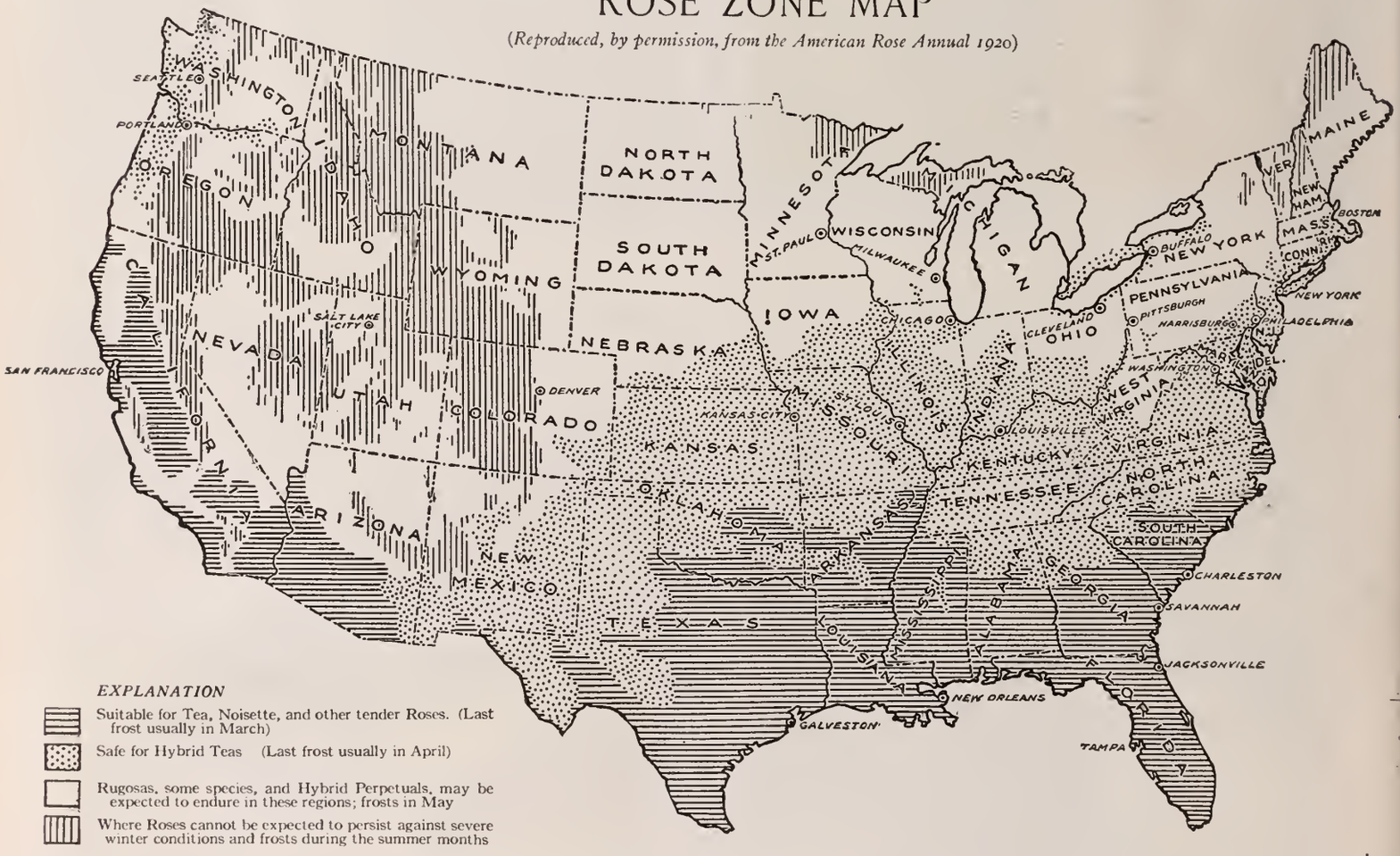
It is the wild Pear which is so abundant in Korea, and this particular specimen is believed to be the largest in that country, being 60 feet high with a trunk girth of 14 feet and a spread of crown 75 feet across

WHERE CAN ROSES BE GROWN?

OF ALL the cultivated plants of our outdoor gardens the greatest favorite, the most popular, is the Rose. More than two million plants have been in recent years imported annually from abroad. But all this available supply is cut off by Plant Quarantine No. 37. Roses will be worth more intrinsically and for some time the domestic supply will likely enough not equal the demand. If we have been somewhat careless in how or where the plants were put out, it is now time to mend our ways and plant with reason. Thanks to the American Rose Society's "Annual" there are available each year more and more facts about Roses, and the map reproduced herewith is calculated to help the inexperienced Rose grower in forewarning him against useless endeavor. The map has been prepared in the Bureau of Plant Industry by Dr. W. M. Taylor, Prof. L. C. Corbett, and Dr. Walter Van Fleet as collaborators with Prof. F. L. Mulford, who writes that the map is based upon the Weather Bureau record during the time that the various stations have been established. "The area indicated by horizontal lines covers the region where the average date of the last frost is in March, and where tender Roses would find no frost danger. The stippled area is where the last frost comes in April, while the clear area has frosts in May. The areas marked by the vertical lines have more or less frost during the so-called summer months, or extreme winter temperatures or both. The lines between the different areas as a rule rather closely follow these frost lines, although at some of the river valleys there have been rather decided prolongations of these later frost dates northward from the general area, and these have been eliminated from the map because those regions are so narrow, and the limitations of them were such that we felt it would be more misleading to include them than to eliminate them. The same holds true with respect to some of the variations in the Rocky Mountain region. We have tried in every case to make the lines on the safe side. In other words, there are points beyond the places indicated where the more tender varieties of Roses may succeed. As an example of what I mean: There is an area of earlier frost dates on the western shore of Lake Michigan, extending to the Wisconsin line, or beyond, but it seemed wise to us to make the limit of the Hybrid Teas about Chicago instead of extending the area up along the Lake shore in that particular region."

ROSE ZONE MAP

(Reproduced, by permission, from the American Rose Annual 1920)



This map, the first of its kind, is of course tentative in its determinations but it shows in a general way where the different classes of Roses may be successfully planted

Criticisms of the map and the limits it sets are invited by its sponsors to the end that it may be made more perfect, and attention is called to the fact that there are other factors of Rose success beside frost. These are to have the same careful consideration, as data regarding them are accumulated; for all of which the Society is to be congratulated. This is the sort of careful practical work that brings the culture of plants into the realms of exact science, and insures continuous and wholesome horticultural progress. There is no reason why it should not be done with any chosen species, since it is simply a matter of patient painstaking and keeping of records.

JOHN C. OLMSTED
1852-1920

IN THE death of John Charles Olmsted on February 25, the profession of Landscape Architecture lost the most representative man of his time, whose work throughout the United States constitutes an enduring monument to his memory. Born in Geneva, Switzerland, in 1852, he received the degree of Bachelor of Philosophy from Yale in 1875, and then took up the profession of Landscape Architecture under his uncle, Frederick Law Olmsted, Sr. In 1878 he became a partner, under the firm name of F. L. & J. C. Olmsted, and, upon the former's retirement about twenty years later, became, and till his death remained, the senior member of the widely known Olmsted firm.

Thus for more than forty years he was in active practice, and during all that period was concerned with large and important undertakings of widely varying character. Hundreds of private estates in all parts of the country, and the grounds of many different institutions—universities, schools, asylums, sanitariums, libraries, state capitols, town halls, and exposition buildings—were developed by him. With his partners, he was concerned in the design of the grounds of the World's Fair in Chicago, 1893; the plans for the Seattle Exposition, 1909; the Lewis and Clark Exposition, Portland, Oregon, 1906; and the Canadian Industrial Exposition at Winnipeg, Manitoba.

His greatest and most lasting service, however—the one of most far-reaching influence—has probably been in park design. He was concerned in the design and development of the great park system of Greater Boston, Mass.; the exceptionally beautiful, large parks of Hartford, Conn.; parks of Brooklyn, N. Y., including the Shore Drive; and the extensive Essex County, N. J., system, as well as the parks of Bridgeport and Fall River, Mass., Buffalo, Rochester, and Watertown, N. Y., Chicago, Ill., Dayton, O., Detroit, Mich., Milwaukee, Wis., Seattle, Wash., Spokane and Portland, Ore. and Portland, Maine; and, in the south, Louisville, Ky., Charleston, S. C., Atlanta, Ga., and New Orleans.

Among other notable powers and professional characteristics, he had a remarkable visual memory, a painstaking care for the details of his schemes, a thorough knowledge of his materials including plants, and exceeding skill in their arrangement. His quiet strength of character and his gentle, kindly personality made him strong friends among his associates. He was the first President of the American Society of Landscape Architects and served for many years on its Executive Board.

JAMES STURGIS PRAY.

F. W. BRUGGERHOF
1830-1920

FREDERICK W. BRUGGERHOF, familiarly known as the "grand old man of the seed world," who died on March 8th, was a powerful influence throughout the whole seed industry in America. This he had seen advance from small beginnings of purely local and domestic interest to a position of great importance, ranking indeed as one of the dominant industries of the world. For when Mr. Bruggerhof began in the branch store of the Thorburns at St. Louis, Mo., commercial seed growing was hardly thought of in America; but in the eighty years that he served continuously in the business, it has grown steadily until to-day, American seeds are produced in enormous acreages.

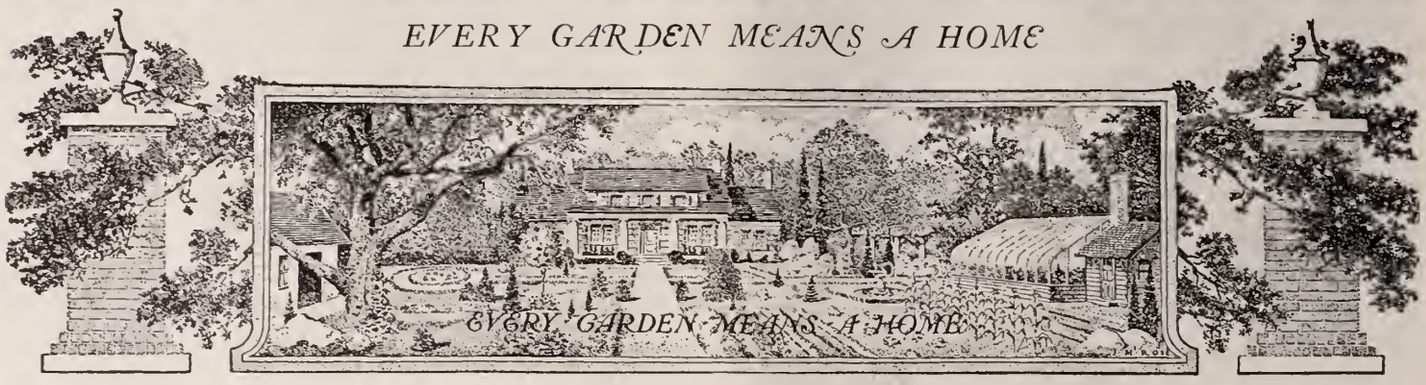
Taken in as a partner in the old house at 15 John Street, New York in 1857, Mr. Bruggerhof rose ultimately to the presidency of his concern, occupying that position since 1894.

When American plants were first receiving attention in Europe, he established for his house an international reputation for collecting and distributing throughout the world American tree seeds. Test and trial grounds at Noroton, Conn., were an early enterprise of his, and there he made his home, working continuously toward his ideals of purity in strain, being of that type of seedsman believing in a 50 per cent. germination, with purity, rather than in a 100 per cent. germination and perhaps a lower standard.

He was active in the formation of the Wholesale Seedmen's League, organized to establish a code of ethics in the seed trade—particularly a standard of honor in the craft, so that only those who maintained standards of quality would be recognized as established seedsmen. It is very largely due to his idealism that the American seed trade took the place as an important industry that it occupies to-day.

AMONG OUR GARDEN NEIGHBORS

EVERY GARDEN MEANS A HOME



NO ONE will take exception to the little maxim which adorns our title just above; but how many, agreeing therewith fully and completely, will still fail to see how inseparable are the garden and the home, not only in the abstract concept but in the actual fact? Why is it that there is still so much ugliness all about us, even in those places where a sincere desire for the beautiful burns in the hearts of men, and great effort has been made to do something toward creating beauty? Why do so few places, big and little, convey straight into the heart of the one who beholds them that happy satisfaction which beauty harmonious and complete, however simple and humble, does convey?

Is it not because this unity is unrecognized? Houses are built as individual propositions, and painted and moved into. Then a driveway perhaps is laid down, with such allowance for reaching the garage as may be possible under the circumstances. After this someone thinks of flowers, another of vegetables, a third of an apple tree, a fourth of a pool or an arbor, a fifth of chickens—and these things are provided or provided for. Then comes along summer, and summer's heat and glare, and the domestic life moves out of doors as far as may be; and there must be chairs and tables and other things for convenience and comfort—and these things are accumulated, one way or another. And protection from the sun is hastily added. And is it any wonder the Home and Garden are together a Hodge-podge?

Every home means definite relation, in every part and detail, with its garden and the outdoors. This is what we have yet to learn and to be governed by—that the house reacts in appearance, and in effect too, upon the garden; and the garden likewise cannot be dissociated from the house and other buildings. They are all members of one body: and they must bear everywhere evidences of this close relationship and interrelationship. Especially must these evidences be developed where indoors and outdoors come together, as in porches, galleries, loggias, on terraces, and at wall openings whether these are for windows or for doors. Which is why awnings, and curtains at windows, and furnishings of the porch are of such tremendous importance in the ensemble. They are details to be sure. But who does not know that attention to details is the thing that distinguishes between the commonplace and the fine and finished?

SO THE garden comes, step by step, indoors; and not only in porches and entrances is its influence supreme, but in those rooms having garden frontage, where wall papers and hangings serve to embody its suggestions. Indeed it is impossible to escape it, turn where we will; and just as the house must, in the very nature of things, be a large influence in the outdoor development, so the garden must be equally an influence within. Even paint and varnish, primarily used as preservatives, are to-day recognized elements in perfecting the whole, since the color of the buildings and of their roofs is so important to the general color effects in the gardens.

WHEREVER there is ground available the opportunity of planting vegetables for real food supplies in late summer and through the winter should not be let slip for a single moment. It is not necessary to emphasize the scarcity of vegetable produce in the market. Farmers through shortage of labor as well as increased costs have generally planted far, far less than the average for years past. The war garden which served its purpose last year and the year before has not been maintained this year. The necessity of real food production stares us in the face. Freight embargoes have prevented the transport of seed potatoes until too late. The situation is serious. It is surely not necessary further to urge the case upon the readers of this magazine than to direct attention to the article appearing on page 235 of this issue.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

Raising Cucumbers

AS I have derived a great deal of help from GARDEN MAGAZINE readers through the Open Column I thought possibly I might repay in a slight way with this suggestion: When I first began gardening I had great difficulty in raising cucumbers. The vines were eaten up by bugs. An old gardener told me to plant a Nasturtium seed in every hill and since then I have had no trouble in raising them and have had big crops—MRS. R. E. MCCABE, *Charleston, W. Va.*

The Purple-Flowering Raspberry

THIS beautiful plant (Rubus odoratus) mentioned by Mrs. Wilder in the October GARDEN MAGAZINE can be easily transplanted from its native habitat and seems to thrive even in altogether different surroundings. A few years ago I gathered some roots from the top of Great North Mountain, Virginia, in the Blue Ridge nearly 2,500 feet above the sea, where the plants were growing in an open situation, with scarcely any shade, and brought them down to my Washington garden, only 240 feet above the sea, under the shade of century-old Oak trees, where the soil is so acid that Laurel, wild Azalea, and Arbutus find a congenial home. Although this was late in June and some of the plants in the group from which I got my roots were showing buds, they immediately accommodated themselves to their new situation and have grown vigorously ever since —I have had to cut them back pretty severely to prevent them from smothering the Azaleas and Hepaticas. The only precautions necessary in transplanting seem to be those usually needed in moving wild plants—to break the roots as little as possible and keep them moist and to cut back the tops. My two 8-inch pencil sticks have in four years increased to a clump 2 or 3 feet in diameter and would have filled a much larger space. I have found the Flowering Raspberry at other places in the Blue Ridge, up to altitudes of about 4,000 feet, but not around Washington. The recently published "Flora of the District of Columbia" says it is "rare." Evidently, however, it can be successfully introduced here and doubtless in many other places where the conditions may seem far different from those in which it grows naturally. Mrs. Wilder's statement that the color of the flowers is magenta should

not deter any garden lover from obtaining this unique American plant, for it is not the muddy magenta so universally despised but a clear, pure color that is very attractive. The buds before they open show a wonderful intense reddish purple, and as the flowers expand this color gradually softens until the petals drop. Of course in placing these plants some judgment should be used as to the associates. My pink Azaleas are gone by the time the flowers of the Raspberry appear. White or yellow flowers would be good neighbors. Now that our native American plants are likely to receive more attention than they have had in years past, this one seems to be a worthy candidate for favor among gardeners who like to wander from the beaten path. —BERNARD H. LANE, *Washington, D. C.*

Welcome Iris

ONE of the hardiest and most efficient of the Irises, yet almost a stranger to our gardens. is I. pseudacorus. My first practical acquaintance with it was in a railway gutter. Someone had thrown away a lot of it—just dug it up and heaved it over the fence—plain testimony to its thrifty spreading character. In the railway gutter was some moisture, seepage from blind springs along the way. Here it was multiplying like Cat-tails in a swamp, and just at the time when I discovered it, it was all radiant with soft yellow blossoms. Later in the summer, when the blossoming season had passed, I took a wagon and hauled out several wagon loads to plant along the margins of the pond on the Massachusetts Agricultural College campus; and it is this pond-side planting which is shown in the photograph. The flowers are rather fragile and soft and do not last long, but they are remarkably beautiful in their season, being large enough, of good form and a most delicate soft canary-yellow. The foliage is strong and clean. In fact, the habit of the plant itself leaves little to be desired. It should be used in large bold masses, rather than in small intimate garden plantings where other species of Iris might be better.—FRANK A. WAUGH.

AS ALTOGETHER AT HOME AS A NATIVE

Growing wild in many parts of New England Iris pseudacorus is here naturalized on the Campus of the State Agricultural College at Amherst, Massachusetts

Oh, Where Can They Be Had?

YOUR correspondent E. L. Cabot who wishes to know where to get the good things that can not be found in the usual catalogues will doubtless find many sympathizers. Since the ban upon importation I should like to know where I can get spring bulbs of Squills, Snowdrops, Chionodoxa, Ornithogalum. I doubt if the new Iris Society will thrive, for apparently none of the dealers have anything to offer but the commoner species. Where can I get English Iris, or Spanish, or Dutch, or Iris Susiana or any of the bulbous group? Much, I admit, is advertised, but hardly anything out of the ordinary can be supplied. Where can I get Iris fulva; Daphne Mezereum; Austrian Copper and Austrian Yellow Roses; Ranunculus Ficaria; Arethusa bulbosa; Ixiolirion macrantha; Muscari commosus monstrosus (Plume Hyacinth)—and so on? I suppose the principal interest in gardening is in the discovery of these things in the catalogues. But I wish (Mr. or Mrs. or Miss) E. L. Cabot had mentioned one or two of the things he (or she) wanted. Might not place be found for such inquiries in The Open Column? The advertising manager may cry "trespass" at this suggestion, but let him consider the service to the readers and consequent increased circulation.—JULIAN HINCKLEY, *Long Island.*

Rocky Mountain Columbines

USUALLY in an account of Rocky Mountain Columbines I find such expressions as "fickle," "short-lived," "uncertain," "not permanent," etc. Now, have I made a discovery or is it known that some insect stings the flower stalk and deposits an egg in it? The little worm is brown and tan, or dirty yellow, in rings. I do not know whether the parent is a fly or moth. The worm eats toward the root and into it taking the centre first, then the larger roots, until it gets its own growth. If you try to find it in the stalks it moves in either direction and is quite lively. If the stalks are hollow the worms are there or in the root. They grow larger than cut worms, about the same color and taper a little toward each end. By cutting the flower stalks after the best bloom is over and destroying them with any worms that escape I have kept my original plants for several years. When the worms are in the roots dig them out with a piece of wire or if deep it is best to take the plant up and divide it. The common wild Columbine suffers from this same pest and my neighbors have many of these. It does not seem to bother the yellow Columbine.—CLARE G. BUSH, *Rochester, Minnesota.*

Picking Sweet Peas

I WANT to tell the Neighbors how I pick Sweet Peas. Although probably I am not the only person to discover this method, yet I feel I want to pass it on, because the results are so satisfactory. First, let me state my objections to the common methods of picking the flowers. In cutting Sweet Peas with shears, every lateral bud which grows in the axils at the nodes, and directly at the bast of the flower stem, is left to develop. The result is innumerable lateral branches with inferior flowers. The top of the vine almost stops growing, while the flowers produced there have shorter and shorter stems with consequent loss of vitality to the whole plant, especially when warm weather comes on. In other words the poor roots have such a task in providing nourishment for the numerous lateral progeny, that they become discouraged and weakened; then aphis finish the job. Some advise going over the vines at intervals and cutting off these laterals. But who has time to do it? And if one should, it is more than likely to be already too late. Why allow laterals to grow at all, except to replace a broken or injured top? Then some one advised me to pluck the flower stem from its socket, which usually brings the tiny lateral bud with it. Yes it did, and sometimes the whole plant too, which was often jerked off at the roots. And even though the plant were not broken, this method almost invariably bruised or skinned the main vine. It was too violent. It was by accident that I found how to pick the flower stem and lateral bud at one operation, and with no risk of injury to the vine. Steady the vine with the left hand below the flower. With thumb and finger of right hand grasp the flower stem and lateral bud together firmly and as close as possible to the main vine. Using this base, and with the fingers as a turning pivot, bend the stem sharply to one side, in direction opposite the side of the lateral bud, until flower stem and main vine are at least at right angles with each other. Usually this is all that is necessary to give a clean separation to both bud and stem from their socket, without any injury whatever. Should it fail however, just use the same movement turning them toward the lateral bud side this time. No plucking is necessary if the thumb and finger are held just as near the base of the

stem as it is possible to get. Indeed, with practice the movement seems almost like rubbing them from their sockets. It is a neat little trick and easily learned, and so much faster than the old method of cutting or plucking. With one operation the flower is picked and lateral bud removed without the slightest injury to the vines. And this is not the only benefit. Under this practice, long stemmed and much larger flowers are produced over an extended season. Fertilizer and water is much more effective because there is not so numerous a progeny to use it up. However, as the strength is directed to the top of the vines where only quality blooms are produced, they grow much taller, so that additional support must be furnished.—Mrs. R. W. Walters, *Springfield, Ohio.*

Five Native Sedums Reach My Garden

In the April 1919 number of The Garden Magazine I wrote about the kinds of Sedum which were most satisfactory in my garden. Shortly thereafter Dr. Edgar T. Wherry, of Washington, D. C. who makes a specialty of cultivating wild flowers, offered to obtain the various Sedums native to the eastern United States which I did not have at the time, since the dealers from whom I had been obtaining plants favored exotic rather than native species. The first received was Sedum pulchellum, and Dr. Wherry's account of his experience with this plant, and others, was so interesting that I have asked permission to share the pleasure of the letters with The Garden Magazine readers.

A box containing some Sedum pulchellum seedlings is being sent. Here is their story: In May, 1917, I stopped to see a friend at Clarksville, Tennessee. He took me out to the bank of the river where there were limestone cliffs in a fine woods. There were naturally many plants which we do not have in the Atlantic states, and several beautiful things are now growing in my garden to recall the delights of that trip. On one cool, shaded, limestone ledge we found a good sized colony of a Sedum new to me, the flowers being pale pink, the leaves moderately slender, at least above. It was identified as S. pulchellum, merely deviating somewhat in flower color from the description in the book. Six small plants of it were transferred to my yard and stood the unusually hard winter of 1917-18 without any protection and without apparent injury. In May, 1918, they grew tall and bloomed finely, being one of the showy members of the garden family at the time, and admired by everyone who saw them. They set seed abundantly and then every plant proceeded to die. I was at first uncertain as to whether some parasite had attacked it, or whether it is only a biennial. The latter has now proved to be the case, for the seeds blown by the wind all around the place, have germinated in considerable numbers—a feature likely to be shown by annual or biennial plants, much more than by perennials—so I feel it is now a permanent resident. The seeds have sprouted in everything from ashes to red clay, wherever they happened to land, but the plants grow most rapidly in crushed limestone.

A SEDUM AND SEMPERVIVUM SETTLEMENT

Here are the large rosettes of Sempervivum Allionii and the small rosettes of arenarium, and the pointed cornutum and fimbriatum, as well as a comfortable "hen-and-chickens" at rest on a middle distance rock

Most of the S. pulchellum seedlings that came from Dr. Wherry's garden to mine behaved just as nice seedlings should; and when the flowering time arrived they showed such a lovely choice in their shade of pink and such a pretty way of placing their buds all in a row in close green settings, along the spur-like branches, as to prove this a delightful Sedum indeed. In due time its seeds were scattered by the plants themselves and more seedlings made ready for another year.

About a month later, May 24, came S. roseum with the following account of its habitat:

It was indeed a pleasure to revisit a formerly known Sedum roseum locality. To get there requires a walk of about two miles along the base of cliffs, then a rather marked ascent for half a mile and a short walk across fields. Suddenly the path reaches some flat ledges of rock, bare of vegetation and stops short, for at the outer edge of these ledges there is a drop of about 800 feet, a nearly vertical cliff. The green patches of S. roseum could be seen from the top rocks, occupying crevices and ledges for some distance down the face of the cliff, but the rocks were so slippery from many rains that getting down there was out of the question. Fortunately, a short distance to one side a tiny stream falls over the cliff, and has cut a slight depression in the upper edge so that there are ledges or shelves where one can descend a short distance without any danger whatever. Here in the moss covering of the rocks, the plant was at last within reach. Sedum roseum is named, not from the flowers being rose, but from the root. The flowers are greenish yellow with purplish tips. It is an Arctic plant, growing in Greenland and Labrador, also in the Alps, but during the Glacial period it spread southward, and when the great ice sheet retreated colonies were left behind in Maine, New York, and Pennsylvania. The plant grows best in damp, mossy crevices in shale rocks where the sun never penetrates. It must be frozen rather solidly all winter and remain fairly cool in summer.

In the shadiest spot in my garden and the latest to wake up in the spring, a place was made ready for roseum with rocks and moss. There it established itself—but none too vigorously, as the end of the season showed. I am hoping, however, that the Arctic quality of its first winter in this part of the world may act like a tonic and give it strength for a good start. The next arrival was S. telephioides along with its associate S. ternatum; these came from the Potomac valley June 10, as explained in the letter.

Camping out at a place called Black Pond a few miles up the Potomac River above Washington, I recalled having seen Sedum telephioides there in bloom one October day a year or two ago, so as soon as opportunity permitted I investigated the rock ledges. The plant proved to be fairly abundant in all sizes from tiny seedlings in the moss to large plants a foot or more high The latter I was unable to get out with sufficient roots to make their transplanting likely to succeed, nor could they have been carried home without breaking them all up so I got several of the smaller sizes, and wrapped them up in moss. The moss was full of Sedum ternatum, too, so I put in a bit of that. Sedum telephioides does not spread, much unlike its European relative—as it seems rather delicate, brittle, and easily injured. It grows in the shade, on rather dry ledges of mica schist rock, also on sandstone. The roots are surprisingly small for so large a plant, but I have had no difficulty in getting it established. S. telephioides is so named because of a partial resemblance to the Live-forever, but has much greater charm. It blooms very late in the year, from September to October and near Washington I have even found stragglers in November. The flowers are pale pink or nearly white.

Sedum telephioides survived its journey to my garden and established itself well enough to surprise me with its flowers in the fall. S. ternatum seemed not to mind the change at all, nor did S. Nevii, the one remaining eastern species to be found. This came July 15:

On Sunday last the Railroad Administration kindly arranged an excursion to Harpers Ferry, West Virginia. It is in the Blue Ridge mountain region, the easternmost of the Appalachian ranges. Several years before I had been on a similar trip and had noted the presence of Sedum Nevii in a certain ravine; and had, indeed, brought home two tiny plants of it, which had subsequently grown in my garden though not very flourishingly. This time I made for the same ravine and found the plant to be far more abundant than I had realized on my previous visit, so I helped myself to a square foot or so of it. It is measureable thus because it grows mostly in thin layers of moss on cliffs and boulders of shale rock, and can be stripped off in sheets. The exposure is northward, and the sun does not strike the plant much—where it does, the color is pale and the growth poor. In fact the habitat is like that of S. ternatum around here. The latter species did grow in the same ravine at Harper's Ferry too, but always at a lower level; Nevii would be up on the cliffs, ternatum in the rich woods-earth at the base of the cliffs, in soil filled with rock fragments, but distinctly more moist than Nevii's soil.

Thus it came about that five very interesting native Sedums reached my garden. They compare favorably with many of the foreign species more commonly found heretofore in dealers' catalogues, and it may be hoped that nurserymen will take up their cultivation more widely, so that everyone can become acquainted with them.—Alice Rathbone, *Chatham, N. Y.*

Caroline Marinesse Rose

FOR years I have been trying to find an old "Fairy" Rose called Caroline Marinesse. It is like a miniature Baltimore Belle, the color and fragrance being the same. I have written to all Rose growers whose names I could find, and found it in one catalogue of 1914. Three times have I written to this firm but have received no answer, yet even the present postal service could hardly lose three letters sent to the same address. Can this Rose be found through the magazine? Can any of the Neighbors give me any clue?—MARY CHAPMAN, *Springfield, Mass.*

Cure for Box-leaf Midge

I HAVE just read a very instructive article by Doctor Felt in the May number of THE GARDEN MAGAZINE with reference to the Box-leaf Midge, which is becoming very frequent on Long Island Box. In addition to spraying with a contact insecticide, I think that if the lower leaves of the plants are powdered by a blower with one-half arsenate of lead and one-half Paris green, weekly from the first of May up to the tenth of June, better results will be obtained than spraying with whale-oil soap or tobacco soap. This insect is being fought vigorously by a few people and their experience is that the powder is better than the spray.—FRANK BAILEY, *New York City*

House Plants Standing in Water

IT IS a general rule that house plants should never have water standing in the saucers under the pots; but there are exceptions as in the case of the forced Astilbe, or as it is commonly called, "florists' Spiraea." To be sure there are fewer of these plants by many thousands than there were before Quarantine No. 37 made their importation from Holland and Belgium impossible; still a good many plants exist among us and as they can be planted out-of-doors after being forced under glass, and after two or three years of rest may be taken up and forced again they are not quite outlawed! All too often people complain that the flowers drop quickly but this is prevented by having the saucers under the pots filled with water. If they can be kept in a somewhat cool room, that will help too, but the main thing is to give them all the water they can take up. Another water-thirsty plant is the Bleeding-heart, Dielytra spectabilis. The value of this for greenhouse work is hardly realized, but it makes a fine subject either under glass or in the living room. Its pink blossoms are more decorative when potted up than when seen growing in the hardy border. It forces readily, requiring only a little heat to bring it into bloom. Clumps can be potted up in the fall and kept in a cool place until they are well established. Sometimes gardeners treat them like Tulip bulbs, covering the pots with sand or ashes. When once the Bleeding-heart has come into flower, it requires all the water which can be given and the greatest success is attained by keeping the saucers full of water, both with home forced plants and those purchased from the florist.—E. I. F.

Scabiosa Caucasica

A VERY beautiful, if not the most beautiful, flower in the perennial border is Scabiosa caucasica. Somewhere I once read a criticism of this plant which said that it was too rampant, but for me it is most delicately constituted. I have never seen it in any garden but my own; and so assume that it is another of those rare common plants. And I take it that the reason why it is scarce—since it does not belong to the dug-overs—is that only about one in a dozen of its seeds ever germinate, and of course so small a showing is likely to be lost in the weeds, whose seeds invariably *do*, wherever you make your seed-bed. Another species, Scabiosa japonica, is even harder to grow from seed. I have tried it at least a dozen times—and now at last, having despaired utterly, I am raising a crop of promising seedlings of it from a packet purchased as Scabiosa caucasica! Is it ever thus?—JULIAN HINCKLEY, *Long Island.*

Black Aster Beetles

IT MAY be of interest to some of the Neighbors to know that one of THE GARDEN MAGAZINE readers has had the same experience which Mr. Adolph Kruhm mentions in the January number of THE GARDEN MAGAZINE—that of the black Aster beetle forsaking the Asters for the Calendulas. I was not so delighted as Mr. Kruhm with this discovery, for the Calendulas are one of my garden favorites. I plant seed of the most beautiful novelties and give them special attention, and the great gorgeous beauties fill their corner of the garden with loveliness through the long summer until Thanksgiving time. But they are favorites of the beetles too! To save both Calendulas and Asters I used to spend a precious half hour of every busy garden morning, knocking the active black beetles into a can of kerosene and water with a little wooden paddle. But for quite a half dozen years I have made an observation which is of much more value—namely that with the blooming of the white Snakeroot in late July all the garden flowers are safe from Aster beetles. They will leave Asters, Calendulas, and Clematis paniculata (which they stripped of every leaf last year) for the fragrant flowers and leaves of the white Snakeroot on the banks of the river. And they leave the garden in a body. Not one remains behind. Moreover this happens every year. The White Snakeroot or Durwort Boneset (Eupatorium ageratoides) which sweeps in white waves of bloom through our beautiful Stillwater Valley has many very good qualities to recommend it too. It blooms with the purple Wood Asters, Goldenrod, and wild Sunflowers, and its wild beauty is almost equal to Stevia, its cultivated cousin of the greenhouse.—CORA FIX, *Ohio.*

Birds and Blue Paper

BIRDS are often little nuisances in the garden, welcome though they are, on account of the manner in which they attack flowers, seeds, and fruit. A fact which has recently been demonstrated at a British experimental station is that sparrows and nearly all common birds have a perfect horror of blue paper. Over seed beds lengths of twine were stretched, and from these strips of blue paper were hung, and the birds left the situation severely alone. In the same way pieces of bright blue paper were hung about fruit trees and not a single bird approached. In a town garden where the Crocuses and other spring flowers had always suffered greatly from the depredations of sparrows, a few pieces of blue paper (not enough to give an unsightly appearance) kept the blossoms free from attack. This fact is certainly one that it would pay the gardener to note for birds have been the most difficult of all things to deal with, seeing that they so soon get used to scarecrows.—S. LEONARD BASTIN, *England.*

A PLANT WITH A PERPETUAL THIRST

Hence one which goes contrary to all rules and should always have water standing in the saucer

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in *a normal season* is taken as standard; but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

JUNE—THE MONTH OF ENJOYMENT

IT IS by no means to be understood that everything is over for the gardener but the shouting, when we speak of enjoying things in June. This is never the case in any month, and perhaps least of all in this month of Roses and fragrance; but the mere fact of Roses and fragrance everywhere, and teeming life, makes the garden tasks welcome, just for the sake of being a part of all out-of-doors and taking it all in.

General

Keep watch everywhere—in the vegetable garden, the flower garden and on trees and shrubs—for signs of insect depredations or fungous ravages. This vigilance will often save not only a great amount of time and trouble later on this year and in subsequent years, but the life of valuable plants. Like the stitch in time, destroying the insect at the moment it appears saves nine—nine thousand nine hundred and ninety-nine indeed!

And keep at work as long as there is anything to be done. Everywhere everything should be in shipshape and no disorder now, since all changes are made and everything is "set" for the summer's run.

Greenhouses and Frames

Pot up Poinsettias for winter flowers. Plunge Azaleas and plants of their kind which have flowered, outdoors in pots to ripen.

Get the supply of Lilium Harrisii, Freesias, Amaryllis and other bulbs for indoor flowering later.

Plant Violets now, keeping the house as cool as possible.

Get Roses into the benches and finish budding.

Flower Garden

Take up bulbs that have finished flowering and dry, if they are to be planted out again in fall. Naturalized bulbs do not of course require such handling.

Prune deciduous hedges before the middle of the month, cutting back one-half of the new growth.

Shrubs that have bloomed should be pruned at once, if they need pruning at all. Many times they do not: be sure before you go ahead. Only dead wood should be removed or that which is weak.

All bedding plants should go in now.

Sow seeds of tender annuals now for late fall bloom.

Cut Roses daily; let nothing go to seed unless seed is especially wanted.

Vegetable Garden

When the vegetables begin to yield gather them daily when they are *just short of maturity* and consequently tender and most delicious.

Cultivate regularly twice a week—and again after a rain if rain comes. Do this when there are no weeds and then there never will be any; and the moisture will be retained in the soil instead of escaping.

All kinds of vegetables should now be in the ground and further planting should be only succession crops.

Transplant late Cauliflower, Cabbage, Broccoli, and Brussels Sprouts to their permanent positions.

Stop cutting Asparagus altogether by the middle of the month.

Use thinnings of all vegetables such as Beets, Onions, Carrots, and Turnips for greens, mixing with Dandelion or Spinach—and with young Pigweeds and Sorrel, too. Nothing need be wasted.

Thin early—and rigorously. This alone insures proper development of root vegetables.

Fruits

Rub off all suckers and adventitious shoots the moment you see them and thus conserve vitality and avoid pruning later.

Thin fruit that sets too thickly immediately after the "June drop," if it still needs it.

Spray according to schedule. Let nothing hinder this at any time.

Strawberry beds that have borne for two years should be dug up, the ground fertilized and worked and a late crop planted.

Cover Strawberry rows with netting to prevent injury by the birds.

THE LARKSPUR (See Cover Design)

THERE is indeed a subtle lure about the Larkspur, and hardly a garden is without it. A "mixed perennial" border that does not include it would seem to be lacking an essential element indeed, like "Hamlet" without the melancholy Dane. More than any other flower of the old-fashioned garden perhaps it seems really to belong—which in fact it does, for is not the Bee Larkspur one of the oldest of cultivated flowers? It was introduced from Asia in 1597, and even its popular name is old-fashioned in tone—just when it came to be applied we know not. Even the botanists were led to name it scientifically "Delphinium" from its fancied resemblance to a dolphin's head; and the name "elatum" signifies simply, tall. The "bee" part of the common name has reference to the curiously shaped and colored petals that form a cluster in the centre of the flower. The flat bright blue parts —the really effective part of the flower as a matter of fact—are in reality sepals masquerading as petals, a feature that is quite common among the members of the Buttercup family.

The modern perennial Larkspur is without a rival in its class as a plant of tall habit with erect columns of blue flowers towering above the general level of its companions in the border. Its range of hues is remarkable too, running the whole gamut of shades from pure white and delicate azure blue to the deepest and most intense tones some of which border on almost crudity. But the blue color in whatever shade is ever welcome in the riot of summer flowers because near by its effect is coolness, while at the far end of a view it increases the apparent distance. Seen through an opening in shade it combines both these effects.

It is as hardy as any plant of the herbaceous garden. True it is that some plaints are heard about it being killed in winter, but that result is usually (if not always) because too much protection has kept the dormant crowns warm and wet, inducing rot. Larkspurs like a good soil and a deep one is essential for their proper growth. The ideal thing is a deep rich sandy loam, with plenty of water when growth is active. Seeds sown in summer will give splendid plants for next year, and quite a variety of colorings may usually be had from a packet of seed. Any preferred variety may be propagated either by division of the old clump after its second year or by cuttings taken from the shoots in spring and rooted in a frame, merely seeing that they do not get dry in hot weather. Named varieties are offered by certain specialists in herbaceous plants which are useful if definite color tones are insisted upon in the first planting of the border; but there is much pleasure in selecting seedlings to fit one's own preferences.

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NEW THINGS FOR THE VEGETABLE GARDEN

AS VARIETY is the very spice, not only of life, but of the dietary as well, the inquiring housewife is on the watch for something new in the vegetable line. She does not have far to seek. Uncle Sam's Bureau of Plant Industry and many acquisitive travelers are constantly bringing into the country vegetables that are wholly unfamiliar to most of us, and which, in many cases, are of superlative worth. Pe-tsai, the so-called "Celery Cabbage" from China has been offered by progressive seedsmen for several years, yet it is generally unknown. It deserves the widest popularity. Its cultural requirements are similar to those of native Cabbage, excepting that it must not be planted until well into July. Started early, the plant goes to seed and does not head. Planted late in summer, it grows into a tall urn-shaped vegetable, with a very solid heart of wonderful attractiveness and flavor. The entire heart blanches to a creamy white, like finest celery, and the flavor is extremely delicate. Sliced and eaten raw with salt, like celery, the plant is delicious. It is good boiled, and—mirabile dictu—it boils without odor! The largest we have raised weighed ten pounds. The cabbage butterfly has not yet caught on to Pe-tsai.

Lovers of Spinach should welcome the Japanese Long-standing Spinach, for, according to our experiences, it will grow well at any season. This past summer we planted both common and Japanese on the same day, in the same furrow, and the former failed entirely—even after replanting—whereas the Japanese grew thriftily.

Then there is a Japanese Mustard which will be welcome to those who like greens that are more bitter; it, too, has small leaves, but seems to thrive on neglect and will become a pest if it escapes. None of the Japanese Peas that we have raised can be called a success, judged by American standards. All were tough, but have a nutty quality that is good, however, and dried, would probably make excellent soup material.

The Mexican Chick-pea or Garbanza, good for soups, resembles nothing so much as a filbert or hazelnut. The plant is utterly unlike our regular Pea, as it does not climb, but stands obliquely erect. The leaves are tiny and highly ornamental. The peas are borne in small pods, and most of ours contained but one pea. Perhaps in a warmer latitude the yield might be heavier.

Someone with a head for figures has estimated that one fifth of what we spend for food we pay for color. And many persons set their faces like flint against Black Mexican Corn because it is black. Though the planted seed is black, the ear at the eating stage is almost white. But when it reaches its highest sugar content, it begins to be flecked with a purplish color, and from this condition it becomes a solid blue-black. No variety surpasses it in flavor, however.

Housewives will welcome both the Kikuza Squash from Japan and a new American variety called the Delicious. Each is a remarkably good pie maker, the flesh of each being free from fibrous matter and of very excellent quality. No article touching on Squashes would be complete without reference to the Cocozelle or Italian Vegetable Marrow (referred to on p. 206 of the January GARDEN MAGAZINE). One or two hills, planted fairly close together, can be tucked in a corner of the garden, and they will yield all the squashes needed. They should be eaten when not more than six or eight inches long, and are delicious fried. All these things I have bought from commercial seedsmen, so other readers may do the same.

LEWIS E. THEISS, *Pa.*

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for Fall Planting

For years I imported the finest named European varieties. The exclusion act stopped the importing, but I can offer you a more gorgeous array of colors, shades, besides more exquisite forms, than ever came from abroad. My collection embraces the most marvelous shades of azure, gentian blue and sapphire. Many hybrids have contrasting centres.

Ready for immediate delivery. Strong Plants from 4 inch pots, 30c. each, $3.00 per doz., $20.00 per 100.

Ready for delivery about October 1st. Strong two year old Clumps, 75c. each; $7.50 per doz.

Seeds for August Sowing. I save, every year, seeds of all our choicest sorts in a glorious mixture. This is guaranteed fresh, of strongest vitality, and will help you grow a garden full of Delphiniums at small cost. Sow Seeds in August, placing your order NOW.

Price: Pkt. 50c.; oz. $5.00 (One ounce will give you about 3,000 plants).

Send Your Orders NOW! This "adv." will not appear again and I do not issue a mid-season catalogue, so please place your order at once. I guarantee satisfaction or your money will be refunded. The strict adherence to this business principle has made me many friends, to whom I am indebted for the gratifying development of this business.

CHAS. H. TOTTY, *The Novelty Man*
Madison New Jersey

You Can Raise Water Lilies

There is no more trouble associated with the cultivation of water-lilies than there is with asters or nasturtiums. They need only *water, sunlight* and a little *soil* to feel perfectly at home, and most of the varieties will do as well in a tub as in a pool.

Of course a pool gives better opportunities to obtain a unique and harmonious landscape pattern, but as far as the beauty of the bloom is concerned, excellent results can be obtained in quite a small receptacle.

My Booklet will give you all the information required—full cultural directions, with many hints you can employ to advantage. The number of copies is not large, so please write at once if you desire a copy.

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Fertile Acres—Farms

Peony Exhibition 1920

Come out and see our acres upon acres—rows upon rows—thousands, yes hundreds of thousands of plants, myriads of blooms. A multitude of sorts, every conceivable color, tint, and shading known among Peonies.

No tongue nor pen can picture or describe such a sea of beauty, riot of color, every individual bloom of show perfection. From each angle one views them they seem more entrancing, bewitching. Each view is a vision of paradise brought to cheer mankind.

Our Unexcelled Peony Collection for 1920

Our collection embraces nearly every worth while "World's Best" Peony. Our planting of Brand's very fine Peonies in liberal supply, well grown clumps, also Therese, Lady Duff, Cahusac, Gismonda, etc., etc., etc.

It will pay you to see our fields in 1920

In addition to Peonies we have some distinctive new Roses, Hemerocallis, Hardy Carnations, Gladioli, etc.

Quality over all

At this time we predict Peonies will be at their best about June 10th. Write us for exact date.

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*Our ideal always has been to have the **one** best*

C. Betscher

Lock Box 67 Dover, Ohio

DREER'S WATER LILIES

THE MONTH of June is the ideal time to plant the gorgeous tender or tropical **Nymphaeas.**

We offer strong, pot-grown plants of a grand assortment of both day and night blooming varieties in all colors, also **Victoria Trickeri.**

Hardy Nymphaeas and Nelumbiums cannot be supplied at this season.

All are described in Dreer's Garden Book which also gives full information on growing Flowers and Vegetables.

We offer free to our patrons the advice of our experts in devising plans for ponds and selecting varieties.

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Dealers: Write for profitable Dealer's proposition to-day.

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IT plows, harrows, seeds, cultivates, mows hay, mows lawns, hauls loads; does any farm or garden work ordinarily done by one horse or by hand—does it faster, better and cheaper. Solves labor problems. The original one-horse tractor, tested and proven on thousands of farms. Also does 4 h. p. gas engine belt work and moves from one job to another under its own power—useful the year around. Write for interesting free booklet.

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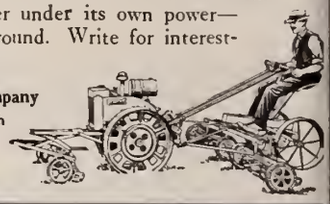

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DARWIN, BREEDER, and REMBRANDT TULIPS and RARE NARCISSI

To be ordered before July 1st

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Complete list of Bulbs, Peonies, Iris, Phlox and Hardy Perennials—just what you want for fall planting.

Send your order for Holland Bulbs as soon as possible. By ordering early you have our special list of rare and newer varieties, also our fall catalogue to select from.

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From the richest humus beds in the United States. Abounds in nitrogen.

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A natural silt and leaf loam fertilizer, sweet and odorless.

In handy 2-bushel sack for home use and for flower and vegetable gardens. In carload lots for large users like *Farms*, *Greenhouses*, *Nurseries* and *Golf Courses*. Prices on request.

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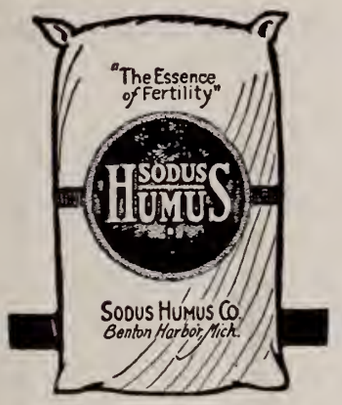

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Those who know this plant say no other climber approaches it.

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Red berries brighten it in winter, in summer it needs no color.

Extra fine large plants $1 each $10 per dozen.

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Extraordinary! —*Matchless Collections of Cottage Garden Tulips*

At Substantial Savings To Early Buyers!

BY an exclusive arrangement with a world-famous grower in Holland, we are able to extend the following extraordinary Bulb Offer for Fall planting, deliveries in September and October, *provided order is received by us before July 15th.*

Collection No. 1*—One Thousand Cottage Garden (May Flowering) Tulips—10 each of 100 varieties—labeled and packed in one box in Holland** ***$90 (per 1000) delivered to you

Collection No. 2*—One Thousand Cottage Garden (May Flowering) Tulips—20 each of 50 varieties—labeled and packed in one box in Holland** ***$80 (per 1000) delivered to you

These are the wonderful Cottage Garden Tulips that you see in the old Dutch, Flemish, and English gardens where they have flourished for years, treasured by their owners, hallowed by sentiment, beautiful in their own right and with the fragrance of sweet memories.

What could be more beautiful than a bed of these Tulips to greet you in May when you come to your summer home from the city!

Plant them among the shrubbery and in borders, as well as in beds. They multiply rapidly, are perfectly hardy, and **will last and flower well for three years.** Long-stemmed, graceful, enduring, long-blooming, they are wonderful not only in the garden but for cutting, indoor decoration in vases, etc.

The colors are the most exquisite imaginable. The grower assures us that "the colors will not clash, and all will bloom at about the same time and of nearly the same height. Customers can plant these collections in a continuous tulip border or in separate clumps 'as the hags roll out of the case,' without having to worry about color combinations."

These collections include varieties which have not yet been introduced in America. Of some varieties, single bulbs alone would cost 50 cents apiece. **Here is a rare treat indeed for the garden lover who will act promptly. Better send in your order to-day, and avoid the risk of forgetting.**

P. S.—Ask for our Special Advance Import Offer on All Bulbs. It will be distinctly to your advantage to order all your Dutch Bulbs at import prices. You will not only save considerable money but avoid disappointment. Write for our Offer at once.

Schling's Seeds

MAX SCHLING, Seedsman, Inc.
24 West 59th St. New York

Interior showing overhead construction of National Sectional Greenhouse

Callahan Sectional Greenhouses

A Greenhouse is as good as the overhead construction. It must be strong yet not obstruct the warm rays of the sun. Notice the light but sturdy Callahan roof supports—they are strong pipe purlins upheld by "Y" brackets and iron posts. Then the double-glass construction generates warmth.

Callahan Greenhouses are just as well and skillfully built throughout. They can be erected in a few hours—only a wrench and screw driver are needed.

Learn how to SAVE REAL MONEY on a greenhouse for home or estate. Write for catalogue to-day.

Also Cut-to-Fit Greenhouse material and Duo-Glazed Sash for Hotbeds.

Callahan Duo-Glazed Sash Co., 1350 Fourth St., Dayton, Ohio

Rid Your Lawn of Dandelions

Most of the dandelions on your lawn are grown from the seed of the preceding crop. The seed is in the heads. Cut off the heads—no more dandelion nuisance!

Gem DANDELAWN Rake

with its curved teeth—clips off the heads, but spares even the tenderest grass. When the rake is full, an easy pressure with the finger on a trigger conveniently placed, empties the contents without the loss of a single leaf.

It is not only the most perfect dandelion exterminator yet devised—it is an all-purpose rake, too. It picks up everything the ordinary rake misses—easier on the turf—easier on the user.

"The Fourteen Points of a Rake" will interest every lover of fine lawns. Let us send you a copy.

Most good dealers have it

"A style for every purse and purpose."

Specialty Division of

THE CASEMENT HARDWARE COMPANY

7 South Clinton Street, Chicago

BERTRAND H. FARR
AND ASSOCIATES OF THE
Wyomissing Nurseries Company

Invite the readers of this magazine to visit Wyomissing in early June to view the

Peonies and Irises

which will then be in the height of their glory.

June 3d to 7th are usually the best dates. However, the blooming season may vary slightly, therefore intending visitors should write to us the last week in May for information. We will then advise you of the most favorable date and can make arrangements to meet you at the station in Reading, Pennsylvania.

If you cannot come, write me for a copy of the Seventh Edition of *Farr's Hardy Plant Specialties*, now in process, and which I hope to have completed the early part of June. This book describes my wonderful collection of Peonies and Irises, as well as other favorite perennials, shrubs, and evergreens.

My special catalogue of Dutch Bulbs will be ready about the first of June and will be sent on request.

BERTRAND H. FARR
Wyomissing Nurseries Company
104 GARFIELD AVENUE WYOMISSING, PENNA.

The annual meeting and exhibition of the American Peony Society will be held in the Hotel Berkshire, Reading, Penna., June 10, 1920. It will be worth while for you to attend, and to see the wonderful display of rare and old-time Peonies. Write me for definite date.

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Various Designs Carefully Worked Out and Models Beautifully Made

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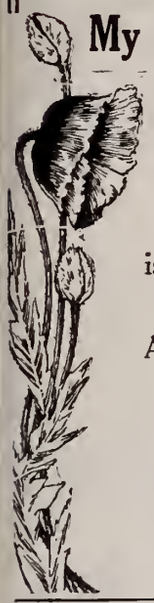

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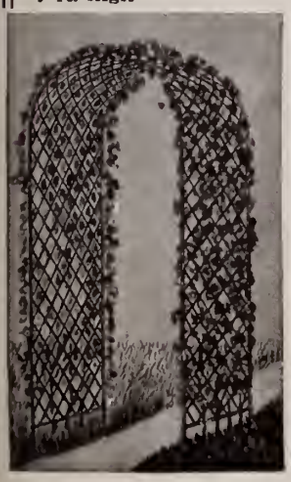

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—for every purpose

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WATER FAN
Cico Oscillating Irrigator

The Low-Cost Rain-Maker

The sure, easy, low-cost way to luxuriant growth of lawns and gardens is by the use of WATERFAN wherever water a plenty is the one unsupplied essential.

From this portable machine, fine streams are thrown out in a fan-shaped plane that sways back and forth with each automatic oscillation of the distributing pipe. To visualize the movement, think of a fan for cooling the face. Imagine such a fan 21 inches wide at the spread and in motion from the wrist—to and fro—with fine streams of water spurting far out from the tips of all the fan sticks. That is the action of WATERFAN.

—Waters *not* a circular but a *rectangular* area up to 12x60 feet; no projecting "arms" to be easily bent out of shape and service, and which won't rotate when needed.
—An absolutely even precipitation over the area; no unsprinkled far corners and no near spots too wet.
—Only ordinary hose connections required; no costly installations or maintenance expenses for additional overhead or underground piping.
—The frame is of steel, the distributing pipe and nozzles of brass.
—All wearing parts of non-corrosive material that will wear for years.
—Movable at will without turning off the water or wetting the operator.
—Weighs but 5 pounds and is only 21 inches long.
—Instantly adjustable without tools.

Price complete $15.00 F.O.B. Factory, but transportation paid in U. S. A. if remittance accompanies order. Buy direct or from your dealer. Descriptive circular on request. 1920 output limited; order now to insure delivery.

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Agents wanted to sell WATERFAN. *Write for details. We manufacture the well known Turbo-Irrigators and Automatic Sprinklers. All necessary machinery and equipment furnished for complete irrigation of large projects, including truck farms, market gardens, sugar beet fields, orchards, golf courses, etc.*

This Expert Lives in Your County

INTENSIVELY trained by our educational course, all representatives of the Milwaukee Air Power Pump Co. are experts, well able to install running water and electric lights.

Our representative in your county is trained to make one engine supply water, and at the same time run the electric lighting plant.

He is trained to pipe *water directly from the well and cistern to your farmhouse*, barn, lawn, watering trough, and dairy, and to replace the old kerosene lamp with electric lights. No storage tank or stale water.

He is trained to put hot or cold running water in your kitchen and bathroom; fresh drinking water in your house; pure water for your stock; water in your barn for your cows; electric lights anywhere on the place.

He has been trained. And it costs nothing to consult him. If, after questioning him and hearing his expert advice, you want the Milwaukee water or light system, he'll do the job right and thereby increase your farm profits.

We have a representative in your county. If you don't know him, write us.

MILWAUKEE AIR POWER PUMP CO., 908 3rd St., Milwaukee, Wis.

Milwaukee Air Power WATER SYSTEM "DIRECT FROM THE WELL" — EITHER OR BOTH — Milwaukee ELECTRIC LIGHT SYSTEM

¶ *"Homing with the Birds"* (*by Gene Stratton-Porter*). *A human book about birds by a naturalist and a novelist, blending authoritativeness with narrative charm. Net, $2.00. At all booksellers'.*

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"More Home to the House"

STATEMENT OF THE OWNERSHIP, MANAGEMENT, Etc., OF THE GARDEN MAGAZINE, published in accordance with the Act of Congress of August 24, 1912; *Publishers*, Doubleday, Page & Co., Garden City, N. Y.; *Editor and Managing Editor*, Leonard Barron, Garden City, N. Y.; *Owners*, Doubleday, Page & Co., Garden City, N. Y.

Stockholders holding 1 per cent. or more of total amount of stock on April 1, 1920. F. N. Doubleday, Garden City, N. Y.; H. S. Houston, Garden City, N. Y.; S. A. Everitt, Garden City, N. Y.; A. W. Page, Garden City, N. Y.; Russell Doubleday, Garden City, N. Y.; Nelson Doubleday, Garden City, N. Y.; W. F. Etherington, New York City; Alice A. DeGraff, Oyster Bay, N. Y.; Dorothy Doubleday Babcock, New York City; Florence VanWyck Doubleday, Oyster Bay, N. Y.; William J. Neal, New York City; Daniel W. Nye, Garden City, N. Y.; John J. Hessian, Garden City, N. Y.; E. French Strother, Garden City, N. Y.; W. Herbert Eaton, Garden City, N. Y.

Known bondholders, mortgagees, and other security holders holding 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

(*Signed*) DOUBLEDAY, PAGE & COMPANY
By S. A. Everitt, *Treasurer.*

Sworn to and subscribed before me this 1st day of April, 1920.
(*Signed*) Frank O'Sullivan, Notary Public
Queens County, N. Y.
Certificate filed in Nassau County.
Commission expires March 30, 1922.

Screen House

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You eliminate architect and builder when your home is a Hodgson Portable House. You can supervise its erection yourself—no skilled workmen are needed.

By following directions there can be no mistakes. You receive your Hodgson Portable House in plainly marked sections. Additions from time to time can convert a two room week-end cottage to a real home in every sense of the word. Specially designed Hodgson lattice with vines and flowers will make a Hodgson Portable House a thing of beauty. Write today for catalog.

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Showing Installation of Underground Lawn Sprinklers on the lawn in front of the Capitol

The Lawns *of the* Nation Kept Green

THE beautiful lawns surrounding the Capitol at Washington depend for their freshness upon

Cornell Systems of Irrigation

Your own beautiful lawns and gardens on which you have expended so much money, time and labor, should not be left to the mercy of the scorching dry spells of summer. You can afford them the same simple and efficient protection given the lawns at Washington.

With the underground lawn sprays—set into the ground, out of the way of lawn mowers and out of sight—the beauty of your lawn will be assured.

With the Overhead System for your garden, your vegetables and flowers will get exactly the proper amount of moisture for best cultural results. For with the adjustable feature of the Cornell Sprinkler you can get any degree of moisture from a fine mist to an April shower.

Write to-day for booklet on permanent and portable lawn and garden irrigation.

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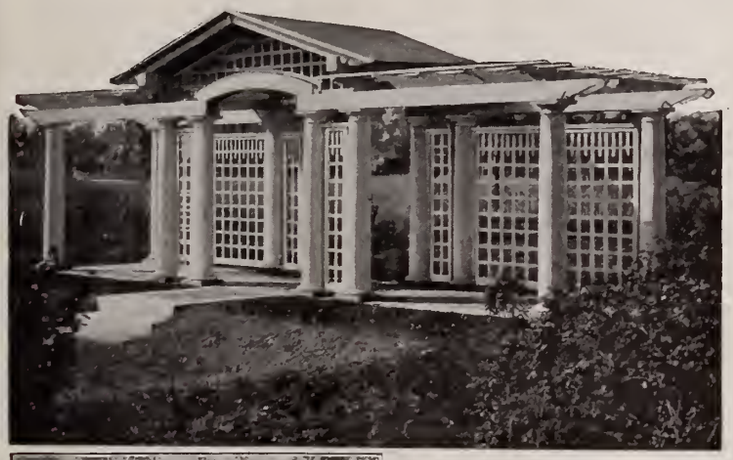

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Garden Accessories which are suitable and just the things required to lend cheer and pleasure to the surroundings of a home.

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DOUGLAS FIR

Peonies

Peonies are easy to grow as well as beautiful. For years we have made a specialty of these hardy perennials. We offer a wide range of color from pure white and cream to the deepest purple and maroon.

Our Fall Catalogue will be ready August 1st.

Send us your name and address to-day.

Rosedale Nurseries

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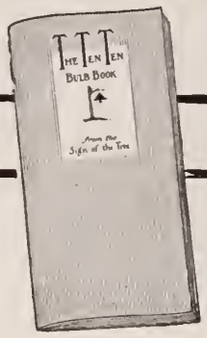

Now For The Ten-Ten Bulb Book

Here's another Ten-Ten Book.
This time, have done for you bulb enthusiasts, what we did for garden lovers this spring, in the famous "Ten-Ten" Catalogue.
We've made it easy for you to buy bulbs.

No wading through endless, listless lists.
Everything grouped, by the Ten-Ten plan, ready for your use.
So you can select, quickly, intelligently every kind of bulbs you need for any purpose.

Then there are the suggestions, on a score of new ways to *use* Bulbs, getting away from the old rutty ruts.

And brief but adequate directions, how to plant and care for each different kind.

So you'll surely want the Ten-Ten Bulb Book to put in your library along side the first Ten-Ten Book.

This is a special Import-Order Offering.
The prices are low, considering that only the best quality bulbs are offered.
But we must have your order early. It's best to order your bulbs early anyway, for as you know, you must plant them *this Fall*, to have flowers next Spring.

Julius Roehrs Co
At The Sign of The Tree
Box 10 Rutherford N.J.

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Clean, White Hands

EVEN the grimy black line under the nails magically disappears if you clean the hands with Mechanics' Soap Paste (Colgate's). If you love to "fuss around" your own garden, you can still keep the hands nice—for this paste cleans quickly, thoroughly and "kindly."

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Send 4c for a trial box—or you can buy large generous cans at your dealer's for 15c.

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Enclosed find 4c for which send trial box of Mechanics' Soap Paste to:
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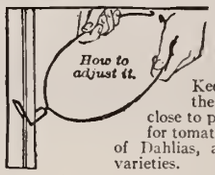

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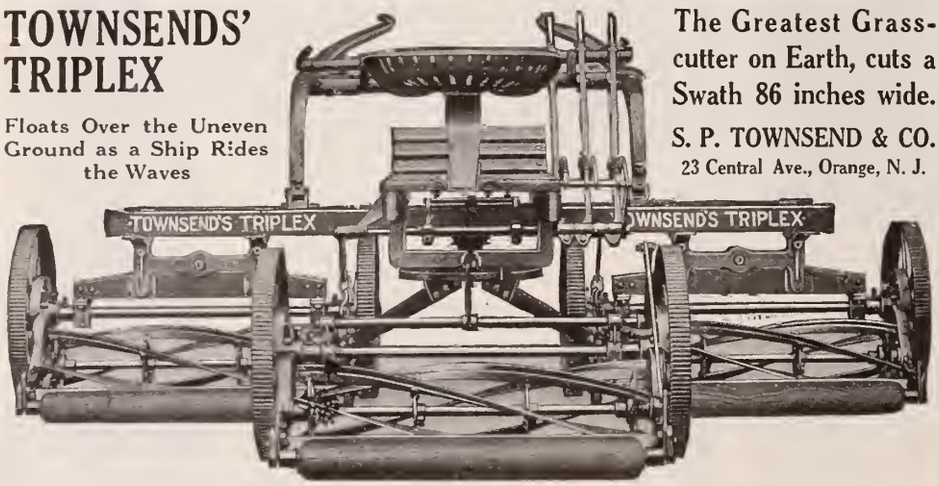

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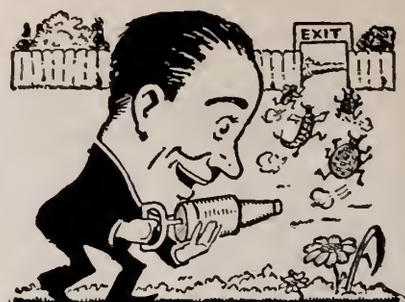

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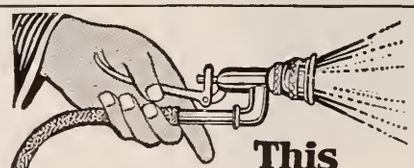

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America's Foremost Hybridizers of the Peony

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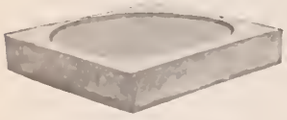

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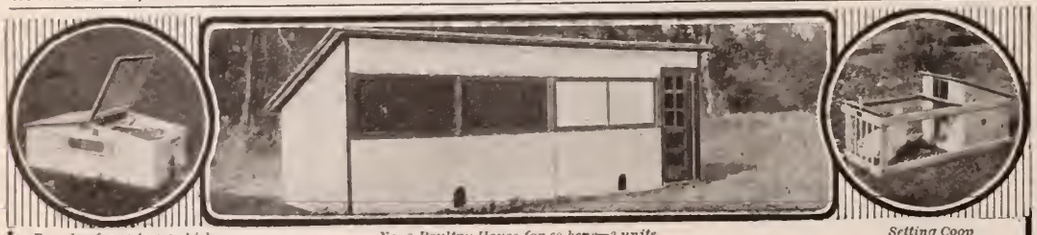

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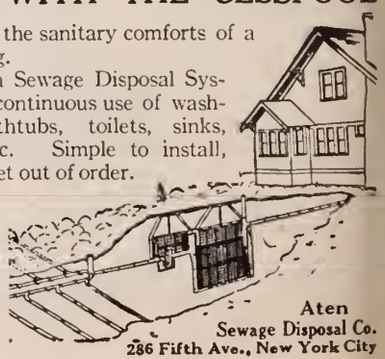

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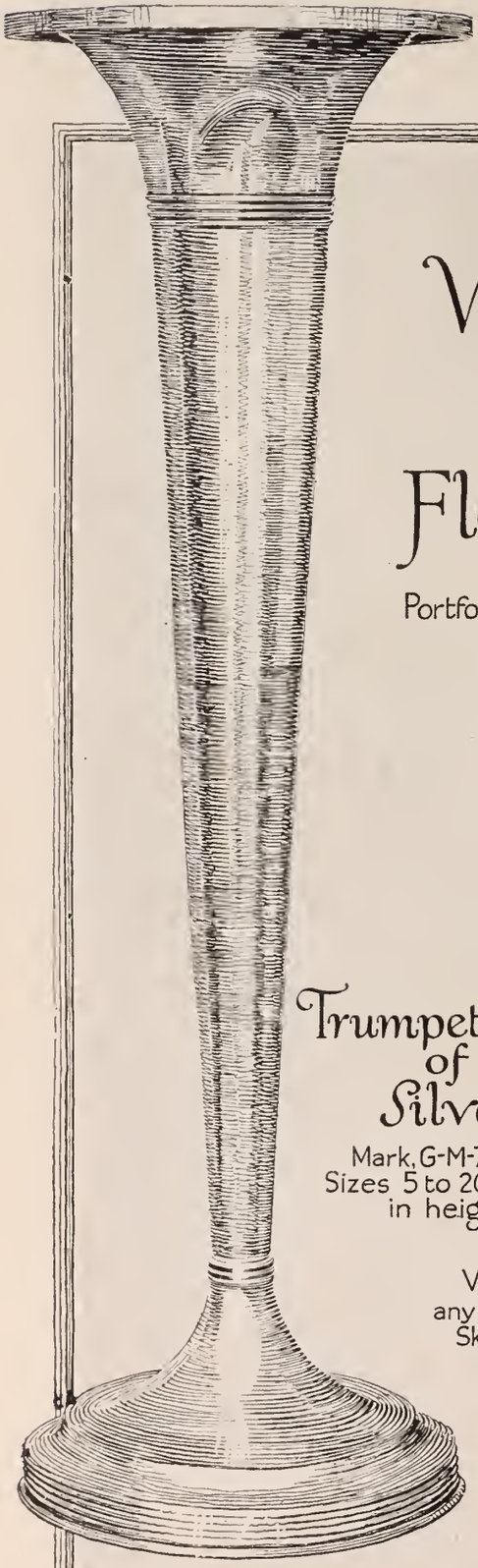

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No. 1

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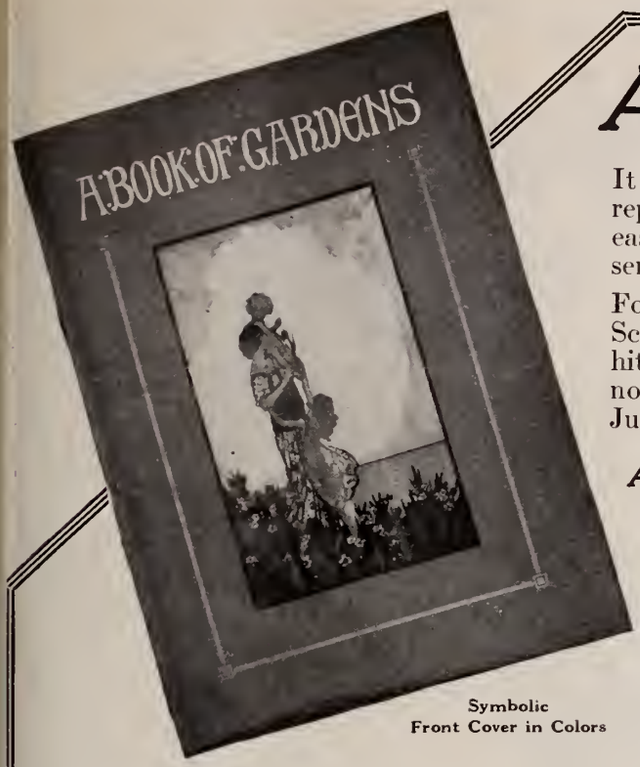

Symbolic
Front Cover in Colors

An Ambition Realized

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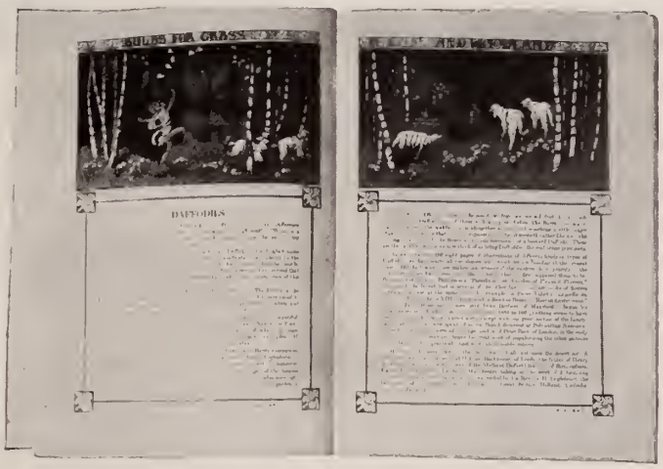
For nearly five years I have worked on a book that would fitly introduce Scheepers' Quality Bulbs, that would give the reader a correct idea of hitherto unattained standards in unusual merchandise. This book is now ready for distribution, and Garden Magazine Readers are to be the Judges as to whether or not I have succeeded.

Authors who helped

To make the book most valuable, I enlisted the aid of the world's foremost and recognized authorities on each subject. Louise Beebe Wilder, Mrs. Edward Harding, Mrs. Francis King, the Rev. Joseph Jacob are among those who were kind enough to help make this book a gem of finest water. The drawings and decorations by Miss Beatrice Stevens represent the highest interpretation of art in the garden. Special photographs by Reginald Maltbie, of the Royal Photographic Society help visualize real life in the garden.

Subjects Covered

The book tells in the inimitable fashion characteristic of each favorite author, how to grow the finest bulbs for hardy borders and garden, the lovely Daffodils, Hyacinths and Tulips. It tells about the rarest Irises and aristocrats among the Peonies. Wonderful Freesias of the New World vie with Old World Lilies in attempts to gain your favors. The book is a model for concise, practical culture suggestions that will cause it to be treasured by those fortunate enough to secure a copy.



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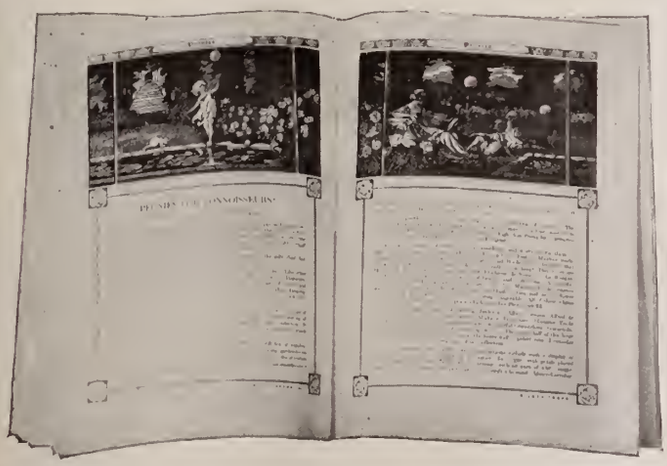

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July G. M

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THE GARDEN MAGAZINE

JULY 1920

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LEONARD BARRON, Editor

VOLUME XXXI, No. 5.

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In July

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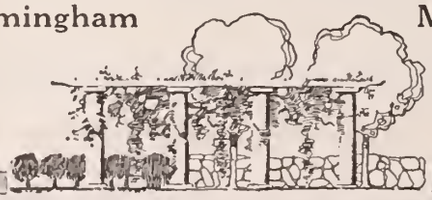
THE FRAMINGHAM NURSERIES

Framingham Mass.



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Lohengrin. (New). Foliage and flower of gigantic size, of a deep violet-mauve. 50 cts. each.

Loreley. (New). Perfect shaped flowers, falls of a deep ultra-marine-blue, more or less veined with creamy-white and bordered sulphur-yellow; the standards are a pale sulphur-yellow, making a beautiful contrast. 50 cts. each.

Madame Chereau. Pearly white, daintily edged with lavender.

Nibelungen. (New). Standards fawn-yellow, falls violet-blue, with fawn margin; distinct and pretty. 50 cts. each.

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Parisienne. Deep purple; dwarf.

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Queen of May. Lovely rose-lilac. 25 cts. each.

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of Tulips, Hyacinths and Narcissi for fall planting, Peonies for September planting and complete list of Irises.

ELLIOTT NURSERY
319 Fourth Avenue
Pittsburgh, Pa.

The Garden MAGAZINE

Vol. XXXI, No. 5 — July, 1920

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GARDEN

Mary H. Northend, Photographer

HERE ENDS THE QUEST FOR THE RAINBOW'S END

Since the Iris was stained by it once in the long ago, for all time, Iris will bring its magic to any garden now, anytime

JUL 3 1920

WHY NOT A GARDEN FOR PEONIES IF ONE IS A REAL ENTHUSIAST!

Enclosed by a hedge, as here, in the garden of Mr. Paul D. Cravath at Locust Valley, Long Island, their beauty is greatly enhanced

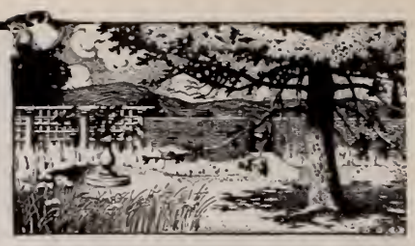
Edwin H. Lincoln, Photographer

SENTINELS OF TIME BY A ROADSIDE

And Time has corrected the original solid-row planting by eliminating casually here and there

PLANT BRIEFS

FROM THE NOTE BOOK OF
W. C. EGAN, HIGHLAND PARK, ILL.



Alstroemeria aurantiaca. This supposedly tender perennial, the Peruvian Lily, has proved hardy here, when covered heavily over winter with box-covered dry leaves. It requires a light, well-drained soil and a sunny position. Close to a wall with a southern exposure would be an ideal situation. It flowers from June until frost, especially if not allowed to go to seed, being of a bright orange color, reminding one of an Orchid, lasting a long time when cut.

Argemone grandiflora. I find the White Mexican Poppy an annual of service where a tall white-flowered plant is needed to separate and pacify any quarreling colors of its neighbors. Being slender in growth, it is well to plant three or four, a few inches apart, in order to make a bushy group. While it belongs to the Poppy family, its glaucous foliage resembles that of the Thistle, but its chief charm is in its dainty paper-white flowers of single petals, surrounding a quite prominent crown of yellow anthers. It grows from two to three feet high and blooms all summer.

Alonsoa Warscewiczii, the Mask Flower, is an annual, growing about eighteen inches tall, brought from Chili to England in 1858 yet still seems to be little known. Its handsome flowers are well adapted to bouquet work where diminutive blooms of a rosy scarlet are desired. They come in terminal racemes, each faded flower dropping, thus ever keeping itself clean and tidy, blooming from July to frost and even after.

Coreopsis verticillata is modest in its attractions when an individual flower is considered but by its finely cut foliage that keeps bright and fresh until frost, and its bushy, compact habit endears itself to one who loves tidiness and order in the garden border. The flowers are of a rich golden yellow, small, but numerous, standing just above its light green foliage. It is a summer bloomer, and when used in front of a grouping of the white Platycodon, and the Siberian or Chinese Larkspurs, all of which bloom at the same time, it is a desirable addition to the hardy border.

Coronilla varia is a noxious weed in the open border, crowding out less strenuous plants, yet in semi-shaded, wild spots of the garden where hardly anything else would thrive it serves an admirable purpose. It affords a carpet of dark green foliage, and lightens up its surroundings with its numerous pink and white, crown-like flowers whence its name of Crown Vetch. It makes a splendid groundwork in which to plant Lilium auratum or L. longiflorum, or any shade-loving, short-lived plant, as frequent disturbance at the root does not injure it. It is a hardy perennial, in cultivation since 1640.

Callirhoe involucrata. A native of our southwestern states, the Poppy-Mallow is a worthy member of a large family. Its trailing, long, straggling shoots, carrying its showy blooms at the terminals may be used with startling effect in many situations. I grow it in an elevated pocket of a rockery, where it wanders around in unbridled freedom, exhibiting its brilliant flowers in unlooked-for places, sometimes creeping under and up through the branches of dwarf Cedars, flaunting its crimson petals above the evergreen foliage. It requires a sunny position to be at its best.

Eschscholtzia californica. In the northern states the perennial California Poppy can only be treated as an annual, the seed being sown in the open ground in the fall or spring, preferably the fall. In many situations it sows itself so freely, that its qualities partake of a perennial character. The orange colored saucer-shaped flowers of two or three inches in diameter open only in the sun, and contrast finely with the bluish green foliage. For some situations they are invaluable. One part of my roadway passes so close up to a shrubbery bed that a border of grass is out of the question. Bordering the road is a row of named Lilacs, on their own roots, planted six feet apart and far enough back from the road not to interfere at maturity. The roadway slants from this bed to its opposite side and no gutter exists between it and the Lilacs. The unoccupied space of ground between the road and shrubs should not be disturbed by annual digging so I have sown the California Poppy. From spring until fall it presents a pleasing sight requiring no care in watering or weeding. An occasional ambitious weed, easily pulled out, may appear, but its dense growth prevents many. It seeds itself, and when it encroaches too much upon the roadway it is hoed into submission.

Geranium sanguineum var. alba. This is a white flowered form of the old fashioned "blood red" Geranium, or Cranesbill, and far more preferable. The numerous flowers seem to rest on a cushion of dark green foliage, which acts as a charming foil to their attractions. It is a European perennial, forming a dense growth some eighteen inches high, hardy and desirable. It must not be confounded with the common, misnamed bedding "Geranium," so-called, which is really a Pelargonium, or Stork's bill" (referring to the shape of the fruit), totally unlike the Cranesbill to the layman though botanically of the same order. The native G. maculatum and Robertianum, the latter the "Herb Robert" of old gardens, are very effective when naturalized under shrubberies or in open woods.

Geum chiloense or Scarlet Aven usually sold under the name of G. coccineum, bears numerous scarlet flowers, well above the dense foliage, blooming nearly all summer, and will do fairly well in open shade. It retains its foliage in good form until frost, thus making it a desirable border plant. G. Heldreichii from Greece, bearing a deep orange-red flower, and G. montanum, a dwarf Alpine species with yellow flowers, are equally as desirable.

Ranunculus acris, the Butter-Cup is one of the oldest known of European plants found in our present day gardens. It was brought from Europe by the early settlers, and has become naturalized in the eastern states, and Canada. Its popularity in the early days may be seen by the numerous common names connected with it such as Bachelor's-buttons, Blister-plant, Butter-daisy, Crow-flower, Mary-bud (of Shakespeare), Yellow Gowan. The deep, yellow double form is the best, the flowers lasting a long time. They stand up some eighteen inches on numerous branching stems, held well above the foliage, and come at a time when yellow flowers are scarce, the frequency of this color belonging to mid-summer and fall. After its blooming period is past the flowering stalks and old foliage should be cut away, when new growth will ensue and the foliage remain good the balance of the season.

TO GIVE A GARDEN PARTY

ELIZABETH HAMM

This Old-fashioned Form of Entertainment Has Completed its Cycle and Come Again from Obscurity into High Favor Along With the General Garden Awakening

OF ALL parties, a garden party will make the least demands upon a hostess—or a host—provided of course there is that first essential, the garden. The spirit of hospitality in the enchanting setting of a summer afternoon, with flowers and sunshine, blue sky and trees and shade and birds and bees, obviates at least seventy-five per cent. of the small details that indoor entertaining presents; and in addition, guests are certain to come expectant and prepared to have a good time—which pretty certainly discounts all other difficulties and perplexities that the gathering together of any considerable number of people is likely to develop.

Every garden has of course its special features and its maximum period of loveliness—its zenith of beauty. Choose this time, if possible. And then definitely make your invitations conditional, covering a second day if the first should be rainy. Where this is done you are as certain of success as any one can be of anything on this mundane sphere.

For convenience in serving, place those drinkables requiring to be kept hot at tables on the porches or a terrace, where they may be sheltered from the breeze—unless you have electric attachments for providing the heat beneath them, and can run connections to arbor, tent or summer-house as you choose. Iced drinks do not of course demand this coddling; it is always well indeed to have these at a point as remote from the house as possible. Do not fail to provide at both places water "as it comes from the spring" free from any disguises, additions or "inducements." People not infrequently suffer for a drink of plain water where other drinks are more than abundant.

IN ADDITION to the tea, coffee, and chocolate and the lemonade, punch and, spring-water "centres," set out several small tables on an east lawn, if possible (for there the shadows lie in the afternoon), where the less active guests may sit and be served by half a dozen of the prettiest very young girls that you know. Actually I would advise going even further than this by establishing a similar rendezvous in a warm and sheltered corner, in the event of its turning cool in the late afternoon. There are people too, especially among the older group, to whom sunlight is more welcome than shade, except in the very hottest weather and the hottest part of the day. Don't forget

Paramount Film Photograph

NIGHT-TIME OR DAY-TIME A BEAUTIFUL GARDEN IS THE SETTING FOR BRILLIANT AND DELIGHTFUL GROUPS

Whether it is coffee after dinner in the slanting sunlight of a daylight-saving evening, or afternoon tea, or a gala night of Japanese lanterns, fancy dress and perhaps mask and carnival, no spot can vie with the garden for all that goes to make such affairs a complete success

this—and them. And you can never have too many places for two or three to foregather, a little to one side. Indeed the opportunities which it offers for just this informal chat and social intercourse is one of the great advantages of a garden party.

On the other hand, you must be on guard against a too general tendency to break up into small groups, especially in the early part of the afternoon. Music is of course an essential; and the location of the musicians very important. Personally I believe they should be really out of doors, and preferably concealed at a distance from the house, since there is a distracting (to a hostess) fascination in the proximity of "the band" even to the most sophisticated, and people will inevitably gravitate toward it the instant they are left to themselves. Which means if it is placed on veranda or terrace they will stick to the house. Moreover, the strains of music are delightfully mellowed when no walls are near the players, and are further rendered into something like enchantment when borne on the moving air of a soft summer day, across grassy spaces and others bright with flowers.

Ruth Colby Studio Photograph

HERE IS A GARDEN PARTY ALL BY HERSELF!

Provide the "way-away" walks and the nooks and mysterious retreats which delight the child-heart whatever breast it beats in, and then entertain in the garden, if you want small folks and great to have a good time

Let the flower that is the reigning attraction at the time, set the key-note of the party. If it is the Rose, for example, stage a contest of Roses, and ask each guest to cast a vote for the one he considers most beautiful, the ballot to be submitted in the form of a short verse. Give until a certain hour for the balloting, then have them all read aloud without giving the names of the writers, and award a cluster of the winning flower to the cleverest composition, this last to be decided by acclaim. Dress all of the young girls assisting, as Roses, with fancy paper caps in the form of the flower—some pink, some red, some deep yellow, some pale—and leaf-green smocks or dresses; and upon arrival, present each guest with boutonniere or corsage cluster of half-opened buds of a *fragrant* variety, with proper pin for fixing them in place. Three or four of the young helpers may attend to this, standing with the flowers on tray-baskets at the garden entrance where all must pass.

IF SOME flower less suitable for personal use is the chief attraction, choose anything you may have in bloom that will be acceptable for this purpose—an old-timey "nose-gay" is fascinating, made up of countless varieties tightly bound together, with a lace "collar" setting them off, and ribbons tied around their decorously covered stems—and present the guests upon their departure with a clump or a box of the garden's queen, whatever this may be.

Finally—apart from tennis if you have a court, and croquet, and a space near the musicians for dancing, and a section for the children and their games if little folks are a part of your own household—do not trouble about providing entertainment. All outdoors has done this, and people have only to be left to themselves to enjoy it. Do have the gardener available however, at some point where a path ends, with paper and pencils; for nothing is more tantalizing to garden lovers—which most people are rapidly becoming—than not to be able to ask garden questions in a garden! He will be the final touch to perfect the occasion.

SOMETHING DIFFERENT IN THE GARDEN

ELIZABETH TYREE METCALFE

"Merrily, merrily, shall I live now
Under the blossom that hangs on the bough."
The Tempest, Act V, Scene I.

SURELY we do not use our gardens enough! When midsummer is upon us and there is a let-up in garden work we ought to wink at struggling weeds (they are, always have been, and always will be cropping up, of course), and just sit and see the blue above, the green beneath, and the riot of color that greets the eye at every turn. After all the toil it seems to me it becomes us well to squeeze all the joy out of the glorious summer days that they hold. Others feel the same way too, I know. At the Garden Club meetings I observe a certain indifference as to lectures on pests and things we ought to know about, in spite of the seriousness of the members as gardeners; and one (my neighbor) openly wished last year that we could do something different.

We did; and here is the record of it as I wrote it down, day by day. If it seems a very personal narrative perhaps it will be that much more suggestive to others who long to get the very most out of the beauties of the garden, as we did. So that is the excuse for its being so!

August 1.—My neighbor is delighted with the idea of the play and has given me many suggestions. It will be called "The Perennial Border." Besides sixteen flowers there will be represented Sunshine, Bad-weather, Jack-Frost and Cut-Worm. Sweet-William, Johnny-Jump-Up and Jack-Frost will be costumed as boys to lend variety. The other characters will be garbed in soft clinging green chiffon, or cheesecloth, simply cut

in Greek fashion. They will wear crêpe paper hats made to indicate the flower impersonated. The women have been selected according to their fitness. (My neighbor has cast me to play Gas Plant, and, not to be outdone, I am writing for her the part of Wall Flower!) Next week the play will be finished and read to the cast. The Club numbers a hundred and each member may bring guests. After the play tea will be served and the cast insist upon sharing as hostesses. It promises to be a very big party.

August 8.—The play is finished and was read to the cast to-day. All are delighted, and, unlike professional players, no one is dissatisfied; even our Club President does not object to playing Joepye Weed—for no border would be complete without a weed of course, and Joepye is so gorgeous. But I was afraid no one would be willing to impersonate Cutworm, as she must lie in an excavation in front of the border for twenty minutes before she makes her appearance. We shall line the place with oilcloth and cover her with leaves and grass; besides she will be sewn into a gray flannel bag. Our youngest Club member will do the part. She is tall and slender and will do a grand ground wriggle when her exit comes.

August 11. I believe that most amateur efforts are a burden due to long-drawn-out rehearsals, so we shall go at it heart and soul for one week just before the party. There are twenty-one speaking parts, and as a half-hour is long enough for such a playlet, the speeches are short and easy to learn.

September 7.—This has been a very exciting day! The first rehearsal has been so enjoyable that all are eager to come to-morrow morning, bring lunch baskets and make a day of it. The paper hats have come and they are too lovely. To-morrow, during intervals of rehearsing, we shall fashion a pattern costume of green cheesecloth. We shall use many shades of green just as Nature does.

September 10.—Four days of rehearsing out of doors and four days of riotous, happy laughter. Already we have had fun enough to make up for the pains we are taking. Oh, suppose it rains! But it won't. September is a very well-behaved month. The elements are much to the background. Our "hardy border" of perishable feminine loveliness will be planted in front of a high lattice fence, covered with vines; a low privet hedge will be immediately in front of them. When Jack-Frost appears they all tremble and fall to the ground this way and that; Bad-Weather makes a hasty exit, followed by the wriggling Cut-Worm. At this Jack-Frost does a triumphant dance—but he too finally departs when taunted by Winter-Garden's speech: "Sold again, Jack Frost. You seem to think that when you come around the world of beauty dies. Not so, my friend! Pause at Winter-Garden's brink and view the beauty it unfolds to knowing eyes." Which is the play's end.

Paul Thompson Photograph

"And those things do best please me
That befall preposterously."

As roguish as the veritable Robin Goodfellow was Miss Dorothy Iselin, the Puck of Mr. Metcalfe's pageant when this was given at Girdle Ridge, Mr. William Fahnestock's estate

September 14.—Well, the party is over—and gave such delight that we have been asked to repeat it for the benefit of a village charity. And none of us are "worn out" in the least—for we have been enjoying ourselves too greatly. It was a pretty sight, the stream of automobiles dumping men, women, and children in the field above the barn. The twenty-one members of the cast in brilliant array were concealed in an unused stable behind the lattice fence, making up and chattering with as much excitement as a company of famous players; and with what good nature did they adjust themselves to the makeshift dressing room! Folks *are* nice, bless their hearts—the most of them.

More than two hundred people were seated in the camp-chairs to greet the players as they marched from behind the lattice screen. The fun began when Bad-Weather, in crossing the border, stepped upon sleeping Cut-Worm, concealed in her snug excavation all covered with grass and leaves. No Cut-Worm ever received such an ovation as she when she curled and wriggled, while the flowers shrieked and wrangled as to which would be the next victim. The play proceeded with each flower reciting a descriptive verse as a special plea for herself to be spared by the Cut-Worm, then the finale with Jack-Frost conquering all save Winter-Garden. Tables had been placed in a grove beyond the garden and there the audience carried its camp-chairs and assisted in serving tea. It was a lovely party! And we shall all be glad to do this thing again.

FOR a tribute to Will Shakespeare's birthday my mother-in-law's son once wrote a fantasy that lends itself beautifully to an evening garden party. It is a charming presentation of many Shakespearian heroes and heroines, appearing as shades in pairs reciting a verse or two, as they hold revel in their creator's honor.

Where there are many young people in a neighborhood who are willing to devote some part of a day for five days to rehearsing, it can easily be done. I know, because forty-two youths and maids, all enthusiasm, carried it through in this time. And if mothers will permit their little folks to stay up late for one evening Puck may have his train of fairies to dance a revel around a pool or some central garden feature.

At Puck's command they should come, out of the forest or over the wall pellmell or from here and there in the shrubbery, into the light. Choose

Paul Thompson Photograph

INVITATION TO A REVEL

And opportunities therefor occur wherever there is a garden, if we were but wise enough to recognize the facts and make the most of them

WHEN THERE IS A POOL

Water parties are delightful possibilities by no means limited to guests under ten, and many water games afford a chance for contest

Ruth Colby Studio Photograph

the time for full moon—but take no chances with the inconstant orb! Have an electrician who is expert at lighting shows if possible, located out of sight of the audience to provide light as desired. A dim green glow for the shades, little spot-lights to pick out Puck, Titania, Pease Blossom and the rest as they peep over the wall, and a great spread of light for the fairy dance, growing brighter as they glide away at the approach of dawn.

After the play is over there may be dancing and refreshments—whereof let me say that it is an excellent idea to have only sandwiches, cakes, and ices, for these can easily be kept fresh a day if it rains. It is wise indeed to make all plans for a garden adjustable to a second day in the event of rain. And it is also wise to provide a shelter that is really rain-proof at a point remote from the house, in the event of a sudden, quick shower breaking in the midst of an otherwise perfect day.

If you can add an orchestra, concealed somewhere, to play the fairy music of Mendelsohn's Midsummer Night's Dream the effect of the pick of Will Shakespeare's creations, embodied with youthful enthusiasm and arrayed in gorgeous costumes, gliding out of the shadows into the glow of a mysterious light and voicing their identity in exquisite verse to soft, sweet music, will make a picture long to be remembered.

I WISH we did these things oftener. It seems to me that one reason our Creator made the summer so beautiful was that we should live out of doors all day long. To-day some little girls came into my garden and went wading in the gold-fish pool. A red-winged blackbird and a wood warbler pealed out their liquid legato notes—and a longing to play comes over me! Parties need not be magnificent to be enjoyable. The simple ones are often the most fun, and in these days of scarcity of domestics it is a good plan to have the coöperation of friends and neighbors. A little thought and planning, simple refreshments made preferably outside of the kitchen and served in picnic fashion, guests assisting, make for gaiety and easy entertainment. Come—let us play in our own, and each others', gardens!

THE DOUBLE BORDER

JOHN L. REA
With Drawings by the Author

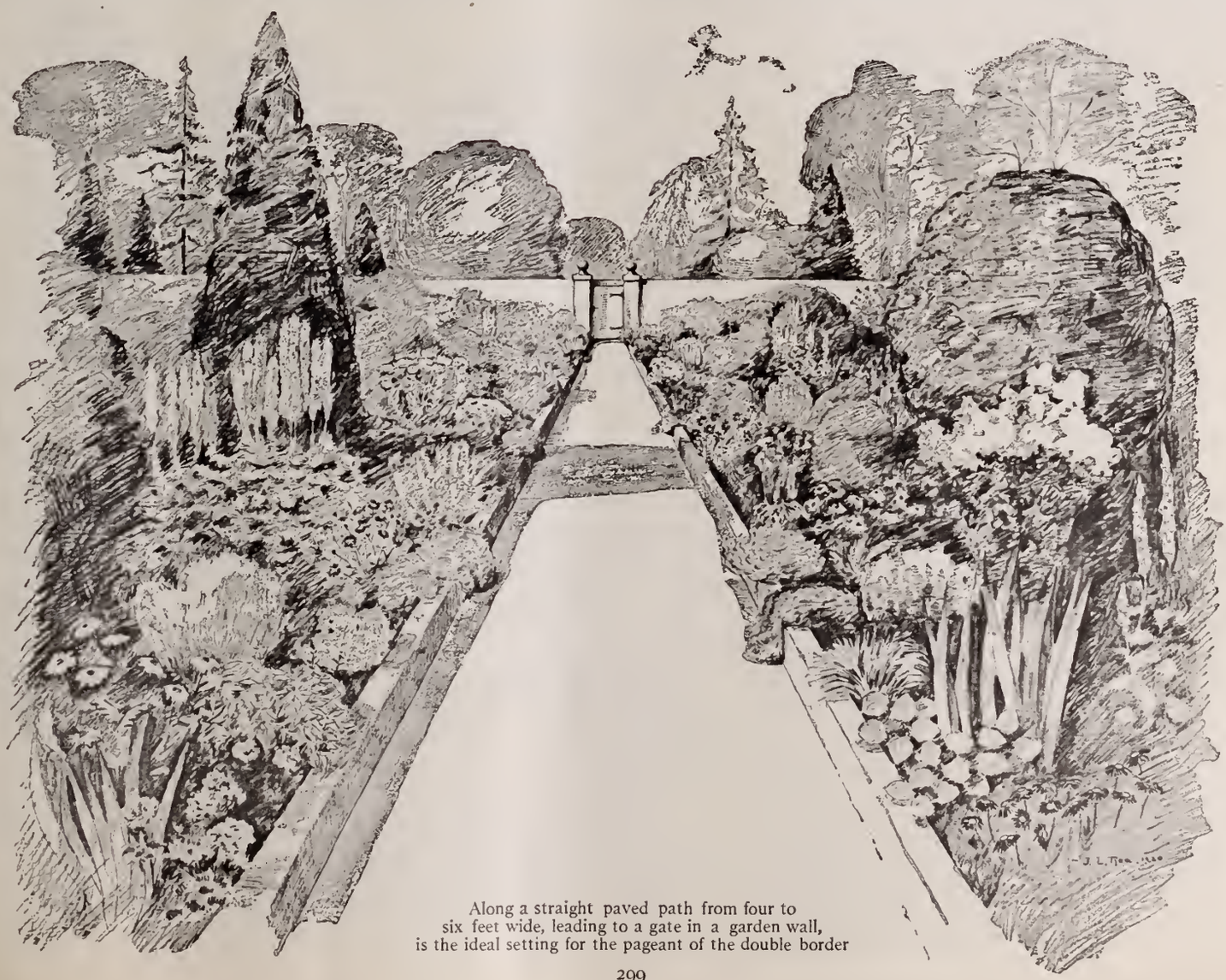
Old Feature of the Garden Though This Is, an Artist's Intimate Study of It Reveals New Appeal and Unsuspected Opportunity Therein

IT MATTERS little or not at all, said Anatole France, whither the way may lead so it be beautiful. Now there were many who construed this of Monsieur France's into a hard saying; and others who, though they had long covertly entertained the like opinion, yet thought that in giving utterance he had needlessly and foolishly spilled the beans, so to speak—had rashly thrown the fat into the fire. At any rate there was a considerable flare-up. The Carlyles amongst us were not slow to point out that through following a path leading nowhere—or just anywhere, for that matter—we obviously could never count on arriving at a satisfactory journey's end; the Herricks, however, of whom there are quite as many, went joyously about gathering rosebuds, as heretofore, and weaving them into chaplets of great beauty.

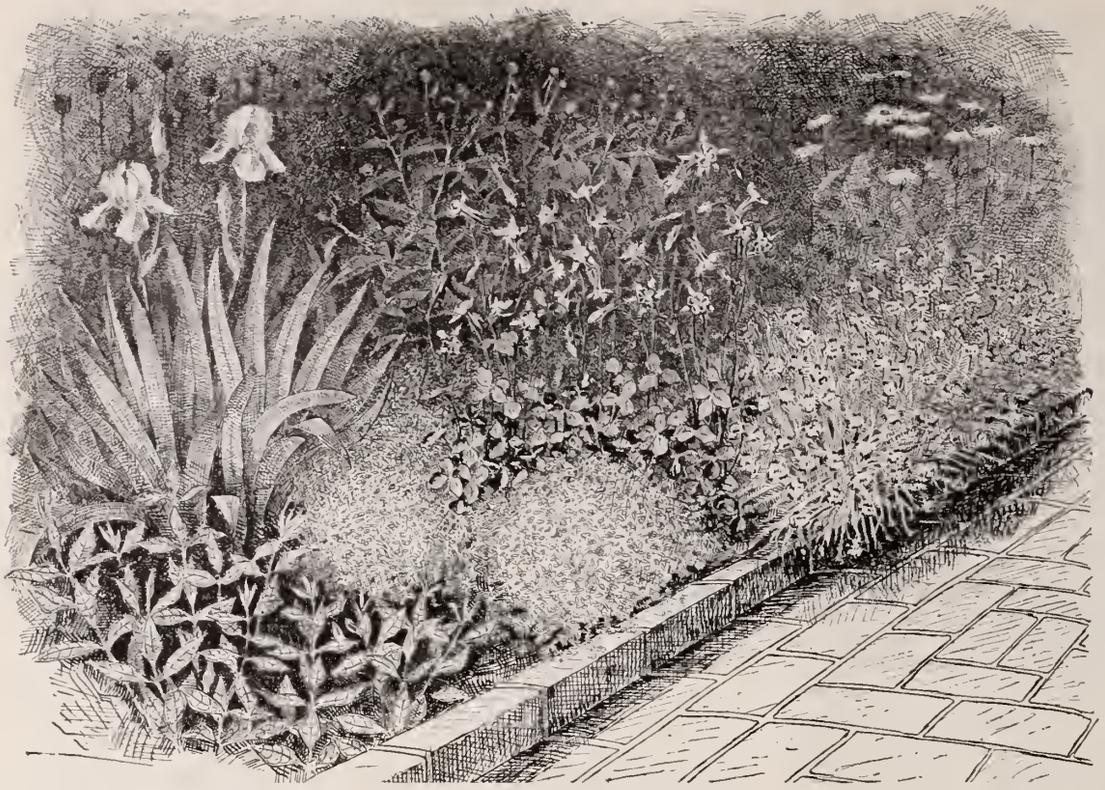
In mentioning the incident now, there is no thought of taking sides in the controversy, but merely of pointing out what a surpassing gardener "Le Maître," as some of his compatriots affectionately call him, would have made. Here is one who would have the right poetic insight into the true purpose of a garden and a just notion of the place of dreams and leisure, of idle sunny hours, lingering twilights, and soft moon births a proper garden should be. And of all the many forms a garden may take is there any more nearly fulfilling the conditions of the great Frenchman's pronouncement than the path lying between two flowering hardy borders—the Double Border of our text?

There are, we are told, poems which appeal particularly to poets and novels appealing especially to novelists. However that may be, I am very sure the double border is the true gardener's garden. A landscape architect thinks largely in masses of form and color. The individual plant and its idiosyncracies, except as these affect its value in the mass, are of secondary importance to him. Not so with the real gardener. His interest is largely in the individual. Sometimes he can tell you to a day when such and such a plant was set, and on what date its first flower opened this season and last. He will tell you it bore a certain number of flower stalks and grew taller by half a foot last year. And it is in the double border that such things count, that this intimate interest finds its fullest satisfaction.

IN THE more usual single border, designed to be effective from a distance—the street perhaps, or a verandah, or the house windows—a certain unity and cohesion of design can be obtained only by limiting the number of plant forms, and flower and foliage colors, to be employed. In the double border, how-



Along a straight paved path from four to six feet wide, leading to a gate in a garden wall, is the ideal setting for the pageant of the double border



so much to create the delightful atmosphere of informality and abundance so peculiarly fitting to this form of garden.

I prefer bricks laid in sand, with cinder and flagstones as second and third choices, respectively. The regularity of brick, in a simple bond pattern, or even in a more elaborate arrangement, enhances by contrast the informality of the planting, while irregularly shaped flagstones are likely to detract for the opposite reason and tend to confuse the whole design.

The opportunity to observe the small groups of individuals on either side is the double border's delightful offering

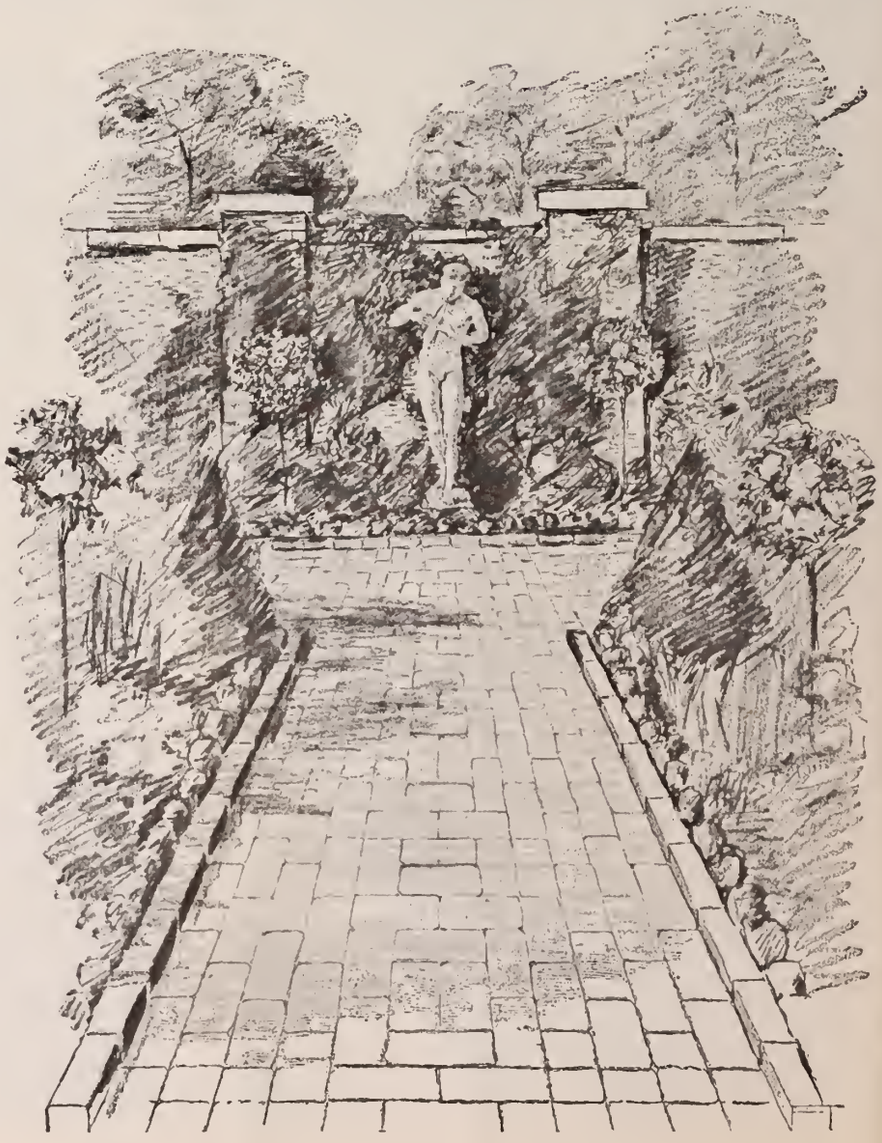
Here at the path's end is a most effective setting for a piping Pan, a nymph, or Phocis, the garden's patron

A curve tends to rouse curiosity yet when it is openly treated, as on the page adjoining, this tendency is overcome

ever, from the very nature of the case, as this strict unity of design will be less effective so its principles need be less rigidly followed. Not that conscious design and careful grouping are uncalled for here, but the method has changed with the point of view. The whole must form a pleasing picture as seen from either end, but it is the smaller group of a few plants at a time that catch the eye, now on this side, now on that, as one goes down the central pathway, that have the greater importance.

This inspection from near at hand calls at once for a larger variety of plant form and color and texture of leafage, as well as subtler and possibly more startling combinations of flower color than are permissible in the necessarily simpler single border; for here the eye is continually shifting from one group to another and looks for precisely the variety and stimulation this sort of planting will furnish. The difference in these two types of planting indeed is very nearly the difference between an impressionistic painting of, say, a heather covered hillside or a grain field glowing with scarlet Poppies, and one of those dear old flower paintings, where the canvas seems filled with all the vivid forms and colors the gardens of the time could muster.

But before going on to detailed consideration of the planting, it might be well to give some attention to the possibilities of the general layout of these double borders. The pathway or walk itself is the first necessity. This should be not less than three nor much more than six feet wide. If it is over narrow, two people cannot walk abreast along it, and so half the enjoyment is lost; if too wide, the pleasure of the closer inspection is sacrificed. Six feet is very nearly the ideal width, provided the walk can be proportionately long—perhaps thirty yards or upward. A shorter path I should make somewhat narrower. A width of five or six feet will allow for two persons walking abreast and still give room for that occasional spilling out of bloom into the pathway which does



There should be a definite edging of a row of bricks rising somewhat above the level of the pavement. This edging along a cinder path might be of some other material—as stones, tiles, or cement. The last named material might indeed be used for the walk, with or without tiles in combination. A danger in using cement and tiles is of over emphasizing the pavement at the expense of the planting. With a grass walk the necessary use of a lawn mower precludes the spilling out I have mentioned as a means of great charm—so in case grass must for any reason be used, perhaps it best be bordered with some formal edging plant—Box, if possible. The effect obtained in this way however can never equal that afforded by the brick pavement.

As a general rule, the straight path is best for this purpose. A curve, particularly a disappearing curve, has a tendency to arouse curiosity and hurry us on where there should be only the most leisurely advance. This brings us to the path's ending, which is a matter of some importance, after all. There always will be people indeed who insist on finding a moral for every tale; which species of the genus homo firmly hold that every path must in the end definitely lead us somewhere worth while. If we grant—as we must, I presume—that there should at least be some feature that will in a slight measure centre the attention on the far end of the path, what shall that feature be? The most obvious thing, and perhaps for that very reason the best, is a gate in a garden wall. If we could all have garden walls! Failing that, a gate set in a green hedge, the higher the better, might answer. Or a sundial or a bird bath in a tiny circle of lawn most of us could have, in which such a path might end. A garden seat against a bank of evergreens might suggest an ultimate goal, and be withal a grateful feature as well.

herbaceous plants are dormant. Such plantings might indeed be almost entirely of shrubs. Most of us, however, will prefer to keep the Lilacs, Mock Oranges, Forsythias, Flowering Cherries, Azaleas, etc., in rather limited quantities, unless the beds are unusually wide and they are really needed to give height and furnish background. But in the selection of herbaceous perennials and biennials every whim of sentiment and fancy may have the freest play. The charming groups possible are endless, and the only limits imposed arise from the state of knowledge and the artistic eye of the gardener—and the depth of his purse. The materials are at hand in every nurseryman's offering.

A practical list of the old favorites that all gardeners will wish, approximately in their order of blooming, would run something as follows:—Snowdrops, Squills, Crocuses, Arabis, English Daisies, Cottage Tulips, hardy Alyssum, Daffodils, dwarf Irises, Pansies, Lupins, Bleeding-hearts, Primroses, Oriental Poppies, Lily-of-the-Valley, Forget-me-nots, Moss Pinks, Sweet William, Siberian Iris, Fleur-de-lis, Peonies, Larkspurs, Foxgloves, Columbines, Scotch Pinks, Peach Bells, Gaillardias, Phloxes, Anchusas, Canterbury Bells, Evening Primroses, Lilies, Japanese Irises, Pyrethrums, Goatsbeard, Cardinal Flowers, Hollyhocks, Asters of many sorts, Chimney Bellflowers, Lychnis, Helianthus, Monkshood, Anemones, and Chrysanthemums. And any flower lover will be able to add to the list.

OUT of this wealth of material, each name in many cases standing for several varieties, differing in color of flower and sometimes in habit of growth as well, the possible combinations are, as I have said, endless. A few suggest themselves at once—as yellow Cottage Tulips and Forget-me-nots; or pink

When it comes time for planting the beds themselves, an almost bewildering range of possibilities opens up. If the beds can be eight or ten feet wide, shrubs and evergreens may be effectively used to give height and variety, and so selected and disposed as to lend interest at such times in the year as the

ones in a billow of white Arabis; golden Daffodils against the mahogany tones of young Peony growth; Columbines and Pansies; Oriental Poppies with white or pale yellow Iris; white Lupins with pink or blue Iris; Lilies with Larkspur; dwarf Irises with Primroses—and so on ad infinitum. And there is no

valid reason why certain hardy annuals shouldn't be set in occasionally, particularly in the beginning when the perennials have not reached their full development. Asters and Snapdragons would do yeoman service as temporary fillers in.

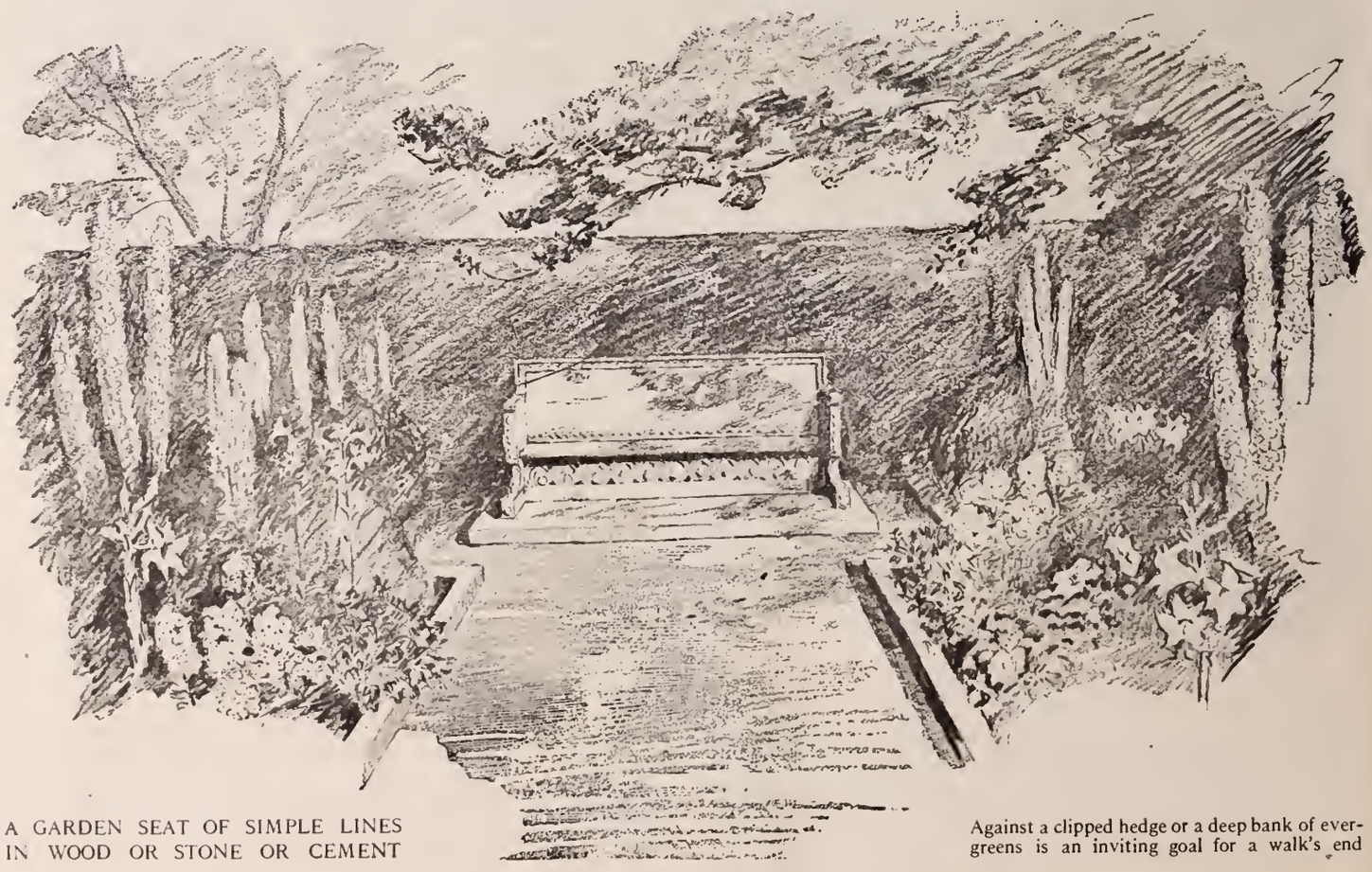
When it comes to the actual placing of the plants several general principles should be kept in mind. A mere jumble or hodgepodge will never answer. There must be something like a proper respect for each plant's needs, and the opportunity and encouragement given to develop its own peculiar individuality. In most cases the effect will be more satisfactory—except perhaps where a single plant may be expected to develop into a fairly large specimen, like a Peony, or have a particularly compelling personality of its own, like the Kniphofia or Tritoma—to plant several, say three or five, of a sort together in one colony. Of very dwarf species an even larger number in a group might be better.

IN GENERAL colonies, if they are intended as themselves part of large groups containing other plants with different characteristics, should be of a single color or at least all flower alike, whether the flowers show one or a combination of colors. Plants with unusually striking foliage, either highly colored or variegated, should be used with caution. I have seen such borders that were merely a confused mass of growth, where in the general mêlée all individuality, beauty, and charm were just about completely swallowed up and the whole planting without character in consequence. This sort of confusion arises mainly from the plants being ill-assorted as to size, character, and color; but it may be caused by over-crowding as well.

In any garden planting, particularly in a border, I like the ground to be at all seasons as nearly hidden by plant growth as may be. At the same time room must be allowed for an occasional stirring of the soil, with a hand weeder amongst the very small plants, and with a scuffle hoe of some description among the larger kinds; and an annual shallow spading of the ground. At this latter operation some sort of fertilizer might well be worked into the soil. This spading or forking is most conveniently done early in the season before the plants have attained any considerable height. At this stage there is less likelihood of their being injured. Later on flower stalks are almost sure to be broken.

THE accompanying sketches make a somewhat inadequate attempt to show in the first place what the general effect of such a double border as I have tried to describe might be, and in the second place the sort of individual treatment desirable in the grouping of the plants. A rather carefully designed informality is plainly obvious in the drawing of the border in its entirety. In a general way the taller plants and the shrubs are kept toward the back of the planting and the lower forms toward the front. This need not be an invariable rule, however. A taller plant form brought near the front line may be effective in breaking what might otherwise be a too monotonous surface. and so adding to the informal and picturesque character. The dark toned evergreen in one sketch gains in effectiveness by being treated in this manner. This drawing shows the effect of a cinder path leading to a gateway in a wall. In the more detailed sketch the brick pavement is indicated. In practice it might be better to introduce more plants than are shown in this drawing into the various groups, and to separate them by other plants to bloom at earlier or later times—for of course there should always be flowers in abundance.

No one need be deterred from undertaking the building of this, one of the most delightful of all garden forms, through any feeling of unfitness for the task. A little reading and study and observation will give the necessary knowledge of the material available. And we all have some taste, which, thank Heaven! is quick to grow if we give it a chance and coddle it along a bit. Provide the path and two beds of rich earth and set about placing the plants. It will, I wager, be impossible to produce an absolutely bad effect. It is neither necessary nor, for that matter, altogether desirable, that the thing should burst into full perfection at once. The greater satisfaction and fuller joy will be found in a gradual growth toward perfection which will come about through the changes one's experience and observation will lead one to make.



A GARDEN SEAT OF SIMPLE LINES IN WOOD OR STONE OR CEMENT

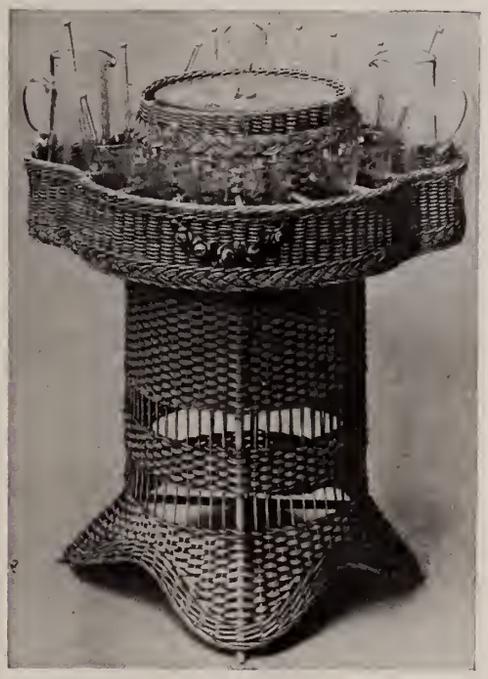
Against a clipped hedge or a deep bank of evergreens is an inviting goal for a walk's end

SUMMER ACCESSORIES FOR GARDEN AND PORCH

A little silver basket with a flower holder fitted within is delightful for masses of long stemmed Sweet Peas or other delicate and airy flower

Pink Snapdragon with Spanish Iris and Calendulas in a Japanese bamboo container are a colorful bit

Refreshment stands in wicker come in black or ivory with the flower garlands in color, and a centre zinc-lined receptacle for ice, around which are compartments for food and drink, pitchers and glasses. An engraved Rose-and-Trellis design on clear crystal is shown, the set including a sandwich tray, two muddlers and twelve mixers in addition to the glasses and pitchers



Best of all are these wire flower holders that come in all sizes and surprise you with their efficiency in holding flowers erect when set in any sort of bowl or vase

Perhaps nothing unites the garden with the house more completely than the use of a distinctly garden flower indoors while it is at its height of bloom outside, and if it can be used complete as the Foxglove plants are used here within and without the door, the effect is especially delightful

A mirror top in the plateau on which this silver centrepiece stands reflects it and the overhanging flowers it holds

Bird and butterfly ornaments to perch on the side of a low Japanese bowl are a lively conceit though perhaps the use of both so close together is not altogether desirable. It is better to err on the side of restraint even with the flowers themselves, than to overdo

It is the actual outdoor life that counts for most of all to the real outdoors person—the lazy afternoon with a book and then tea which can be enjoyed in an Ostend chair, since this protects from sun or too much wind as the case may be

FRESH VEGETABLES AT THE SUMMER HOME

ADOLPH KRUHM

Crops May be Sown Now and Harvested in a Few Weeks if Short Season Varieties Are Selected and Given Full Chance to Grow

IF FORTUNE is kind and gives you a little patch of ground around your summer cottage or bungalow, be grateful and set that ground to work. The food situation throughout the country is such as to make it eminently desirable to produce something wherever a piece of ground is available. And contrary to common opinion there is much that a garden may produce within the sixty days which spells the life of the average vacationist's garden, although the list of available varieties is of course somewhat restricted and includes only vegetables having a short season of growth.

Please remember that everything depends upon getting the seeds to sprout promptly, and then *keeping the plants growing* constantly. Therefore:

(*a*) Cover the seeds slightly deeper than you would early in the spring, and bring the soil in firm contact with them.

(*b*) After seeds are sown, should the natural water supply be inadequate, give the garden a *good soaking* with the hose or a sprinkling can.

(*c*) As soon as the seedlings appear, start hoeing; and be sure to thin them to four inches apart in the row so that crowding does not check their development.

Foremost among vegetables for which the vacation season is sufficient are Beets, Carrots, Kohlrabi, and Turnips.

BEETS that will perfect a two-inch product within fifty days under favorable conditions are Crosby's Egyptian, Detroit Dark Red, and Eclipse The young beets which you gather at the end of the sixty day period are about the finest product imaginable for the purpose of canning. In connection with all the root crops, it may be worth remembering that the canned product is far more palatable than the coarse grained full-grown crop harvested later and stored in soil for use during the winter.

CARROTS of French Forcing and Golden Ball varieties are small but delicious. These should be used when the roots which are round are not more than an inch to an inch and a half in diameter. And as it takes a good many carrots of this size to make a meal, be sure to sow enough. Within forty-five days of sowing seeds Oxheart will grow nearly two inches in diameter by three inches long while, if you have full sixty days before you forsake your vacation garden, you may sow Chantenay or Model, the largest, also latest, of the really early.

KOHLRABI reaches the two-inch diameter size under favorable conditions in an amazingly short time. Experiment with so-called forcing strains of Early White Vienna Kohlrabi has convinced me that this vegetable may be gathered within fifty days from the time seeds are sown. As in the case of Carrots and Beets, it is most essential that Kohlrabi be thinned out as soon as the plants are three to four inches tall.

TURNIPS there are that will be ready in fifty days, but do not expect quick-growing varieties to keep well. Early White Milan sown the first week in July will be ready for use the second week in August and ten days later will come Purple Top White Globe. Neither of these will stay in fit condition very long however since August heat soon causes them to get bitter. For winter use, the Swedish Turnips or Ruta Bagas are much preferable, since they have flesh of much firmer texture. However, American Purple Top will be ready for gathering the last week in September from seeds sown early in July, when the product may be stored like Potatoes, and will keep as well.

RADISHES there are of course—the little round Scarlet Button, Scarlet Globe, and Hailstone type which will be ready for table use within twenty-five to thirty days after sowing. Remember that these small kinds must be used as soon as they reach a half-inch size or a little larger. They will not stand any heat, and very quickly become pithy. A somewhat preferable variety is Icicle which, like Long White Vienna, grows to larger size without becoming hot and spongy, especially if the soil is full of humus. Of the two, Long White Vienna remains in good table condition about a week or ten days longer than Icicle, but it also requires a week longer (or at least forty days), before it reaches suitable table size.

SALAD of several kinds may be gathered in the vacationist's garden, if varieties of Lettuce that have proven reasonably heat resistent are sown. The best types are the Crisp-heads and the Cos (also called Romaine) varieties. Among the Crisp-heads, New York, or Wonderful (Los Angeles Market) will require all of sixty days to reach full size, but it will be found to be the hardest-heading of them all. Crisp-as-ice is a very much smaller variety of rather forbidding bronze green appearance, but with a heart as golden and sweet as any lettuce grown earlier in the season. Crisp-as-ice is the Crisp-head companion of Mignonette, a little butterhead variety that has the reputation of standing more heat than any other in its class.

Among the Cos Lettuces, Eclipse or Express is the first to be ready for use, but it does not stand very long before it "bolts" to seed. A better selection would probably be either Paris White Cos or Dwarf White-heart Cos, both of which bleach to a splendid white inside and remain in good condition for the best part of two weeks after reaching table size.

GREENS are provided liberally by the New Zealand Spinach which is ready to begin cutting within forty-five to fifty days from time seeds are sown, provided the seeds are soaked in warm water for twenty-four hours before they are sown, and the ground liberally enriched with well rotted manure. For unless great quantities of quickly available food are put within its reach, New Zealand Spinach will require seventy-five days to reach the cutting size.

SWISS CHARD is another prolific yielder of palatable greens, ready for cutting within fifty days from the time seeds are sown, providing those are soaked over night, sowed thinly in a well prepared row, and covered about one-half inch deep. After covering, walk over the row to press the soil in firm contact with the seeds. Then, after a day or two, get busy with the hose or sprinkling can, and give the ground a good soaking. Nature provides the heat and sunshine during July and August, but in order to have those two do the most good, man has to augment the frequently lacking moisture supply. Every vegetable will respond to regular watering, providing the watering is made more than just a sprinkling of the top. Give a good substantial soaking twice a week.

There is just one other vegetable which will mature a crop in less than fifty days—the Bean called Red Valentine. Ordinarily, I would not think of recommending that variety because it does not measure up to the high standards of such sorts as Bountiful, Stringless Green Pod, etc. However, Red Valentine does what no other variety can—it bears pods four to five inches long within forty-five to fifty days from date of planting and if these are gathered promptly they will be devoid of the string which the older product has. Moreover, Red Valentine bears pods in liberal quantities, and is a splendid variety for canning provided always you "catch them young."

FLOWERS FOR ADORNING THE VACATION HOME

HENRY GIBSON

With Potted Plants and Seeds of a Few Swift-growing Annuals, Fragrance and Color This Summer Are Yet Possible

IT IS not yet too late to sow seeds of many annuals which will flower in a surprisingly short time. Then, though the "bedding season" is some time past, the local greenhouse may be counted upon to have a surplus of plants in pots which were started early and are now flowering or at least ready to do so in a week or two. And some charming effects may be worked out with very little outlay either in time or money, by combining the quick-growing annuals with these more tender plants. The sweet and fragrant Heliotrope is one of the latter—a rapid grower and rich in color. Its beauty is enhanced a hundredfold if it is planted wide apart and seeds of Annual Gypsophila (Baby's Breath), sown between. The little white flowers of the latter will appear in four to five weeks with simply charming effect. A sowing of it should be made every two weeks until the first sowing blooms, to sustain the combination. The flowers last about three weeks when the plants go to seed and subsequent sowings take their places.

Sweet Alyssum will flower in from five to six weeks, requires practically no care, and thrives in almost any soil. Cannas, Castor-beans and Elephant ears are a trio for furnishing subtropical or shrubby effects and pot grown plants are still available.

FOR THE PERMANENT VACATION HOME THE CHOICE IS THE PERMANENT PLANTING

But for the short vacation season or the temporary abiding place there are additional things which will provide a little bit of gardening interest and some charming effects in color

A bed of half-standard Heliotropes set three feet apart and a ground cover of Verbenas between is attractive. Phlox Drummondii, set eight inches apart, may be made very effective by combining scarlet and buff, or pink and buff with white and with dwarf blue Ageratum. Petunias may be used in almost all positions and relied on to produce a perfect feast of bloom. Geranium, Begonia (both tuberous and fibrous), Aster, Potmarigold, Balsam, Vinca, Celosia, Centaurea (Dusty Miller), Cuphea, Kochia, Lobelia, Zinnia, Annual Helianthus, and many others are only part of a long list of possibilities for the flower garden of the vacation home.

Where there is even a small area of ground available for the cultivation of annuals, it is unquestionably better not to attempt to grow them in window boxes; but where the window box is the only chance for a flower garden, very pretty effects can be arranged with scarlet, white, or pink Sweet Alyssum; Phlox Drummondii; pink or white Verbena; various colored Snapdragons; Petunias; Nasturtiums; Ageratums; the fine foliaged fancy Gourds, etc. For a south or west window few things are better than a good Geranium—either the dark rich vermilion of S. A. Nutt, or the more vivid scarlet of Bruant. Both appear to the best advantage when contrasted with white flowers. White Geraniums afford a pleasing contrast, and the giant white Snapdragons are especially valuable because of the difference in value of the flower masses. Purple Ageratum and Heliotrope may be used with scarlet and white. The large flowered Ivy-leaved Geranium Souvenir de Charles Turner, is one of the best of this class, and does well in east or west window boxes, or in either vases or hanging baskets. Trailing Fuchsias, Japanese Morning-glories, Glechoma, and Wild-cucumber will do well on the north side of the house.

OF SUMMER vines Cobea scandens is the most desirable, growing to a great height and soon covering a large space; also it bears an abundance of bell-shaped flowers of pure white, greenish white, lavender, mauve, and purple. The San Salvador Cobea is thought by some to be even more desirable. The flowers are smaller, but the greatly exaggerated stamens make it very attractive. Its chief beauty however lies in its foliage of light translucent green to which the sun, shining through, gives a luminous quality rare in vines. Both varieties do well in a north or east exposure and require less water than most vines.

Gourds are among the most useful plants for ornamental purposes and afford a unique addition to the supply of plant receptacles as well. Many of them are of charming habit and may be used anywhere where a quick growing vine is needed. And among other vines that may be used for quickly covering bare, unsightly places are Climbing Nasturtiums (when given an opportunity to climb, and kept well watered), Humulus Lupulus (Hop Vine), Ipomoea (Morning Glory) in rose, crimson and red striped colors, and Adlumia cirrhosa (Mountain Fringe), with pale pink flowers. This last is biennial in nature but can hold its own with the best of the others if one-year-old plants are set out. During the first year from seed the plants stool and the second year burst out into a perfect wealth of tender green foliage as finely cut as a Fern, with hundreds of sprays of delicate flowers. Planted on the north side of the house, it retains its fine green color throughout the season, but in hot sun it is inclined to burn. It self sows—so once established there is sure to be an abundance of it every year. Another good quick growing annual vine is the old-fashioned Love-in-a-Puff, or Balloon Vine (Cardiospermum Halicacabum), with interesting seed vessels and airy light foliage.

Gardens in the City

Photographs from members of the (New York) City Gardens Club

Built over a one-story extension of the house is this lovely cloistered garden of Mrs. Stephen Clark, New York City, one end being closed in with the glass-roofed gallery whose interior is shown in the upper view

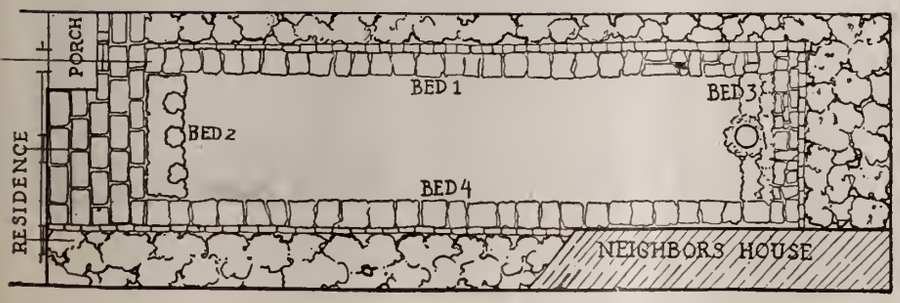
A winter and a spring view and the plan of the New York garden of Mr. and Mrs. Vivian Spencer. Marion Coffin, Landscape Architect

Bed 1. Honeysuckle, Virginia Creeper, Bittersweet, Paeonia and Lilac underplanted with Darwin Tulips in pink and rose-red, and purple Iris.

Bed 2 and 3. Deutzia underplanted with Darwin Tulips in mauve shades

Bed 4. Privet underplanted with Daffodils in variety, yellow Cottage Tulips, and yellow Iris

This secluded garden (above) of Mrs. Waldron Belknap in New York has old shrubs and Wisteria and a new trellis for this to climb on, with hundreds of blue Scilla and pink Tulips for spring effect—and Rhododendrons also. Rosalie Warner Jones, Landscape Architect



GARDEN FLOWERS FROM THE ROCKY MOUNTAINS

HAZEL ANDREWS

Without Honor in Their Native Land, Lovely Alpine and Subalpine Plants from Our Great Divide Are Prized Guests in Gardens Across the Sea

AS ARTISTS seek new colors and new forms, so gardeners are ever looking for new plants to add to the beauty of the garden. In past years Europe, Asia, and other distant lands have supplied the plant novelties, but now Quarantine 37 has closed these sources to us, so we must turn to the little known things of our own country. And it is quite possible that we shall be pleasantly surprised when we learn how much the various portions of the United States have to offer

The mountains of Colorado for example, have hosts of wild flowers which are unknown to eastern gardens, yet as deserving of a place there as the most favored exotics. Especially will the rock garden and the wild garden, which are increasing so much in favor, find in the Rocky Mountain plants welcome guests for their rich pockets of soil, mossy banks, crevices, and gravelly, dry places. The fact that most of these plants have never been tried in the East lends an additional interest to their culture, for here is a new field open to experiment English gardeners in years past have grown plants from the alpine and subalpine regions of Colorado with pleasurable success; and this augurs well for their good behavior in the eastern United States.

A CREEPING EVERGREEN SHRUB RELATED TO THE ROSE

High up on the mountain peaks grows the low, white-flowered Dryas octopetala, which bears its flowers on stems not more than an inch in length

Rich in color and variety is the springtime flora of the western foothills. As soon as the snow has vanished from the south slopes the advance of flowers begins, and until the killing autumn frosts the processional continues. Not only does this seasonal succession exist, but also the kinds change as one climbs from the plains through the foothills to the peaks, with their snowy caps. It is not possible for everyone to spend a season in the Rockies, but all those lovers of rare flowers who are so fortunate as to do so will long to transfer a part of this mountain floral beauty to the East. Happily, this is possible.

ONE of the favorite flowers of the mountains and foothills is the Wild Patens or American Pasque Flower (Anemone patens, Nuttalliana or Pulsatilla hirsutissima) closely related to the European Anemone patens. Its color is the deep lavender or bluish tone which the Hepatica of the Eastern woods sometimes shows, enriched with purple or pink which the latter flower lacks. The American Pasque Flower indeed is not unlike a giant Hepatica, the flower forming a deep cup of lavender or purple which encloses the brilliant yellow stamens—and these last are an attractive pollen store for the wild bee who ventures forth in early spring. If you desire this in your garden, plant it in deep, gravelly soil, containing humus from decaying vegetation. Give it a little shade, inasmuch as it is accustomed to the less sunny north slopes in the foothills. You will enjoy watching the pinkish, gray-green woolly buds come up out of the ground early in the spring before any leaves appear. You will like the flower too, borne on a silky stem above a perianth of green. Later the soft, finely divided leaves will surround the fruit, which is a head of silvery-plumed seeds.

Related to the Pasque Flower is the Douglas Clematis (Clematis Douglasii) which blossoms at about the same time. The plant forms a low bushy clump from a foot to eighteen inches high, with luxuriant foliage of finely cut leaves, not unlike those of the Pasque Flower. The flowers are nodding lavender or purple bells formed of four thick sepals with recurving tips of rich deep purple. They are followed by plumy seed balls which last for a long time. This Clematis will enjoy a place on a north slope in the rock garden, or in a semi-shaded place. Give it a deep, well-drained loam and it will thrive and repay you well for your care.

In eastern gardens I have seen carpets of Phlox subulata, fragrant and bright in varying colors, but to my mind a more lovely Phlox is the Colorado Moss Pink, Phlox multiflora, which too, fills the air with delicious perfume. In the Mountain Phlox the flowers are

THE WHITE COWSLIP OR MARSH MARIGOLD

Finer than the Marigold of the eastern marshes, and less rampant in growth, therefore a delightful streamside plant

much larger and closer together than in P. subulata and form tufts rather than carpets of solid color, varying from pale rosy-lilac to lavender-white and deeper shades of pink and rose. It spreads less rapidly than P. subulata, which in some situations would be advantageous. It is probable that P. multiflora would present greater cultural difficulties than P. subulata but it is worth the trouble of trying, at least. The important thing is to remember that it is essentially a rock plant, requiring little or no shade and very little moisture. Instead of giving it level ground in the garden therefore, plant it on a dry, gravelly slope where the soil contains a little humus.

TO LOVERS of Iris the eastern slope of the Rocky Mountains and the high mountain parks offer the distinct, but little known Iris missouriensis. There is no finer sight in spring than a field of this Iris at the edge of the foothills—yet ordinary garden conditions are its only requirement. The flowers are light-blue, marked with darker veins and with clear yellow suffusing the throat. The plant is a foot tall, the flowers showy and abundant, and it soon forms large clumps which, with their numerous blossoms, are an attractive addition to the Iris garden.

If we go from the foothills to the subalpine regions of the Rockies where sparkling streams rush over rocks, icy cold from the perpetual snows, we shall find rare treasures practically unknown except to the botanist. Some few indeed of the subalpine plants have been received into English gardens with enthusiasm, perhaps they will be just as welcome in American gardens, now that foreign sources of rare plants have been cut off. Soon after the snow has melted, tiny marshes in the high altitudes become dainty gardens of bright flowers. It would be impossible of course to transfer the deep blue skies, the exhilarating, cool air and dazzling sunshine of these mountain heights to the lowlands,

Above is the soft and downy American Pasque Flower, colored somewhat like the Hepatica though much larger

The Mountain Phlox (centre) of the Rockies grows in tufts and has larger flowers than other creeping varieties

The Douglas Clematis (below) will enjoy partial shade and as cool a place as may be available in the garden

but the flowers will not withhold their delicate charm if given a chance in the cool, moist places in the garden.

One of the finest of the subalpine flowers is the White Cowslip (Caltha leptosepala), which blossoms very early when brought down to low altitudes. It is related to the Marsh Marigold of the East, but is a finer plant for the garden. The flowers are white, tinged with blue in the bud and larger than those of Caltha palustris. The plant grows less rampantly, so that it fits well into the most refined nooks of the streamside or marsh. But if you have no stream or marsh in your garden you need not be deprived of the joy which this little plant will give, for it will grow if it has a fair amount of moisture and partial shade. Sometimes after resting it even blossoms a second time late in the summer.

Another choice plant from the subalpine moist places is Primula Parryi, which has been successful under cultivation. From its foliage of broad fleshy leaves an umbel about a foot high of pinkish-purple flowers arises. The color is clear and vivid, and contrasts well with the foliage. It is necessary to take care that this as well as other streamside plants are placed so that the roots will not heave out of the ground during the winter frosts. To do this, protect the edges of the stream with stones firmly placed, and fill in around the roots with soil early in the spring if necessary.

On the uppermost heights of the peaks, high above timberline and up among the snowbanks, are myriads of alpine flowers, dwarf and

multicolored. An attractive one of these and one which grows abundantly is the Dryas octopetala. This is a member of the Rose family, and indeed the white flowers resemble Wild-rose blossoms, except that they are eight-petalled. The plant is very dwarf—a creeping, evergreen shrub. Its large flowers grow on stems only an inch high. The seeds are plumed and the feathery heads are attractive after the flowers are gone. This plant will do well in the rockery if you give it a well-drained, porous soil, moist, but sunny. The leaves need a little protection in winter, such as that provided by Cedar branches, to keep them from turning brown.

Of the attractive plants from the Rocky Mountains, these are but a few examples. I have had in mind the eastern garden in describing them; but alas, they are just as little known in the West as in the East! To be sure, the West is awakening to a keen interest in gardening, and it is to be hoped that Western gardeners will realize that they have delightful material at hand and build up a local pride and reputation by using as many of their native plants as possible. Their gardens will be no less beautiful, and will possess far greater charm and individuality. As for the other sections of the country, it would seem to be enough that some of these flowers are enthusiastically grown in England. Of course, there are things which will do well there that cannot be grown in gardens of the United States; but among these native plants we need not expect to find such. Give them the conditions which observation will readily reveal that they require, and they will thrive.

A MOUNTAIN VALLEY BLUE WITH WILD IRIS

This view in Crystal Park, Colorado, affords but a faint idea of the loveliness of Iris missouriensis which it behooves all Iris lovers to know and cultivate

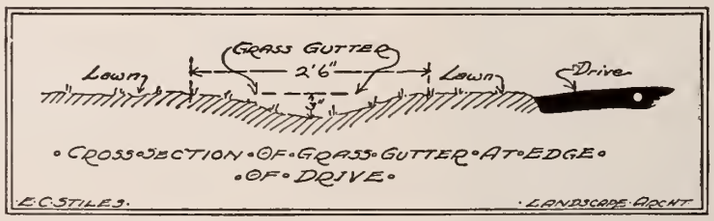
Late summer and early fall are the best time for planting most of these mountain plants, for they are then in the resting stage and will not suffer so much from being disturbed. If they can be moved with sufficient earth attached to their roots to preserve these intact and undisturbed it is of course a great advantage to them, as to all plants. Move them "unaware" in other words.

THE GRASS GUTTER

E. C. STILES
Landscape Architect

An Effective Way of Disposing of Surface Drainage Without Disfiguring a Lawn or Resorting to Expensive and Laborious Construction

OFTEN a slight divergence of grade between two small suburban properties, or a change of grade upon one property, causes a considerable amount of perplexity over the problem of disposing of drainage. Along small suburban driveways heavy curbs and cement gutters are altogether out of scale; and they tend moreover to increase construction costs generally, while they do not enhance the general appearance of the place. The less, indeed, that concrete work is allowed to show around the garden generally—utility concrete at any rate—the better.



THIS SECTIONAL VIEW SHOWS GUTTER BESIDE DRIVE

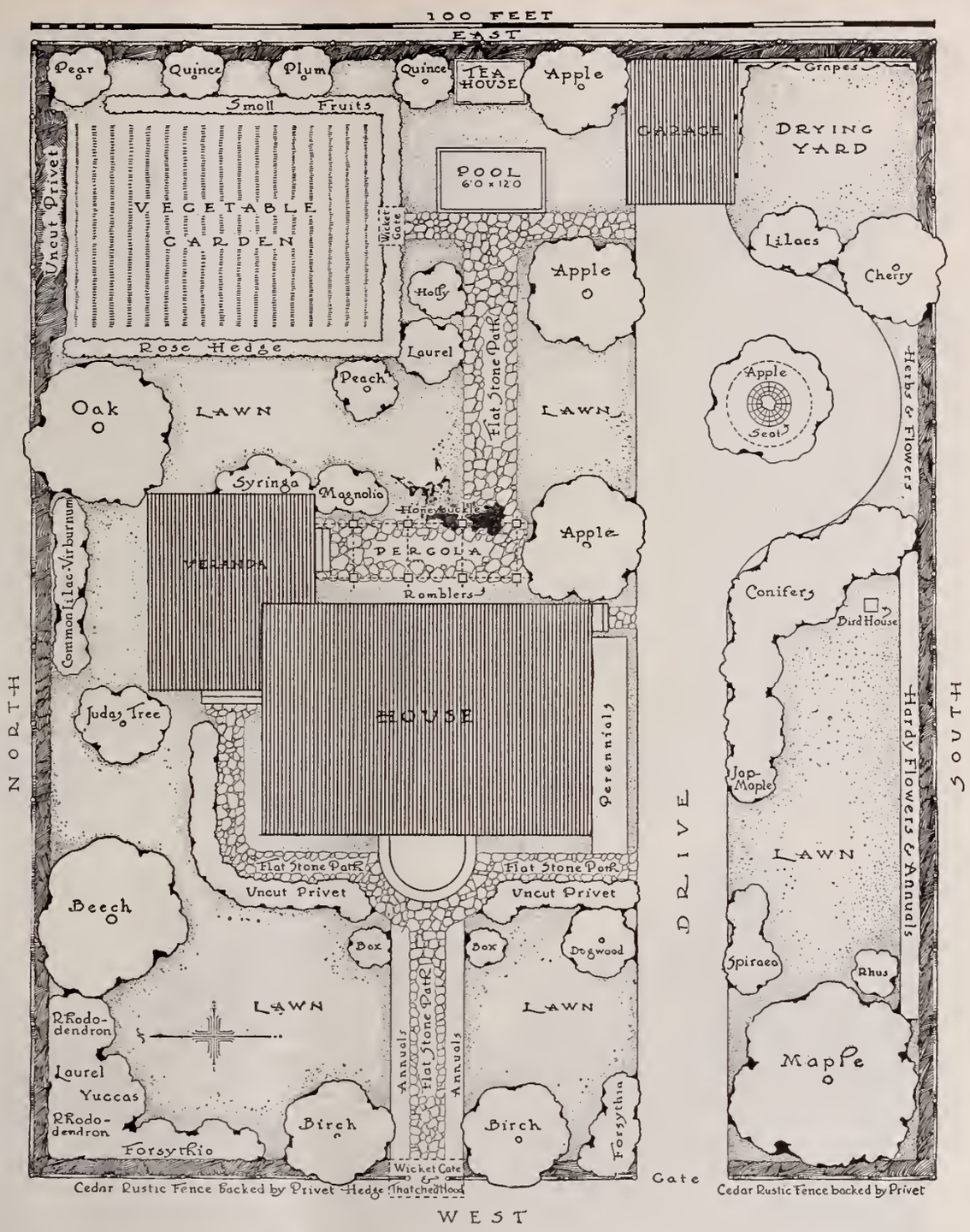
If it is used across the lawn or between two places it might be desirable to make it wider and deeper; the proportions should be maintained as here given, however

The grass gutter is a pleasing and perfectly satisfactory solution of this difficulty. Its construction, which can be seen from the accompanying sketch, is simplicity itself. Simply take up the sod along the line where drainage must be carried, over a width of two and one-half feet. Grade out a shallow depression or a small gutter, smoothing it and making it even and regular; then replace the sod and tamp it down thoroughly.

Along a driveway such a gutter should be of even width and at an even distance from the edge of the drive; but when carried across a lawn, its width may vary and its direction too, if such variation promises any advantage. Never make it more than 3 inches deep at its deepest point however—and keep it broad and shallow It must never take on the aspect of a ditch nor be so sharply sloped that any difficulty will be experienced in using the lawn mower, since the whole idea is to keep it a part of the lawn.

THIS development of a suburban plot, comprising approximately a quarter of an acre, assumes a rather more conventional position for the house than the two previously given have shown. Located near the centre of the rectangle with garage at the rear, its driveway layout is a familiar one, constantly seen everywhere. Beyond this, however, all resemblance to commonplace treatment ends; for there is a rustic fence of admirable restraint with a Privet hedge inside it, a charming wicket gate with a thatched hood sheltering it, walks of flat stones wherein tufted plants may grow, and a little pool with a tea house beyond it to lend interest at the farthest point.

It is interesting to note the inevitable variation which occurs in a ground plan as a result of placing the house differently thereon, as well as from a difference in the house plan itself. A comparison of the present design with those given in the March and April issues demonstrates this, and also demonstrates the really infinite possibilities lying within this comparatively small area. No place need be like another; every home may perfectly well have its individuality. All that is needed is a willingness to study the problem with imagination at work and conventions put out of the way—in other words, boldly and independently.

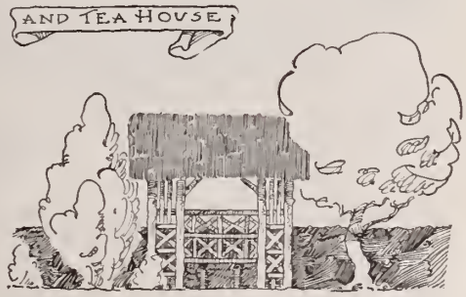


DESIGNED BY J·M·ROSÉ

RUSTIC FENCE

The present is the third in a series of four possible developments of a suburban plot one hundred by one hundred and twenty-five feet in size. The set is designed to stimulate ideas rather than to afford exact details, and it is suggested that the plans be studied with this in mind

AND TEA HOUSE



A LANDSCAPE PLAN FOR A COMPLETE PLACE

AN AMERICAN ROSE GARDEN IN THE FRENCH MANNER

DESIGNED BY JACQUES GREBER, LANDSCAPE ARCHITECT

ASA STEELE

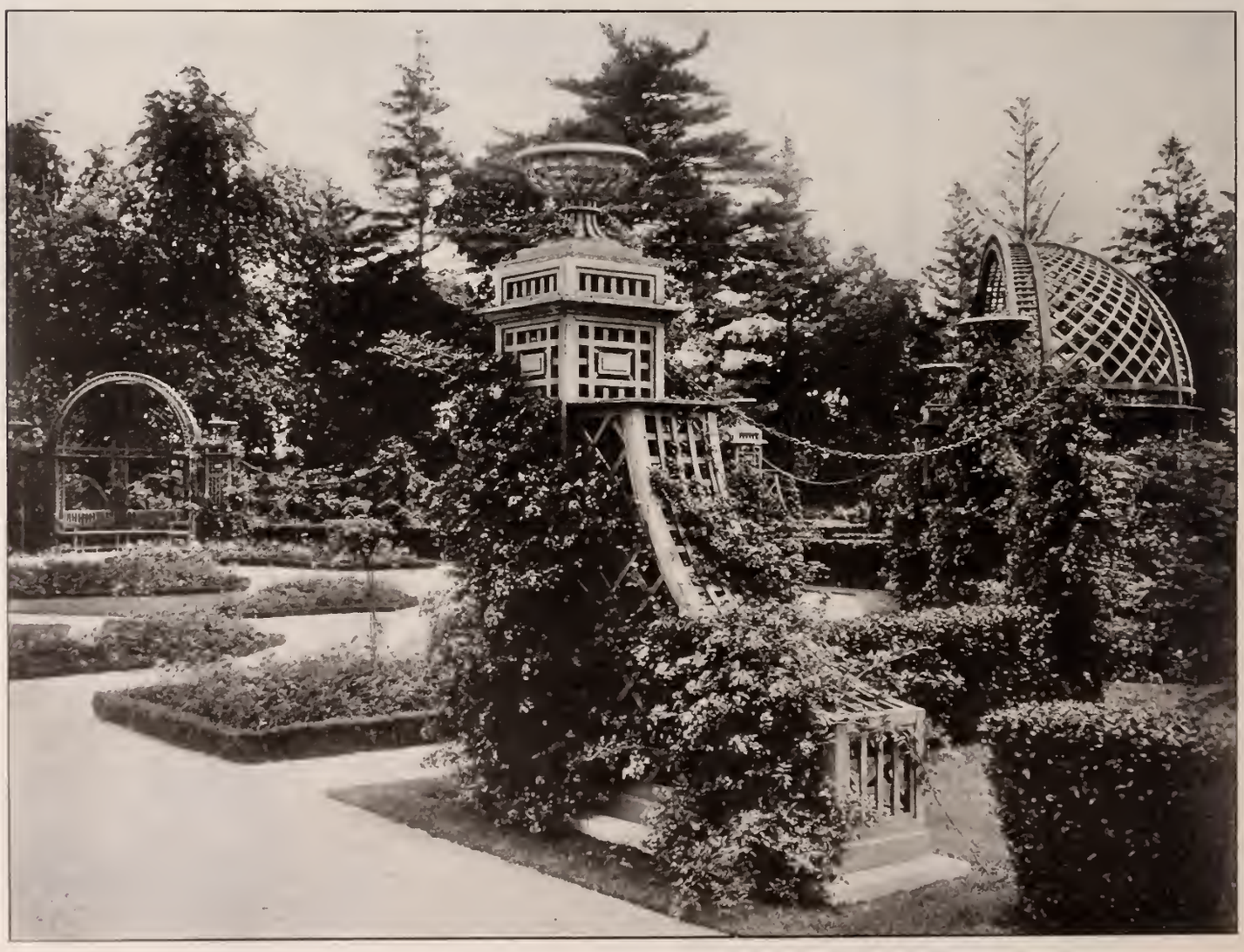
Inherent in the Climbing Rose are Decorative Possibilities Which the French Method of Handling Alone Realizes

LIKE the echo of an ancient love song, vibrant with tenderness, comes the fragrance of Roses from French gardens. And only in part are their glories explained to the American by the milder winters, cooler summers and greater moisture of the climate of France. Centuries old are the traditions that compass them. Whether these had their origins in mediaeval fortress, princely park or farmstead of the humble, none may say—and it matters not. For the culture that makes them at once the delight and the despair of the gardener from overseas is probably the fruit of all of these, ripened with the affection and imagination of generation upon generation of gardeners.

We may as well recognize at once that Rose lovers in our northern tier of states cannot hope to reproduce the semi-tropical luxuriance of bloom and foliage found on French walls, screens, and terraces. And it would require years for them to make Rose trees common, as they are in France. But the climbing Roses so easily grown in America—the Crimson Rambler, Dorothy Perkins, Lady Gay, and their sisters—may be used effectively in adaptations of the French decorations.

A common design for such climbing Roses is the mast-and-festoon. Iron rods are sunk into the ground from six to ten feet apart, eight feet of them being above the surface. They are joined at the top by iron chains, which fall in festoons not less than three feet below the summit of the masts. A vigorous climbing Rose planted at the base of each mast will quickly cover it. Then the sprays are to be fastened to the chains, care being taken always to preserve the contours of the festoons.

A few words of caution will go far toward assuring the success of this decoration. The mast-and-festoon design is found in France to form a background usually, or is placed on the edge of a garden where the vista is linked with walls or shrubberies. The gardeners of France also abstain from the severe pruning to which we sometimes subject our Roses. Indeed, they allow



ROSES ON EXQUISITELY DELICATE SUPPORTS TO ENCLOSE AND FRAME MORE ROSES

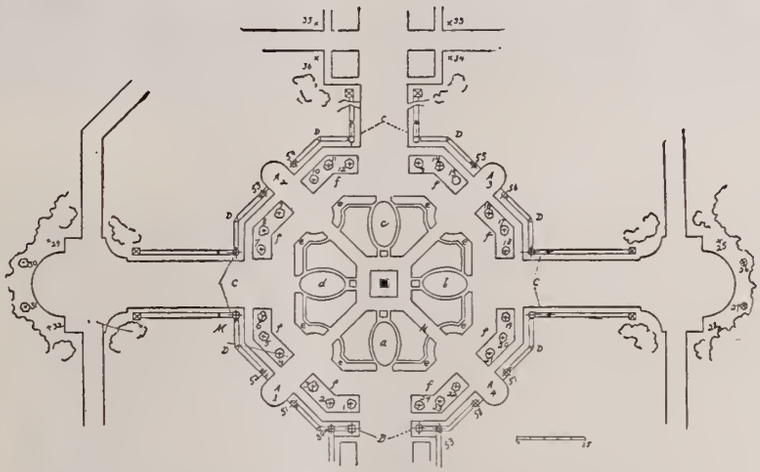
Although Lynnewood Hall, the estate of Mr. P. A. B. Widener at Elkins Park, Pa., is still under development and the garland chains of the Rose Garden are not yet clothed with their Roses, this view shows none of that lack of finish which newly completed work so often presents

the sprays, old and young, to accumulate on the masts and festoons from year to year until they resemble great pillars and cables of branch and foliage, from twelve to eighteen inches in thickness.

The idea is adapted to many forms. Frequently, only the masts are used; sometimes they are combined with some further support, as in one small garden which comprised a circle of turf surrounded by masts between which were fastened hoops of iron, eight feet in diameter, the whole serving as a screen for climbing Roses. In the Tuileries Gardens some of the uprights are not more than two feet high and connected by straight iron rods. These low screens are obviously designed to form backgrounds for flowers, separating them from the turf beyond, and are therefore raised no higher than the adjacent blossoms. It is to be noted that here the Roses are kept closely trimmed to preserve their restraint.

In this Rose garden of the Tuileries are other interesting variations of the idea, also. At one point the masts are eight feet high and the rest of the screen rises three feet above the ground, the masts having been extended by lashing bamboo poles to the smaller iron uprights. A more elaborate screen was constructed of iron stakes set a foot apart in pairs, rising two feet above the soil and with a distance of six feet between each pair. The intervening spaces were spanned by iron strips, also in pairs, rising to peaks.

At the corners of their gardens are often fascinating curved designs, a duplicate of which might whet the ambitions and ingenuity of American Rose gardeners, and a lavish use of trellis work transforms some of them into realms of veritable enchantment, like nothing less than a fairyland of dreams. Let no prejudice presuppose that the effect is too artificial, either. Seeing it, is conversion to it!



THE GARDEN DESIGN AND VIEW ACROSS IT

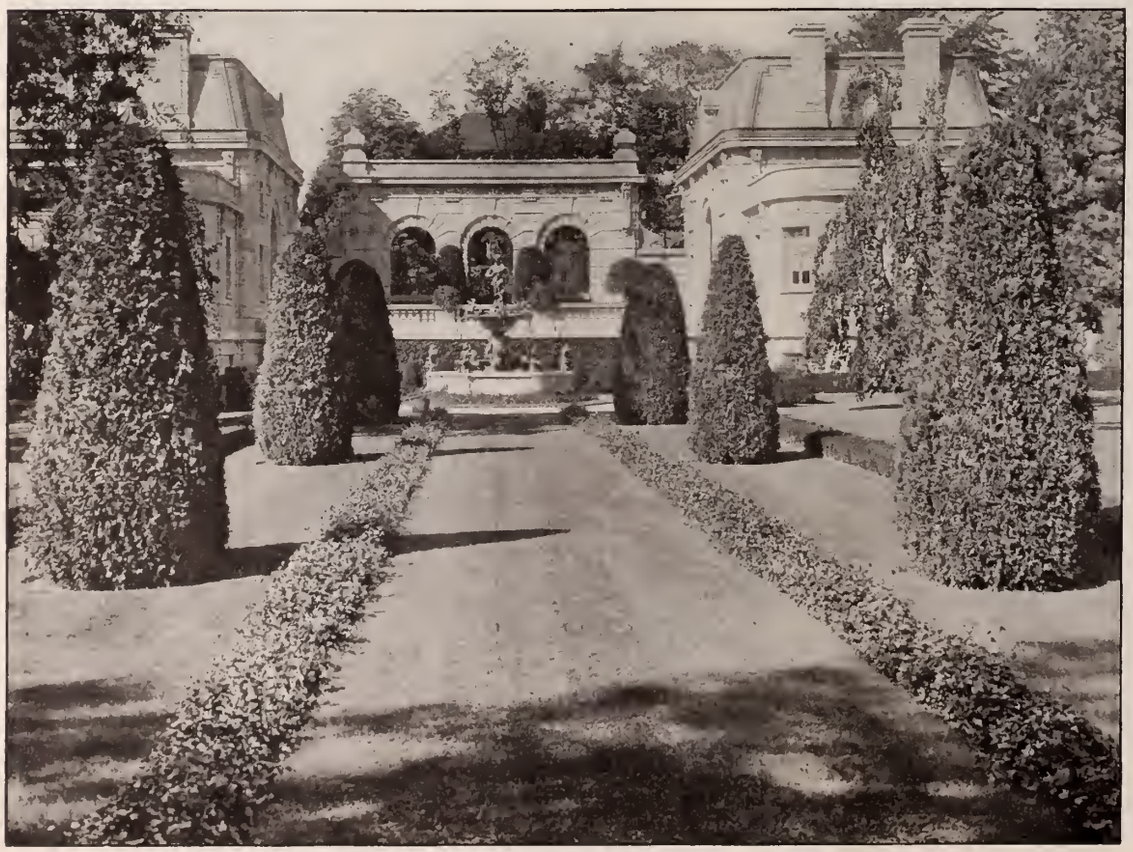
The planting plan with its key, and the corresponding photographic "elevation" of the finished Rose Garden at Lynnewood Hall, afford suggestive analysis of the entire scheme

KEY TO PLANTING

CLIMBING ROSES		MISCELLANEOUS ROSES	
A 1.	American Pillar	a.	Caroline Testout and Hermosa
A 2.	Blue Rambler	b.	Madame Abel Chatenay
A 3.	Climbing Captain Christy	c.	Ulrich Brunner and Marquise Litta de Breteuil
A 4.	Yellow Rambler	d.	Madame Ravary and Antoine Rivoire
B	Climbing Madame N. Levavasseur	e.	Jessie or similar dwarf everblooming Polyantha
C	Crimson Rambler	f.	24 standards, Hybrid Perpetual and Hybrid Tea with intermediary garlands (Climbing Bengal or Noisette)
D	Dorothy Perkins	26. 27. 30. 31.	Four various weeping Roses
25	Climbing Souvenir de la Malmaison		Intermediary garlands joining the pillars of Wichuraiana hybrids
28	Madame Jules Gravereaux		
29	Kaiserin Augusta Victoria		
32	Frau Karl Druschki (Climb)		
33	Lady Gay		
34	Hiawatha		
35	Pink Rambler		
36	Philadelphia Rambler		

VERDURE AND SKY AND SUNLIGHT

These alone, and yet a vista of the greatest variation and richness wherein the depth of shade, the shadows, and the varying greens of the Japanese Cypress and the deciduous background produce a splendid restfulness which no other composition could rival



A BROAD IVY-BORDERED GRASSY WAY

Design plays an important part in such a conception, the magnitude of the scale being one factor, and pure line to furnish a rhythmic basis for the subdued planting, another

A Garden All in Green

The Elms, Estate of Mr. E. J. Berwind
Newport, R. I.

BOXWOOD OF BEAUTIFUL PRECISION

The old, old fashion of forming a design in this medium is revived as a setting for sculpture of greater sophistication done in marble, while the depth of green is maintained in the background by the use of Rhododendron, and Ivy covers the wall

A LEAFY FOUNTAIN RIPPLING DOWN

Here the striking suggestion of flowing water inherent in the form and foliage of the weeping Beech has been accepted and developed, with again Ivy to border the walk leading thereto and Irish Yew enhancing the perspective

CANNING WHEN YOU CAN'T GET SUGAR

EFFIE M. ROBINSON

The Belief That Sugar Is Essential to the Preservation of Fruit Has No Sounder Basis Than the Fact That Fruit Itself Is Sweet and Is Used Commonly as a Sweet

WHETHER you are canning with or without sugar it is first and all-important to make up your mind that on canning days you are "not at home"! Muffle the telephone and devote yourself to the work on hand to the exclusion of *everything* else! Then proceed to pick the fruit over carefully. Use only perfect fruit for canning. Always can, too, just as soon after fruit is gathered as possible. Prepare in any way that is necessary, such as hulling strawberries, stoning plums, peeling and cutting or slicing large fruit; and then put aside in a cool place while all other preparations are going on.

The one-period cold-pack method is recommended. In this, the article is packed, uncooked, into jars and then sterilized in a hot-water bath. Put this hot-water bath on the stove to heat up with its rack to hold the jars in place. If you have no regular water-bath canner use the family wash-boiler. Fill with sufficient warm water to come an inch above the tops of the jars when these are in.

Next examine the jars, discard imperfect ones, and sterilize those to be used by putting them and their tops into a large preserving kettle filled with warm water. Bring gently to the boil, then keep them just at boiling point till ready to use. Always use this year's new rubbers for sealing. Even if you have some unused from last year it is safer not to use them for they deteriorate rapidly. Keep the rubbers in water with a pinch of baking soda in it till required for use.

DO AS MUCH OF THE WORK AS YOU CAN OUTDOORS

Preparation of the fruits and the weighing and measuring should be done where it is airy and cool, while the wait during sterilization is an opportunity for rest

Have a large pan of boiling water ready for the blanching process, a kettle of boiling water for filling the jars after the fruit is in them, and a large pan of cold water for the cold dip. (And if you intend using a syrup, prepare it now. Directions are given further on.)

First blanch the fruit—that is, plunge it into boiling water for one minute, using a wire basket or a cheesecloth sack to hold it. (Vegetables require from five to fifteen minutes but only the hard fruits require more than one minute. Give the hard fruits three minutes.)

Lift from the blanching pan into the cold dip; which means plunge *directly* into cold water—in again, out again quickly and spread out at once to dry. Prepare only enough fruit at one time to fill the number of jars that will fill the canner.

Now fill the hot, clean jars with the fruit, gently pressing it down with a wooden spoon so as to get as much in as possible without crushing; then fill the jars to the brim with boiling water (or boiling syrup), place the wet rubbers and tops on them and close them. Do not seal fully, however, as you must leave room for steam to escape while they are in the canner. If you have screw-top jars, use your thumb and little finger to screw the top on; if bail-top jars, put the upper bail in position over the glass top but leave the bottom bail loose.

Place the jars in the water-bath and *keep boiling steadily* all the time, counting the time of actual sterilization as beginning when the water has been boiling for two minutes. Sterilize small soft fruits thirty minutes, the harder fruits one hour; and keep a kettle of water boiling on the side of the stove from which to renew the water-bath, if it boils away, without stopping the boiling.

An alarm clock set to the time when sterilization will be finished is a very wise provision for exactness. When it goes off, take the jars out, placing them on cloths to prevent them from breaking, and immediately seal *tightly* without opening, holding with cloths of course to prevent burning the hands. The great secret of success in this one-period cold-pack method is to insure against the slightest exposure of the contents to the air after the jars have once been filled and covered.

Turn them upside down after sealing and let stand till morning to test for leaks. Any leaky jar will have to be emptied and the contents sterilized all over again, so get it right the first time! When quite cold wrap in paper and store in a cool place.

As to the use of sugar, it is absolutely unnecessary though it has been so long the practice to use it that the idea of preserving without it is hard to accept. Yet complete sterilization does the trick just as well. Vegetables have always been canned without sugar, and it is only because fruits are used as a sweet and so many of them are sugary in themselves that we have come to think they require sugar to make them "keep." Plain boiling water is all they need in the jars; but if you prefer to sweeten them take the same quantity of honey or corn syrup as of water (for a thin syrup), or use two parts of honey or corn syrup to one part of water for a heavy syrup. Boil for ten minutes and then pour boiling over the fruit when it is packed into the jars, instead of the boiling water.

THE ROMANCE OF OUR TREES
X. THE LOMBARDY POPLAR AND THE BABYLON WILLOW

ERNEST H. WILSON
Assistant Director, Arnold Arboretum of Harvard University

Of More Striking Individuality and Dramatic Character than All Other Deciduous Trees, One Is Traceable to a Single Modern Ancestor While the Other's Origin Is Lost In the Mists of Time

IN THE realm of tree life no stronger contrast exists than that presented by these two trees. It is true that upright and pendulous branching forms occur in other trees, but none are fixed in the popular mind so firmly as this Poplar and Willow. Their very names conjure up mental pictures of the trees and they are known far outside the fold of garden lovers. Both are intimately associated with mankind in many parts of the world. Indeed, it is doubtful if any deciduous leafed trees have been more widely planted on purely aesthetic grounds.

In the case of the Poplar some consider that its planting has been over-done—certainly it has been planted where it should not have been and its legitimate uses much abused. But this is the fault of man and not of the tree. Rightly used it is a valuable subject in landscape work and quickly develops a unique effect. By water these trees are complementary and create a splendid and harmonious effect.

The Willow has not suffered in this respect. With its pendent branches, lithe and graceful, and moved by the faintest breath of wind it has stirred the sentiment of many races of mankind. Usually it is associated with grief. In Korea it is planted to form avenues leading to the tombs of royalty. And did not Napoleon on St. Helena, expiating his crimes, sit beneath a Weeping Willow? Grieving over his fallen fortunes he may have found sympathy beneath this tree. Even in the cynical expression that misery likes company there is much truth. Without a doubt the picture of Napoleon seated under a Willow tree excites more sympathy than that of Napoleon on the throne of fair France.

POPLARS OF LOMBARDY BESIDE THE QUEEN'S COTTAGE AT KEW

This cottage in Kew Gardens where Queen Victoria used to play offers a suggestion not only in the use of the trees but in domestic architecture as well

An old Chinese book says "the Emperor Yang Ti of the Sung dynasty built a great canal a thousand li (Chinese miles) in length, and encouraged the people to plant Willows along its banks. For each tree planted a roll of silk was given and the trees were named after the Emperor and called "Yang-liu." In Japan the highest type of feminine beauty is symbolized by the Willow for gracefulness, the Cherry blossom for youthful charm and the Plum blossom for virtue and sweetness. A celebrated Japanese beauty is known as Yanagi-no-Oriu, or "Willow-woman" and is said to have a Yanagi-koski—willow waist—because she is slender and graceful like the branches of that tree. Dancers too, are said "to sway like the branches of the Willow when wafted by the summer's breeze."

On the "Willow pattern" crockery and porcelain is perpetuated the legend of the Chinese maiden Koong Shee who loved her father's secretary, Chang, and ran away with him. A similar legend is current in old Korean literature. In our own folklore and songs the Willow is associated with love, unrequited or forbidden. The note of sadness is present and the bond of sympathy with the tree is ever to the fore. Someone has asserted that the beautiful always awakens sadness and maybe this explains why the Willow and grief are inseparably linked in the poetry and prose of many lands.

THE Poplar on the other hand inspires no such thoughts. Each and every one of its branches grows erect and they cluster closely together as if afraid to leave the bosom of the parent trunk. Rapidly it grows and thrusts its narrow spire-like crown heavenward. Like ambition, it rises to excel its fellows and flaunt in the breeze far above their heads. Trees from 100 to 150 feet tall are known — gaunt in winter but spires of green in summer. Like sentinels they stand and dare both the laws of gravity and the fury of storms. For their great daring they often suffer, but so do others of great timidity. To watch a Lombardy Poplar in a wind storm is inspiring. No tree puts up a better struggle. It bows far over and defiantly regains its equilibrium at the first lull. Think of the strain on its millions of cells; of their elasticity and supple strength. Compare them with the buildings erected by man, and their superiority in tensile strength is immense. On calm days the Lombardy Poplar may be considered stiff, even frigidly so, but in a storm its grace and litheness are unmistakably shown.

And why the name Lombardy Poplar? All the trees of this Poplar are male and the accepted view is that they have all descended by vegetative propagation from a single tree which originated on the banks of the River Po in northern Italy, prob-

ably early in the eighteenth century. The tree is not mentioned by mediaeval Italian writers nor by travellers in Italy during the seventeenth century. But an eighteenth century writer, Jean Francois Sequier, in his "Plantae Veronenses" (11. 267-1745) says it was known anciently in Lombardy, and mentions a superb avenue which he saw in 1703 at Colorno, the residence of the Duke of Parma.

It was apparently carried by the Genoese to the Levant and by 1798 it was known to be abundant on the plains of Damascus. It has indeed been widely planted in northern Africa, Egypt, in southwestern Asia, and is common in Asia Minor, Persia, Afghanistan and Kashmir. In Turkestan a fastigiate form of the White Poplar (P. alba) has by some travellers been mistaken for it. It has reached China, but the date when it did so is unknown. It is often seen to-day as a planted tree however. In and around Tsingtao it has been much planted, and from there taken to southern Manchuria and Korea, where it has been planted to a ridiculous extent. It has reached Japan also, but there has failed to find favor.

To France the Lombardy Poplar was introduced in 1749. It is usually stated to have been brought to England in 1758 by the Earl of Rochford, ambassador at that time in Turin, and planted at St. Osyth's in Essex, but there is good reason for believing that it was introduced some years earlier by the Duke of Argyll and planted at Whitton. It was introduced into America from England in 1784 by William Hamilton, and planted at his place, Woodlawn, Philadelphia.

The Lombardy Poplar (Populus nigra, var. italica) was first recognized and described as a variety of the Black Poplar by Du Roiin 1772. Since then it has received several other names, but experts to-day agree with Du Roi. Such is the history in brief of one of the commonest and best known of planted trees. It is of essentially modern origin and yet, thanks to its distinct appearance which has singled it out for favoritism, and the ease with which it is propagated, it has been spread over a very wide area of the earth's surface—much greater than any other European tree.

UPRIGHT IN GROWTH AND YET WEEPING

In western China this intermediate form of the Babylonian Willow is a familiar tree

THE story of the Babylon Willow (Salix babylonica) is older. Its distribution has been in the reverse order and its early history is shrouded in mystery.

Of course the name Willow of Babylon has so greatly captivated the popular mind that Weeping Willows generally are considered to be this tree.

But actually it is a Chinese tree and it is doubtful if it was ever known by the waters of Babylon for which it is named, and by association with which it is endeared to most people. Thus truth often shatters fond delusion and robs us of many pretty myths and stories to which we fain would cling! Further—in spite of the shock to popular belief—truth necessitates the record that the trees in the Psalmists' lament (Psalm CXXXVII. verse 1, 2. "By the rivers of Babylon, there we sat down, yea, we wept, when we remembered Zion. We hanged our harps upon the willows in the midst thereof") are not Willows at all but a Poplar (P. euphratica)!

The Willow of Babylon is native of China where it is common on alluvial areas, especially those of the lower Yangtsze. It has been much planted and it is often difficult to tell the wild from the cultivated trees. Around Shanghai it is abundant, but it does not grow as far north as Peking where the winters are too cold. In the neighborhood of Ichang it is common—but the largest trees I have seen are in the western province of Szechuan near the Chino-Thibetan borderland. In its typical form it is a broad-topped, spreading tree often from 60 to 80 feet tall, from 6 to 10 feet in girth of trunk and from 50 to 60 feet through the crown.

The pendent form is really an extreme condition, although it is common. And in relation to this it is worthy of note—for the fact has not been properly appreciated—that many Tree Willows have weeping forms. The typical form has a broad crown; one extreme inclines to be more or less conical; the other extreme is pendent. This range of variation—this diversification into three forms—obtains in the Chinese Salix babylonica under certain conditions, in S. Matsudana, which is common around Peking and westward, S. Koreensis, abundant in Korea, and in S. Warburgii of Liukiu and Formosa. It also occurs in other Korean and northern Japan Tree Willows whose names are less familiar, although in these it is not quite so marked.

In China the Babylon Willow is a favorite garden tree and is also planted by graves and in temple grounds. In North China and Korea its native confrères are used in the same manner. To Japan the male form of S. babylonica was long ago taken, and in many cities—Tokyo for example—it is a favorite street tree, being kept severely pruned; and in gardens, temples and palace grounds, it is common. This male tree has been introduced from Japan to California where it is also a favorite, being commonly planted around San Francisco.

How, when and by what means it reached the near East is not known, but in all probability by the old caravan routes across central Asia. Or it may have been carried by old voyagers from Canton by sea to India, though this is less likely. The first mention of the tree we have is of a specimen collected in China by James Cunningham and recorded by James Petiver in his quaint work "Musei Petiveriani centuria" No. 997, published in 1703. He gives its Chinese name and says it is a Tree Willow with pendulous foliage branches. In the neighborhood of Mt. Olympus in Asia Minor, Wheler, in his "Journey in Greece and Asia Minor," p. 217, published in 1682, tells of a tree which may have been a Weeping Willow.

But the first definite mention of this tree in the Levant is by

Tournefort, in his "Corollarium," page 41, published in 1719, who describes it as the Oriental Willow with shoots beautifully hanging downward. Either he or Wheler took it to western Europe. It was introduced into England before 1730, for in a catalogue published by Philipp Miller in that year it is stated to be on sale in gardens near London. Peter Collinson, whom we mentioned when writing about the Horse-chestnut, was of the opinion that it was introduced by Mr. Vernon, a Turkey merchant at Aleppo, who planted it at his seat in Twickenham Park. Here Collinson saw it in 1748, and claims that this tree was the original of all the Weeping Willows in England.

But the celebrated poet, Alexander Pope,

A LOMBARDY POPLAR IN KEW GARDENS

Towering magnificently above all its neighbors and feathered to the ground this is such a specimen as proves the tree's high merits

THE LIVING EMBODIMENT OF A CHINESE PLATTER

A Willow beside the inevitable little stone bridge, above which its soft branches sway with every lover's sigh!

who died in 1744, had a tree in his garden at Twickenham, and the story is that he happened to be with Lady Suffolk when she received a present from Spain—or, as others claim, from Turkey—and observing that some of the withy bound round it seemed to be alive, took one and planted it in his garden, where it grew—and afterward became a celebrated tree. It is said that the Empress of Russia took cuttings from Pope's Willow in 1789 for the gardens at Petrograd. Pope's tree was destroyed either by storm or axe (there are two stories) in 1801, and the wood was worked up by an eminent jeweller into all sorts of trinkets and ornaments, which had an extensive sale. This is the commonly told and accepted story of the trees' introduction into the British Isles.

The famous Napoleon's Willow on St. Helena was planted by General Beatson, governor of the island, about 1810. It became a favorite with Napoleon

IN THE LAND OF ITS NATIVITY WHICH IS THE CHINO-THIBETAN BORDERLAND

Here, in the Min Valley, this Willow of Babylon is growing wild and in splendid solitude, remote indeed from the country of Psalmist and Prophet

during his exile there, and a seat was placed beneath it at his request, where he often used to sit, as old prints represent him.

All the Babylon Willows known in Europe are female and in all probability originated from a single tree, introduced either by Wheler or Tournefort. It is rather tender and not a long-lived tree, and large specimens are rare in England and in northern Europe. When it was brought to America is not known, but probably toward the end of the eighteenth century. It has also been carried to South America and travellers say that in Chile, especially by sides of irrigation canals, magnificent specimens occur. Around Boston, Mass., it is scarcely hardy, but in the Arnold Arboretum some trees raised from cuttings which I sent from near Ichang, in central China, are promising.

A HYBRID, Salix Salamonii—supposed to be between S. babylonica and S. alba and of which likewise only the female is known—is a much more hardy tree. It is not quite so pendulous, but its increased hardiness is a great asset and only the specialist can detect the difference. There are fine old trees of this Salamon's Willow around the Lake at Kew but their exact age is not known. This valuable tree originated on the estate of Baron de Salamon near Manosque (Basses Alpes) some time before 1869, when it was put on the market by Simon-Louis of Metz.

Another handsome Weeping Willow, a supposed hybrid between S. babylonica and S. fragilis, named Salix blanda, is also a much hardier tree than the Babylon Willow. It is a very fast-growing tree with long pendent branchlets which almost reach to the ground. There are two forms of this Salix blanda, one with yellow shoots called "Niobe," and one with reddish shoots known as the "Wisconsin Weeping Willow." Then there are Salix purpurea pendula and Salix alba vitallina pendula, both Weeping Willows.

In the extremely cold northern parts of this country these forms pass for the Willow of Babylon, but as a matter of fact the real thing is unknown there since the cold is too great for it to grow. Even in England and also in Germany and northern France the true Babylon Willow is rare, and these other Weeping Willows frequently masquerade under its name. They are all very beautiful and right well take the place in a practical manner of S. babylonica — but they suffer through their lack of that association which makes us regard it as a tree especially to be venerated.

THE Lombardy Poplar and the Weeping Willow have peculiar merits in landscape planting, but the former especially has been much abused. Their strong contrast makes them companions and near water both are seen to good advantage. The Poplar adds grace and lightness when sparsely associated with round-topped trees, and may be associated with buildings to advantage, whereas the Willow is best kept well away from these. The Poplar is also well adapted for planting in narrow streets, and by bridges of masonry it is seen to excellent advantage. The Willow also is extremely effective in such a situation, especially if the bridge is picturesque and irregular in character.

Rightly placed and rightly used indeed the Lombardy Poplar is one of the most useful trees in gardening art. In France it has been much planted in the past but to-day it is not looked upon with so much favor. To thrive properly it requires fairly good soil and to be well supplied with water at the roots. Nowadays it has a decided tendency to form dead wood and become scrawny, and some have suggested that this is a sign of old age. Since all are and have been propagated by cuttings from the original tree, hence are as old in one sense as it, this may be the true explanation of the present decline in health and vigor of the Lombardy Poplar.

IRIS FAMILIES YOU OUGHT TO KNOW

WILLIAM RICKATSON DYKES
Author of "The Genus Iris," Secretary The Royal Horticultural Society

A Brief Study, by the Authority on Iris, of Resemblances and Differences Between Some of the Less Familiar Members of this Great Group

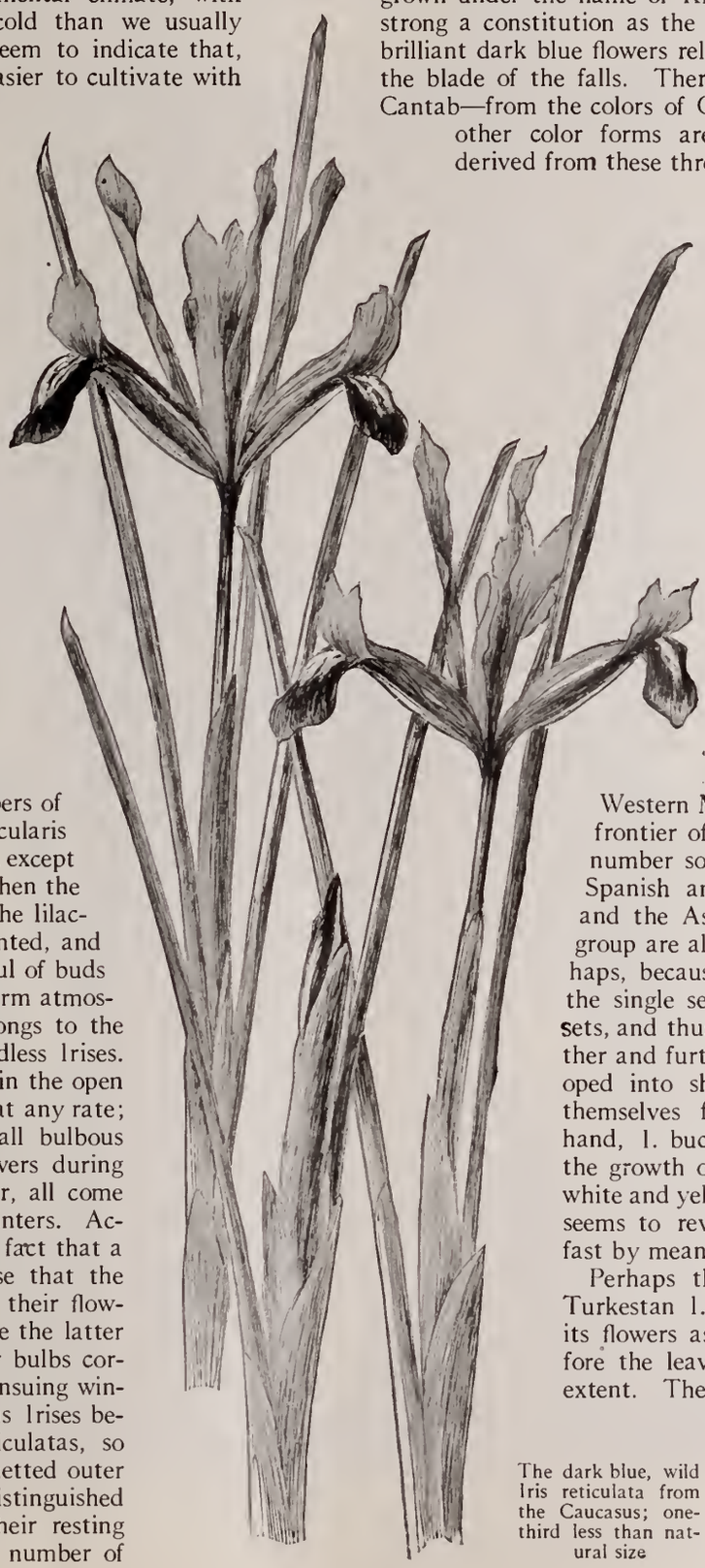
IT IS difficult perhaps for one who has always gardened in the island climate of the south of England, to foretell the behavior of the various Iris species when cultivated in America. But the fact that most species are natives of countries possessing a continental climate, with greater extremes of heat and cold than we usually experience in England, would seem to indicate that, on the whole, Irises should be easier to cultivate with success in the northern states than in England. In sheltered southern districts, however, where vegetation is practically unchecked throughout the winter months, there will probably be difficulties in the way of flowering certain species which in their natural conditions lie dormant for several months.

To many people the mention of an Iris suggests merely either a Bearded Iris, such as germanica, or else perhaps some form of Spanish Iris. There are, however, a number of others, very different from either of these types, which well deserve a place in our gardens and which will extend the flowering season of Irises far beyond the limits covered by these two types. Here in England, for instance, we can usually rely on getting numbers of blooms from the Algerian I. unguicularis or stylosa from October to March, except during periods of hard weather when the buds are killed by the frost. The lilac-purple flowers are deliciously scented, and it is fascinating to pick a handful of buds and watch them unfold in the warm atmosphere of a room. This Iris belongs to the great section of Apogon or Beardless Irises.

This Iris would seldom flower in the open I imagine, in the Eastern States at any rate; but on the other hand the small bulbous Irises, on which we rely for flowers during the first three months of the year, all come from Asiatic regions with cold winters. Actually these suffer here from the fact that a mild spell leads them to suppose that the winter is over and to put forth their flowers and their foliage, only to have the latter destroyed or damaged, and their bulbs correspondingly weakened, during ensuing winter weather. These early bulbous Irises belong to two sections:—the reticulatas, so called because their bulbs have netted outer coats; and the Junos, which are distinguished by the fact that the bulbs in their resting state have adhering to them a number of thick fleshy store-roots, which must be preserved intact if the plants are not to be weakened.

The wild Iris reticulata comes from the Caucasus and has red-purple flowers with narrow four-sided leaves. It is sometimes grown under the name of Krelagei, but seems not to have so strong a constitution as the commoner so-called "type" with brilliant dark blue flowers relieved by a central orange ridge on the blade of the falls. There is also a pale blue form called Cantab—from the colors of Cambridge University—and many other color forms are to be found among seedlings derived from these three, ranging down to a red-black.

In Northern Asia Minor there grows I. histrioides with large bright blue flowers, and further south the less brilliant but more variable I. histrio, of which I once received an extraordinarily dark red-black form. The delicate, gray-blue, almond-scented I. Vartani is from Palestine and in the hills of Northern Mesopotamia the brilliant little I. Bakeriana, whose flowers seem made of blue-black velvet, grows. As a contrast to these there is a single yellow-flowered species from Cilicia, I. Danfordiae.



The dark blue, wild Iris reticulata from the Caucasus; one-third less than natural size

THE Juno Irises extend from the shores of the Western Mediterranean to the northwestern frontier of India, and contain among their number some excellent garden plants. The Spanish and Sicilian I. alata, I. palestina and the Asia Minor species of the persica group are all difficult to manage—chiefly, perhaps, because being natives of stiff clay soil the single seedling bulbs cannot put out offsets, and thus gradually extend and spread further and further. They have therefore developed into shortlived species which reproduce themselves freely by seeds. On the other hand, I. bucharica, native of Bokhara, with the growth of a miniature Maize plant and a white and yellow flower in the axil of each leaf, seems to revel in a sandy soil and increases fast by means of offsets.

Perhaps the most gorgeous of all is the Turkestan I. Rosenbachiana, which sends up its flowers as soon as the snow melts and before the leaves have time to develop to any extent. The flowers are sometimes white and a crimson purple, with a conspicious golden crest; but others are of any shade of blue or red-purple while there are also rare examples of a pale straw-yellow. In

England histrioides, Rosenbachiana, and Bakeriana begin to flower in January; then come the other reticulatas and the dwarf Junos allied to persica—stenophylla with flowers of two shades of blue-purple, and Tauri with red-purple flowers veined with gold. In March and April come bucharica and its allies: orchioides (yellow), Warleyensis (purple), sindjarensis (pale blue), and caucasica (pale yellow). In America the season would probably be shorter and all the species would begin to flower as soon as the snow melted.

These bulbous Irises are closely followed and indeed overtaken by the Dwarf Bearded Irises (Pogoniris) such as pumila, chamaeiris Reichenbachii, mellita, etc. All these species have many color forms, varying from yellow to purple, and all come from regions with cold winters, except chamaeiris which is from the south of France. There are two points to remember about their cultivation. One is that they must be grown in sunny positions, and the other is that, since they are shallow rooting plants, they should be lifted and replanted every two or three years as soon as the flowers have faded.

OF HYBRID Pogoniris there are innumerable forms which it is not proposed to enumerate here, for we are concerned for the moment rather with the wild species from which our garden Irises have been evolved by selection and hybridization. The above mentioned I. chamaeiris has been used in conjunction with later and larger species to give us what are known as the Intermediate Irises—such as Ivorine, Dorothée and Queen Flavia—but there are wild species such as aphylla (purple white or pale yellow) from Central Europe, sulphurea (pale yellow) from the Caucasus, and Alberti (light blue-purple or yellow) from Turkestan which flower with these intermediates and of which the possibilities have been as yet only very slightly explored by hybridization.

There are at least half a dozen forms of I. germanica with apparently equal claims to be called the type—hence I. germanica is a puzzle! No one is undoubtedly wild anywhere, though the various forms have escaped from cultivation and established themselves widely—but always near habitations—from Spain to Nepal. Of each form there is also an albino, e. g., the well-known florentina; and the truth would seem to be that all are of hybrid origin. Most are delicate in that their flower buds are liable to be killed by frost long before they have grown sufficiently to emerge from the leaves, therefore American gardeners in the North would probably be better advised to grow rather those hybrids which have sprung from the combination of the purple of I. pallida and the yellow and brown of I. variegata.

The first known hybrids of these were called sambucina and squalens; and it was once my good fortune to go to a remote alpine valley 4000 feet above the Croatian coast of the Adriatic where, amid the melting snows in April, I dug up plants among which I found, when they flowered, both pallida and variegata and the hybrid forms.

For later flowering forms one of the best parents is I. trojana, which is reported to have come from the neighborhood of Troy and which is distinguished by its branching habit. Hybrids of it have given me stems bearing as many as fifteen flowers instead of the normal four or five of typical germanica. It is to I. trojana that we can trace such comparative new comers as Isoline and Alcazar. Pallida, variegata, and trojana are all well adapted to withstand a continental winter, and therefore are far better suited to American gardens than such magnificent plants as mesopotamica or Ricardi, which grow rapidly in any moist period in the autumn and then suffer in their foliage during the winter.

BROAD AND DISTINCT IS THE JAPANESE IRIS

Of the Apogon section which comprises the beardless Irises, these are in the white to blue-purple shades and combine delightfully with flesh-pink Candytuft as here shown

BESIDES the Pogoniris proper there are two other sections of which the flowers are bearded, though they are distinguished sharply by other characteristics. One is that of the Oncocyclus species, the most wonderful and the most difficult to grow of all Irises. I imagine these might prosper in the dry warm climate of parts of California and Arizona, but in the East the only hope apparently would be to keep them dry with the aid of a glass roof overhead, and thus to prevent their making any autumn growth above ground until the arrival of frost and snow insures their remaining dormant until spring.

The homes of these species are in Asia Minor, Syria, and Persia, and it is to be hoped that under a new and non-Turkish règime in these countries it will be possible to obtain specimens of them. They are characterized by their large flowers, delicately veined and dotted with the most amazing combinations of color in such beautiful species as Lortetii from Lebanon, or by the weird shape of the Persian paradoxa and the Caucasian acutiloba.

The other section comes from further east and is found centered in Turkestan. It is closely allied to the Oncocyclus section, but these Regelia Irises have two or three flowers instead of only one on each stem. The best known species are Korolkowi with conspicuously veined flowers, and stolonifera in which various shades of brown and electric blue strive for the mastery. These two sections have been hybridized together to form the Regelio-cyclus Irises, which to some extent combine the beauty and coloring of the Oncocyclus species with the vigor and greater ease of cultivation of the Regelias. Here I find it advisable to lift the latter in July and to replant them in October. Without this check they are apt in autumn to produce their foliage which is then damaged, if not destroyed, in winter. Probably with this treatment they would succeed admirably in the climate of New York.

Of the various groups of Apogon or Beardless Irises it will scarcely be possible to treat in detail here. To this sec-

Edwin H. Lincoln, Photographer

DIFFICULT TO DEFINE IS THE CHARM OF THE IRIS

But continued study and analysis continually reveal nuances of color and line that are a perpetual delight

tion belong nearly all the native American species, many of which seem to be much more nearly related to European or Asiatic plants than to any other American members of the genus. Thus the common I. versicolor of the bogs of Massachusetts is practically only the purple counterpart of the yellow European I. pseudacorus. Forms of I. setosa are found on the coast of Maine, in Labrador, in the Yukon district and also in Siberia, while I. longipetala, from the coast near San Francisco, and two or three closely allied species growing further inland, are akin to the Asiatic I. ensata which flourishes from the desert regions of Central Asia to Northern China and Japan.

California contains a group of plants—I. Douglasiana, I. Watsoniana, I. tenax, I. Purdyi, I. bracteata, and I. macrosiphon—which, besides being beautiful in themselves have the further advantage that no two seedlings are precisely alike, while the range of color is extremely wide. The only drawbacks are that some of the species are none too vigorous in any climate less genial than that of California, and that the plants object to transplantation and must be established as seedlings in their permanent positions if they are to do well.

In the southeastern United States a curious distinct group is formed by the terra-cotta Iris fulva from the marshes along the Mississippi near New Orleans, the bold and vigorous I. hexagona from the same district and also from Florida, and its dwarf form from Arkansas, known as I. foliosa (syn. Hamancei) which, as it remains leafless during the winter, is probably the best suited to a more northerly climate. That this plant is closely allied to I. fulva was proved by the ease with which I was able to combine the two in a hybrid called fulvala. In this the blue-purple of foliosa has combined with the terra-cotta of fulva to form a rich dark purple practically unknown elsewhere among Irises. Moreover, the hybrid is more vigorous and easier to grow than either of its parents.

Another great division of the Apogon section centres round I. spuria, which is distinguished by the twin projecting ridges which run down each of the three angles of the ripe seed vessel. The flowers may be either blue or yellow, as in I. aurea, or white and yellow as in I. ochroleuca; and the tall stems and tall erect foliage make them an ornament to any border. To this group also belongs I. graminea, of which the flowers may have the fragrance of a ripe plum or green gage—though to obtain this a certain amount of selection may be necessary among seedlings, of which some are almost deficient in scent.

LAST but not least comes the large group of sibiricas which flourish exceedingly in a cool, moist, vegetable soil—a group to which so many delightful discoveries in Western China have been added of recent years. Iris sibirica itself is a Central European and Russian plant with numerous slender, hollow stems which raise the rather small blue or white flowers well above the grassy foliage. In Eastern Asia this gives place to orientalis which has larger flowers on dwarfer and less numerous stems. A dwarf, yellow-flowered species is I. Forrestii while I. Wilsoni is taller but of a less clear yellow. The flowers of I. chrysographes are a rich dark velvety-purple set off with a patch of golden veining on the falls. This is one of the most striking of the new species.

All the members of this group hybridize together very easily and give a very wide range of results. I have also found it possible to combine the Himalayan representative, I. Clarkei as well as I. chrysographes with the Californian I. Douglasiana with a most pleasing result in the latter case. This hybrid has flowers of a pale crushed-strawberry pink, with a large patch of golden veining.

Intermediate between the Pogoniris and the Apogons comes the small group of Evansia Irises, represented in America by I. cristata and its close ally I. lacustris. In all the members of the group there is a linear crest, like a single cock's-comb running along the centre of the blade of the falls. The finest species is probably I. tectorum (blue) with its beautiful white form. This Iris gets its name from the fact that it was found growing in lumps of clay on the ridge of thatched houses in China and Japan. It is probably a native of the provinces of Hupeh and Yunnan. Its Himalayan counterpart, I. Milesii, has smaller red-purple flowers and a much more vigorous growth. For some reason I have never succeeded in hybridizing these two species, although I have succeeded in combining the crest of tectorum with the beard of Pogoniris in the shape of a dwarf form of I. pallida.

Iris persica var. stenophylla, of the Juno section, is gray-blue overlaid with deep velvety blue-black, the central ridge being brownish white flecked with brown-purple

Two other Chinese Irises, japonica or fimbriata and Wattii, also belong to this group. The former will hardly ever flower in the open here, though the fact that it flourishes in Chitral, where extremes of temperature are at least as great as those in the States, seems to show that it has more chance of succeeding in America than I. Wattii, which alone of all Irises produces its flower stem in one summer but does not produce its flowers until the following spring.

Of the late flowering bulbous species, the well-known Spanish Irises (I. xiphium) is common in English gardens and welcome in America where it can be kept alive, but the knowledge may not be common that an early flowering race can be obtained by crossing flowers of the variety known to the trade growers as filifolia or praecox with pollen of any of the older varieties. (The true I. filifolia is a very different species and has flowers of the richest red-purple, a shade that is not found among forms of I. xiphium). Iris tingitana is the finest of all in this class but it comes from Tangiers and needs a warm climate to make it flower. And all these species do best in a warm, light, dry soil; consequently in gardens where the soil is cool and moist it is better to grow the so-called English Iris (I. xiphioides) which comes from the wet slopes of the Pyrenees. This Iris is called "English" because it first became known to botanists as growing in gardens near Bristol, to which it had been brought by early traders with Spain.

Perhaps enough has been said to show the variety and interest that can be found among the various species of Iris, though this is merely a rough scheme of the principal sections of the Iris genus. May I add that it is always of interest to me to hear how Irises flourish under conditions different from those which prevail in my garden here; and that, if I can help others to grow them, I am always ready to do my best?

THINNING OF APPLES, PEACHES, AND PLUMS

C. W. ELLENWOOD and PAUL THAYER
Ohio Agricultural Experiment Station

Sacrificing So Large a Percentage of the Fruit Which a Tree Has Set Appals the Amateur Grower But Experiment Has Proven the Advantages Gained

(EDITOR'S NOTE:—*This article is reprinted from a Monthly Bulletin of the Ohio Agricultural Experiment Station, inasmuch as it presents indubitable proof of the results of this operation in the shape of records of experiments*).

WHEN fruit is still too heavily set after the "June drop" one can follow the old-fashioned method of using braces to support the trees, or thin the fruit sufficiently to prevent the limbs breaking. Thinning has several advantages over the brace method. It increases the average size of the fruit, and to some extent improves its color and thus indirectly has a beneficial effect on the keeping qualities of apples—because well-colored apples keep better in storage than under-colored apples. Thinning is one of the orchard operations concerning which no set rule can be given either as to the degree required nor just when or how the work should be done. In some years it becomes a difficult problem for the orchardist while in other years the "June drop" removes just about the right quantity.

Results of experiments at the Ohio Station indicate that the best time to thin apples is between four and eight weeks after full bloom. The early-maturing varieties should be thinned first. Just how much effect thinning has on correcting the biennial-bearing habits of certain varieties has not been determined, but it would seem that the early thinning four to six weeks after full bloom would have more effect on this factor than later thinning.

Grape shears with rounded points can be used to good advantage in thinning, as a workman can work a little faster with the shears than with thumb and finger. But in using the shears there is a little danger that the fruit on the lower limbs may be bruised by the fruit falling from higher in the tree. This is not serious with the later varieties, but Transparent may be seriously bruised by the falling apples, especially if the thinning is done rather late. When the work is done by using the thumb and finger the workman can with a little additional effort throw the apples clear of the lower limbs. Some varieties have a tendency to grow in clusters and it requires a little skill so to thin such varieties that the entire cluster will not break off in the act of thinning. The work should never be done carelessly, and rubber-soled shoes should be worn by those in the trees.

RECORD OF APPLE-THINNING TEST

VARIETY	DATE THINNED	NO. OF APPLES REMOVED	NO. OF APPLES HARVESTED	OVER 3 INCHES	2½ IN. TO 3 IN.	2¼ IN. TO 2½ IN.	2 IN. TO 2¼ IN.	UNDER 2 INCHES
				Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*
Baldwin...	June 16	4,727	5,402	8.3	81.8	7.8	2.0	.1
Baldwin...	July 18	2,908	4,244	6.8	84.4	7.6	1.0	.....
Baldwin...	Unthinned	.....	6,365	1.5	68.9	19.3	8.1	2.2
Ben Davis.	June 22	3,568	4,259	24.2	66.2	6.6	1.7	.3
Ben Davis.	July 20	3,221	4,104	16.6	59.3	13.9	9.2	1.0
Ben Davis.	Unthinned	.....	6,614	.6	43.3	25.8	22.3	8.0
Oldenburg.	June 7	2,332	2,808	31.1	65.4	1.8	1.5	2
Oldenburg.	July 4	2,248	1,322	26.5	72.1	.8	.5	.1
Oldenburg.	Unthinned	.....	3,542	9 3	68 8	11 7	8 7	1 5

THE number of apples that should be removed from a tree depends upon the quantity of fruit remaining after the "June drop" and to some extent upon the variety. Some trees bear heavily on one side of the tree in alternate years and thinning will in such cases balance up the load of the tree and prevent splitting. As a general rule, apples should remain from six to eight inches apart when the thinning is done.

From careful estimates made at this Station it is apparent that an Apple tree will often produce sufficient bloom for twenty times the number of apples that it could possibly mature. Fortunately, nature takes care of most of the thinning, but in many cases one fourth to one half of the apples remaining six to eight weeks after full bloom may be removed with no appreciable loss in quantity, and with gain in quality. The table appended gives results typical of experiments conducted in thinning. These records were taken from crops produced by single trees in a year when the fruit set rather heavily. The picking dates were: Baldwin, October 16; Ben Davis, November 2; and Oldenburg, August 8.

THE thinning of peaches and plums is in some ways much simpler than thinning apples. The trees are usually smaller, for one thing, so that one can reach every part from a stepladder; then, too, the surplus fruits may be snapped off with the fingers instead of using shears.

Although plums are seldom thinned, there are often seasons when thinning would be highly profitable. The two chief reasons for thinning plums are to keep the trees from breaking and to lessen the danger of loss from rot. When rot starts in a heavily loaded Lombard tree where the plums on the bent limbs are literally piled in masses, it is almost impossible to check the decay. With proper thinning the upper limbs would not be weighted down upon the lower ones, and light and air, as well as spray, could reach each fruit and help to keep it sound.

The thinning of peaches is a more generally accepted horticultural practice. The Peach tree, when not interfered with by winter freezes or spring frosts, produces a wealth of bloom and almost every blossom sets fruit. If allowed to mature these will either break down the tree or, owing to the drain on its vitality, the fruit will be small and bring a lower price on the market. After the fruits have shed their shucks and are the size of small hazelnuts the surplus ones can be removed at a rapid rate by one who has had a little experience. The peaches are snapped off, leaving the thinned fruit from six to eight inches apart.

In thinning a long shoot it is grasped just above the first peach by the thumb and forefinger and the hand is passed up the branch about six or eight inches, snapping off the peaches in passing. A peach is then allowed to pass and another six or eight inches of branch stripped bare of fruit. With a little experience one can remove from 1,000 to 1,500 peaches from each of ten or a dozen loaded trees in a day, and leave the remaining peaches properly spaced. When the thinning is done by the owner the danger usually lies in leaving too many peaches rather than in removing too many!

The season for thinning peaches is in June and usually terminates with the hardening of the pits about the first of July. The hardening of the pits is associated with the formation of the seed and as this is particularly exhausting on the strength and vitality of the tree, thinning after this period does not seem to be of much benefit. The yield of fruit is nearly the same on a well-thinned tree as on an overloaded tree, the difference being that in one case the greater bulk is flesh and in the other it is stone and seed.

THE YUCCA PLANT AND ITS INSECT ALLY

F. D. SYNDER, M. D., F. R. G. S.

One of the Most Remarkable Instances of the Interrelation Existing Between the Animal and the Vegetable World, It Would Almost Seem that a Real Partnership Existed When the Moth Is Seen At Work

ABUNDANT wherever the Yucca grows wild, its inseparable companion in captivity also is the little silvery-white moth of which a portrait is shown at the left, hovering beneath the flower as they may be seen after nightfall, when their activities on their own behalf lead to the indispensable service which they render the plant. This is the only known case of an insect deliberately collecting pollen from a flower and placing it upon the stigma, and for this reason it is perhaps the most extraordinary of all the fascinating phenomena of its character. Other remarkable examples of insect pollination are known, one being the little wasp which is necessary to the growing of Figs; but none quite parallels the definite, purposeful enterprise of this strange little Yucca moth

THE Yucca or Adam's Needle is a plant that will grow where almost nothing else will, as well as on your best ground; but it is not to the plant itself that I wish to call attention, but to the mode of fertilization that Nature has provided for its self-preservation. We are of course all familiar with the bees and butterflies that fly from one flower to another, their legs and bodies laden with the pollen of the flower from which they have just been sipping the nectar which they unconsciously scatter in the next flower that they visit. But the fertilization of Yucca filamentosa is done in a more positive way, and leaves one wondering which is the more amazing—the marvels of insect or plant life.

It was the late Professor C. V. Riley, of Missouri, who made the discovery of the pollination of the Yucca by a little white moth, which he christened Pronuba yuccasella. It is apparently the only known instance where a plant is dependent on a single species for its pollination, and it is hardly exaggeration to say that the plant's very existence hangs on the existence of this insect. In other words if something should exterminate this particular little moth, the Yuccas might also soon become extinct. Certainly they would cease to bear seed until they had readjusted themselves, at any rate.

SEARCHING YUCCA BLOSSOMS

If this is done gently and patiently during the daytime, the moth will surely be, come upon sooner or later, resting from her industrious activities of the preceding night in the moon-white chamber of the great flower's calyx where this swings aloft on its four to five foot stem (at left)

SEEDPODS OF THE YUCCA

From these the matured larvae of Pronuba yuccasella bore their way outward and emerge into the light of day as the seeds are ripened and the pods begin to harden, and promptly take to the earth wherein they dwell until a final transformation brings them forth at last in the mature form, just about as the Yucca blooms again (at right)

DURING the daytime the moth—sometimes alone, sometimes with her mate—may be found with wings partially folded resting within the half closed flower. If you carefully open some of the blossoms you will come upon the little lady, dressed all in white—for she is of a silvery color lighter even than the flower in which she is spending the daylight hours. As the sun

goes down she comes forth, and then you will see her flitting swiftly from plant to plant and flower to flower—busy at work most of the time inside the flower.

Her real activity begins soon after dark, and consists at first in collecting a load of pollen. Entering a flower she runs to the top of one of the stamens and, bending her head down over the anther and stretching her jaws—which are wonderfully modified for the purpose—to the fullest extent she scrapes a mass of pollen together with her palpi or feelers. After gathering a sufficient supply she shapes it into a pellet much larger than her head and then sets off to another blossom. Here she takes a favorable position and, after resting motionless for a short time, plunges her lance-like ovipositor into the soft tissue of the flower's pistil, and conducts her first egg to its destination. Then mark you what follows!

No sooner is the ovipositor withdrawn than she runs up the pistil, thrusts the pollen pellet into the stigmatic funnel or cavity, and rams it down with a to-and-fro motion of her head. If, as the case may be, another egg is deposited, the same fresh act of pollination is performed; but on each occasion a *different notch of the style* is selected, and thus a supply is ensured for the ovules in each carpel. How perfectly this little creature does its work may be gathered from the fact that artificial attempts to cross-fertilize the Yucca by means of brush-pollination are rarely successful.

THE next step in this wonderful process happens in about a week when the larvae hatches, and at first appears to live on the degenerated and swollen ovules; but finally it enters one that is developing. In this state it undergoes three different moults, its color meanwhile changing from translucent white to a rosy hue; and with the ripening of the seeds, it attains its maturity. Then as the fruits are hardening—and the seeds are already colored—the maggot bores a passageway outward through the pod, makes its way to earth, and tunnelling several inches below the surface, spins around itself in its underground fastness a tough silken cocoon intermixed with soil. In this it remains during the autumn, winter, and spring months, and only emerges in the chrysalis state a few days before the blooming of Yucca filamentosa or Y. flaccida. This is too late for the bloom of Y. glauca however and too early for Y. gloriosa, consequently these rarely bear fruit when in cultivation.

The chrysalis is armed with spines on its head and back by means of which it works its way to the surface, and in due time comes forth a perfect insect to live its life above ground; and, in conjunction with some chosen companion of the other sex, to carry on in its generation the useful work which its race have carried on before it for no one knows how many ages.

GARDEN USE OF THE YUCCA IS NOT RESTRICTED

Practically every garden has some place or places for this startlingly bold and lovely thing, for it is as suitable for mingling with shrubbery as it is for a border of perennials—perhaps more, indeed

THE subject of insect-pollination is familiar enough, of course yet this fertilization of the Yucca-plant is so unique and interesting that it never loses its charm, and to observe the Yucca moth as she proceeds in orderly fashion to carry out her appointed task is an always new sensation. She knows so exactly what she is about, and goes about it so directly, conveying a sense of importance—of great things in the wind. And rightly of course. She has indeed no time for idle flittings! For not only her own offspring—her race—are dependent upon her careful provisioning, but so is the plant.

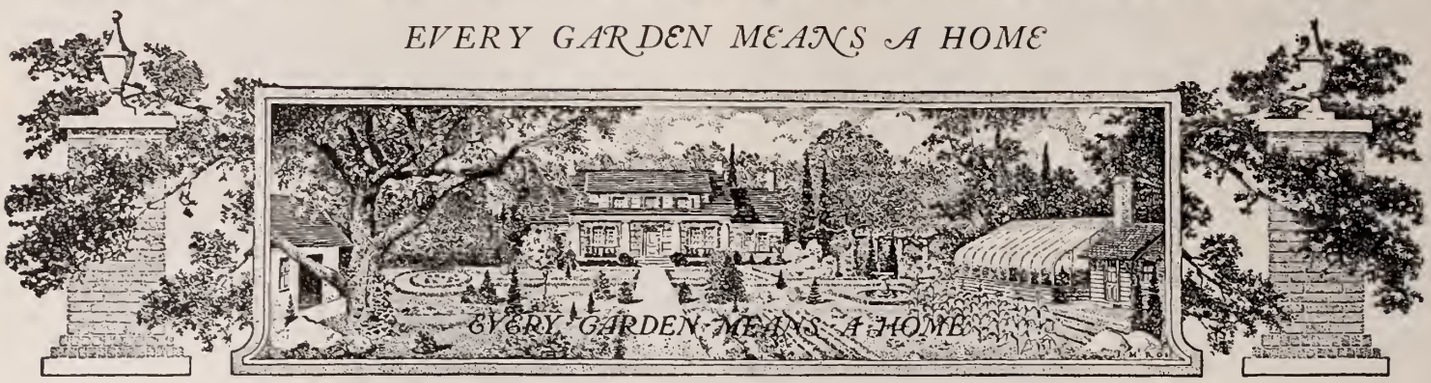
The male is there also, but he spends his time flying leisurely around from one flower to another—a desultory consort, approving doubtless, admiring and complimenting perhaps, and sensibly not interfering. Of the fact that she acts as foster mother to the plant in order to insure a proper supply of food for her offspring, which as larvae feed on its developing, tender seeds, she is presumably unaware. But it is a circumstance that it hardly seems possible could have ome about purely by chance.

Many plants are of similar interest if we study their peculiarities and the hosts that they entertain, but undeniably the Yuccas furnish one of the most interesting and wonderful phenomena of the plant world. And they are moreover as beautiful as they are wonderful when their tall bloom stalk is loaded with the great creamy-white flowers. They are an addition to any garden, and should be more plentifully planted than they are for every garden has space for a few.

My own garden boasts over sixty large plants and more coming; and they are a perfect delight to me! Give them evergreen background or else abundant shrubbery behind them—something to suit their bold, tropical character—and they will yield more on the investment than anything else I know of. All are not hardy where frost is severe, to be sure; but (named in their order of flowering) Y. glauca, filamentosa, flaccida, baccata, recurvifolia and gloriosa are. And as they will grow well practically anywhere, being natives of the arid southwest, they offer no perplexing difficulties of culture.

AMONG OUR GARDEN NEIGHBORS

EVERY GARDEN MEANS A HOME



THESE be the days that keep the plant lover as busy as the proverbial bee, gadding about from place to place visiting the centers of this or that interest of the moment. If the winter be a period of irksome inactivity there is abundance of the reverse kind of thing in the early summer. And the gardener who does not visit others' gardens lets pass a great opportunity for enjoyment and enlightenment. This has always been so, and garden lovers ever welcome an exchange of personal experiences with others similarly interested. Yet as the cult of the garden widens and reaches out to points more and more distant the mere physical factor of travel becomes a controlling handicap equal with that of time. One cannot well be in all places at once.

The formation of clubs and societies is a helpful attempt at a solution of some of the horticultural problems that arise, since it gives the many individuals interested the opportunity to foregather and "talk over things." One of the newest of these organizations is devoted to the Iris—indeed, the meeting held at Philadelphia on June 1 and 2 was the first regular gathering of this new society, which was formed in the winter and has surprised itself by enrolling some 450 members, which is probably the greatest membership ever recorded by a "particular flower" society in its initial stage—to say not a word concerning some others much older, but yet by no means as lusty.

The extensive exhibition of varieties at the recent meeting was another surprise to the managers. Practically all the better modern kinds of Bearded Iris were to be seen, affording an unusual opportunity for comparison. Very properly, at the business meeting the organizing officers were reelected to a full term with Mr. R. S. Sturtevant, of Wellesley Hills, Mass., as secretary. Wherever it may be decided to hold next years' meeting, the announcement should be noted and an engagement made—for indeed, the Iris is here. It has arrived! And up-to-date gardeners must needs keep in touch with the progress of events in a popular hardy garden flower that so abundantly "fits."

TO SOME of us it was an unfortunate combination of circumstances that prompted the American Rose Society's official visit to the Washington D. C. test farm also on June second. As in previous years a committee was named to report on the varieties of Roses as of that day and place, selecting for mention those that made a reputable showing at that time. In this way it is figured that over a term of years actual results will be reached by cumulative weight. The report of the Committee (B. T. Galloway, Chairman, and Messrs. L. C. Corbett, F. L. Mulford, W. Van Fleet, and D. N. Shoemaker) is in part as follows:

It was decided to divide those in bloom into three groups, as follows: (1) No star, i. e., worthy of mention; (2) Star*, good; (3) Double star**, best or excellent.

CLIMBERS: Wichuraiana, Tea hybrids, Noisette hybrids, and Multiflora hybrids are included: *Pillars.* Sheila Wilson**, Paul's Scarlet Climber**, Paul's Carmine Pillar**: *Climbers.* Mme. Alfred Carriere (Noisette hybrid), Multiflora Japonica, Cherokee, Trier, Polyantha grandiflora, Dawson, Zephirine Drouhin, Aglaia (Multiflora hybrid).

BABY RAMBLERS: Yellow Baby Rambler**, Triomphe Orleanais**, Baby Dorothy*, Mrs. W. H. Cutbush**, Ellen Poulsen, Gruss an Aachen**, Echo**, Mme. F. Favre*, Marie Pavie**, Baby Elegance, Clothilde Pfitzer**, Schneekopf**.

TEAS AND HYBRID TEAS: *Yellow.* Ophelia**, Souv. de Gustave Prat*, Arthur Roberts Waddell, Grace Molyneux, Prince de Bulgarie: *White.* White La France*, White Maman Cochet*, White Killarney**, Kaiserin Auguste Victoria*: *Pink.* Königin Carola**, Lady Alice Stanley**, Wellesley, Mrs. Wakefield Christie-Miller, La Tosca**, Lady Ursula**, Dorothy Page Roberts*, H. F. Eilers, Lady Ashtown**, Radiance*, Gustav Grunerwald**, Cook's 561*, Killarney Queen**, Killarney*: *Red.* Laurent Carle*, Gruss an Teplitz**, Virginia R. Cox, W. G. Lippiat, Countess of Illchester, Red Letter Day, General-Superior Arnold Janssen, Avoca**, Florence Haswell Veitch, Bertram J. Walker, Mrs. Geo. W. Kershaw, Red Radiance**.

HYBRID PERPETUALS: *Red.* A. K. Williams*, Dr. O'Donnell Brown, Ruhm der Gartenwelt, Roger Bambelin, Maharajah**, Marshall P. Wilder, Tom Wood* Pierre Notting**, Hugh Dickson*, Irish Brightness, General Jacqueminot**, Eugene Furst, J. B. Clark**, Duke of Edinburg, Baron De Bonstetten, Jules Margottin*, Geo. Dickson: *Pink.* John Hopper*, Magna Charta*, Mrs. Sharman-Crawford**, Geo. Arends, Paul Neyron**, Oakmont*, Victor Verdier**: *White.* Captain Christy*, Frau Karl Druschki**, 20412*, Mme. Plantier*, Margaret Dickson*, Ball of Snow, Coquette des Alpes, Coquette des Blanches, Gloire Lyonnaise*.

MOSSES: Henry Matin*, Luxemburg**.

BRIARS: Flora McIvor**, Lucy Bertram*, Minna, Julia Mannering**, Anne de Geirstein**, Bradwardine**, Green Mantle**, Brenda*, Amy Robsart*.

RUGOSA: No. 14668 (Van Fleet)**, Rosa Parfume de La Haie**, Amelia Graverian**, No. 14667-69 (Van Fleet)*, Rugosa prostrata**, Emily Carman.

This report of varieties will undoubtedly serve as a basis for selection of varieties for future planting, always remembering that it is the judgment on one day only and at one place alone.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

The Operation of Budding Is Simple

THE time to do budding is as soon after July first as you can get buds that are matured or ripened, and as soon as the bark of your trees will lift. Do the work when the weather is dry and clear. The buds, as with the grafting scions, must be cut from wood of the same season's growth. It is best to cut the wood as near to the time you do the budding as possible. Where it has to be carried or shipped some distance, keep it damp, and if possible keep it on ice. Carry the sticks to the work in a bucket of water, as you would a bunch of flowers you didn't want to wilt. Cut the buds from the sticks with a sharp knife, beginning three-eighths of an inch above the bud and coming out that far below, getting with the bud a small eye of wood. (Another way is to cut the bark entirely round the bud, and pull it off by the leaf stem, without any wood). Make a T-shaped

cut on the limb, in the outer bark only, where you want the future limb to be. Then lift the bark of the limb by pressing sideways on the cut edges with your knife. Avoid touching the green bark underneath. Slip the bud into place from the top, right end up, and cut off the leaf stem to half an inch long, if you haven't done it before. No waxing is needed. Just tie the bark down with yarn or raffia. Use something red for this if you can, or tie cheap tags to the limbs above the buds, to help in finding the buds again, for the further attention needed. Examine the work ten days after doing it. The leaf stems will be green if the buds are going to grow, and brown if they are going to die. The buds will not likely make much growth the first season, but they will knit fast to the limb and be ready to grow the next spring. At this examination take off the wrapping. The spring following the budding, cut off the stock limbs above the growing buds. During the first season go over both buds and grafts two or three times and rub off the little sprouts that spring up along the stock limbs. It is better not to cut the entire heads off trees in one season. Cut a third of them off in each of three years. After the third year, the trees, except for the trunk and stock limbs, should be entirely composed of wood of the new varieties. Where, in grafting, both the scions set in each cleft begin to grow, remove one of them, for two grafts will make a fork that may split, and will make an ugly tree.—J. R. Mattern, *Julian, Pa.*

Suggested Iris Scorecard

CONSIDERING the inherent possibilities of the Iris for the different characters sought, as much as the apparent factors in the individuals used, I would suggest a Breeders' Score Card as follows:

The Plant	30%	Growth, constitution and habit	11
		Stalk, poise, freedom of branching	10
		Height	9
Inherent Possibilities	30%		30
The Flower	40%	Color	12
		Form	10
		Size	6
		Substance	6
		Texture	6
	100%		100%

In practice I work from a less scientific point of view than Mr. Bliss (See Garden Magazine for Sept., 1919) as I have not yet obtained the data on the inherent possibilities of many Iris—knowledge that each breeder must work out for himself in order to attain his ideal. That may be the reason that I give a higher value to height and color than he does; and constitution seems to me of less working importance as one with poor growth would be discarded, although soil and situation has much to do with this character. In crossing seedlings I should depend on a vigorous plant from the same cross even if the blossom was poorer, for the factors desired. I do not know but what I really give more than 30 per cent. to Inherent Possibilities, for when I make a cross I choose an Iris that I think will give a step in the direction of the result I want, if not the actual flower, *before* I consider the points one by one, often overlooking obvious faults.

I agree heartily with Mr. Bliss's suggestion as to the necessity for "a list of standard varieties representing the highest degree of excellence for each character." From the following which is my choice I have purposely omitted my own seedlings, as they are not yet widely known, and I shall leave out examples of "Constitution, Growth, Habit and Freedom of flowering," as all those that I consider good possess these qualities.

Poise of spike—(particularly desirable in a small clump but not necessary for a good mass effect). Viola, Alcazar, Mrs. Horace Darwin.

Height:—Juniata, Caterina, Princess Royal, Nine Wells, Mithras (variegata) and Rhein Nixe (amoena) tall in their respective classes.

Color is wholly a matter of taste, but it must be clear, clean and with well defined markings, if any, to be good.

Form:—There are a number of equally fine types, among them Pallida Dalmatica, Edouard Michel, Caterina, Monsignor, White Knight.

Size:—Though popular I do not consider this character appropriate in certain types; you could easily have an Iris that would be out of proportion to the habit of the plant. Well proportioned are Alcazar, Lord of June, Shelford Chieftain, Isoline, Neptune.

Substance:—Miss Willmott, Pallida Dalmatica, Queen Alexandra.

A list of favorites of Garden Magazine correspondents would not only be interesting but would form a basis for the necessary discard of the poorer varieties which must come in time. Why don't they send them in?—Grace Sturtevant, *Wellesley Farms, Mass.*

Watering A Grapevine

FOR size, beauty of shape and bloom, and for delicacy and genuineness of flavor, I had never seen or tasted such grapes. They were only Concords, and were brought into our village by an old woman who lived four miles away on the slope of a mountain. I questioned her concerning the vine; but she could give no reason for the excellence of the grapes. She added that the vine had had no fertilizer in fifteen years.

Being vitally interested in these grapes, I visited the mountain home for the purpose of examining the vine. Immediately I discovered what I believe is the secret of its bearing power. A pretty little mountain rivulet ran within ten feet of it. Its water-supply was therefore constant and abundant; and I reasoned that any grape so situated would thrive. But how was the stream to be supplied to my own grapevines in town?

The water from rains which fell on the roof had been run down by piping under the garden walk. Securing two old wooden tubs, I put in the bottom of each a little fertilizer and a mulch that would hold the water and feed it to the vines gradually. Then I ran a piece of piping from the roof into each tub, sinking the tubs about six inches in the ground between each two vines of the small arbor. All the water thus collected without further effort on my part was carried to the grapes.

The results were gratifying. The vines almost immediately took on a dark-green color, and they were very lusty. Since my experiment they have borne regularly, prolifically; and, best of all, the grapes that they have yielded have taken away all my envy of the old woman from the mountain.—A. Rutledge, *Mercersburg, Penna.*

Single Petunias for Cut Flowers

I WONDER if others know the possibilities of single Petunias as household decoration? My seedsman could not send my Rosy Morn seeds in time, so I started Countess of Ellesmere in flats in a coldframe in January and since the middle of April we have had bright, gay decorations for the porch and the house. By gathering them before nine o'clock and dipping the stems in boiling hot water before standing them in the holders in the shallow bowls they last for two or three days. Which reminds me that an elderly gentleman to whom I was showing my Countess of Ellesmere Petunias, said that he had seen a lady of that name in Palestine in about '64 or '65; an Englishwoman considered rather erratic, and then on her way to Palmyra with a caravan. Can any one tell me if there is any connection between this lady and the flowers?—G. D. Beadel, *Leon Co., Fla.*

Transplanting Ferns from the Woods

FOR two days it rained, saturating the ground and swelling the narrow creek that runs back of the house into a miniature torrent. An ideal time, I thought, to dig for Ferns and transplant them in my own back yard. Flower beds I had in abundance but I determined on a Fern bed along the back porch. Taking an old hatchet I started out through the orchard past the old barn and into the woods that lay across the winding road. Here I had seen, the summer before, large clumps of Ferns having as many as ten and more fronds. The foliage was a dark rich green and about three inches wide when matured, and about a foot or so long. The ends were not pointed as are those of the variety seen in florists' windows and the leaves were heavy and substantial. It was my plan to transplant twenty stocks of these. Digging them was easier than getting them to the house. Each clump of roots was formed into a sort of ball which gave me a good grip with which to pull, using care not to break the new fronds which were just beginning to uncurl. When the boys hauled my load to the house the most tedious work was yet to be done. I dug the bed a foot wide and a foot deep, then made a trench the entire length, six inches deep. The Fern clumps were then laid down at a distance of about a foot apart and then covered and watered. When in the course of a week or so the new fronds began to uncurl I put on more loose dirt until the bed was at its former level. With continual watering these Ferns developed into large healthy plants and more than repaid me for my trouble. When we left this lovely home to live in a city I took several of the clumps with me. They did well last summer and then having died down in the fall, developed new fronds during the warm days of October! I lifted one of them and brought it in the house, thus keeping fresh memories of the delightful woods where they first grew, and bringing the springtime closer.—J. R.

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in *a normal season* is taken as standard: but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

JULY—THE MONTH OF VACATIONING

USUALLY it is the gardener that needs watching from now on—watching and stimulating and encouraging and exhorting! For it is not to be denied that midsummer is an alluring time, with something about it—something other than the heat—that makes it difficult to stay on the job. But stay on the job one must, if all the work that has been done up to this time is not to go for naught. In other words, when one starts a garden he starts something which must be finished—or seen through to a finish. And there was never a time when seeing it through was more important from an economic point of view, than it is this year. So attaboy!

General

Loose, light soil half an inch deep everywhere—dust actually—and the sprayer ready at hand for instant action; these are the two most important things. After them comes the prompt picking of every vegetable—and flower—at the very instant it should be picked; not half a day later. And after this comes the further sowing of such things as may still be sowed for succession. Never enough can be said about doing things in the garden *on time*—for Time is either your friend or your enemy, here. Better keep him your friend, for he is a dangerous enemy.

Greenhouse and Frames

This is the month of overhauling generally and preparing the house for the year's beginning, which comes with August.

Order Ferns, Callas, Hyacinths and Narcissus for forcing, and seeds of Cineraria, Mignonette, Antirrhinum and such other plants as you may intend to have for winter flowering.

Carnations in the field must be kept pinched back and well cultivated.

Keep Chrysanthemums growing vigorously.

Watch the Violets, give plenty of air, and keep clear of dying or any way affected foliage.

Flower Garden

In cultivating be careful not to go too deep. Many things are shallow rooted and these suffer greatly if the soil around them is deeply disturbed.

Make notes of gaps wherever these occur, and get in your order for potted perennials to fill them either at once or in the early autumn.

Order seeds of perennials if it is your purpose to raise from seed, and sow about the middle of the month.

Cut off all flower heads as soon as the blooms fade, unless you wish to save seed. Even for this it is never necessary to allow many to remain; and nothing is much more unsightly than unkempt plants. Often too you will get a second late crop of bloom by promptly removing faded blossoms.

Shrubbery that has old wood in it needs trimming now, if at all this summer. Take out only dead and very weak wood at the ground, let the individuals grow as they were intended to, and the mass mingle its growth as luxuriantly as it will. Do not prune the late summer and fall blooming varieties now, however, else you will cut away the flower-bearing wood. These need early spring attention.

Keep weeds out everywhere; sometimes they establish themselves beneath the foliage of perennials in a thickly planted border. Watch for them here.

Vegetable Garden

Tomatoes need watching and frequent tying up, if grown to a stake. Keep side shoots cut out as fast as they appear and thin the foliage if this is very dense. They ought always to have air and sunlight right to the middle of the plant.

Lay brush around Melons and Squash for the vines to climb over. This keeps the fruit off the ground, which is a good thing.

Tie up everything as fast as it needs tying; anything that is allowed to grow a day or two without support never gets back on to the right track after the twisting such neglect causes.

Spray Potatoes twice this month—oftener if it rains often. The thing is to keep new growth protected by spray; do it often enough to insure this.

Set out late Celery.

Plant Turnips where early Potatoes have been taken out.

Onions grown from sets should come out now and make room for something else. There is still time to plant a whole garden!

Fruits

Put burlap or cheesecloth over Currant bushes to hasten the ripening of the fruit and to protect from birds.

Use ammoniacal copper carbonate in place of bordeaux for fungous troubles from now on, to avoid disfiguring fruit that has set.

Spray Gooseberries with potassium sulphide for mildew.

Cultivate bush fruits and keep free from weeds and grass.

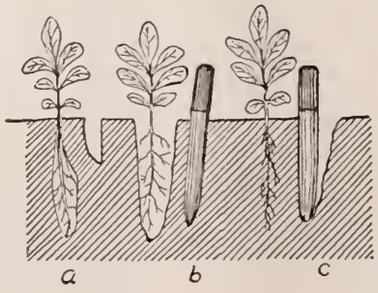
Cultivate the orchard and spray as required. Pick up windfalls; they harbor insects.

Tie up, thin foliage, prune back and cultivate Grapes assiduously.

THE WAY TO USE THE DIBBLE

WHILE it is always necessary to transplant carefully and bring the tender rootlets of the plant into direct contact once more with the soil, this is especially important late in the season when there is not the aid of spring rains to perfect the operation. The drawing shows how and why.

a—Here the faulty use of this indispensable implement is illustrated, the little plant having been lowered into the hole opened for it properly enough, but not rightly fixed therein inasmuch as the dibble was thrust into the ground but a short distance and only the top layer of earth was therefore pushed over against the stem. This is an example of what gardeners call "hanging" and actually the rootlets are in a chamber instead of contacting the soil.



b—The proper thrust of the dibble after the plant is in place.

c—The earth pressed against the plant its entire length and therefore against every rootlet on all sides.

Special Mid-season Announcement

THIS nursery has always made an effort to serve those in search of the unusual. Besides a comprehensive assortment of all the popular plants, shrubs, and trees, we also offer the rarer things that enter into the make-up of the unusual type of garden.

For those interested in Rhododendrons, Japanese Azaleas and rare Evergreens, a visit to Cottage Gardens Nurseries will be of unusual interest.

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Among the plants that have always received our special attention, is the Peony. Twenty-five years of study and careful selection, enable us to offer a collection "par excellence." During this time we have tested over 1,000 varieties. Out of this vast number we now offer about 400 kinds that represent the finest blood in the Peony World. They include early, mid-season, and late flowering varieties in single, Japanese and full double flowering types.

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Our two- and three-year-old roots which we offer, if planted during September and October will reward you *next June* with an abundant display of lovely flowers.

Catalogue Awaits Your Call

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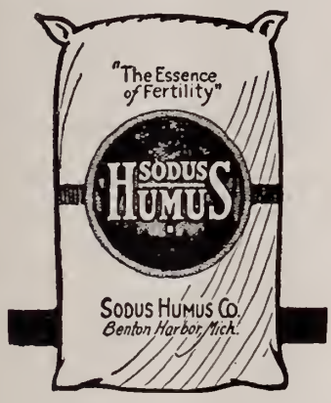

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THE NEED OF A "CLASSIFIED" SCORE CARD

I WONDER if the writer of a recent letter on "Garden Score Cards" had a picture in his mind's eye of one of our enormous seed catalogues with the countless varieties all beautifully "score-carded" and classified according to merit? In reading the average catalogue we learn that each variety is more beautiful than the last and if any flowering thing by any chance should have a bad trait it wholly escaped the grower's attention. In the catalogues there seems to be no such thing as comparative value. All is superlative. But, laying aside for the moment the humorous situation of a plant catalogue trying to draw trade with its "much vaunted" stock all tagged up with 30 per cent. and 40 per cent., let us try to imagine the result when every one makes up a score card according to his own good conscience? I am heartily in sympathy with the idea of having varieties tagged up by some score card system because I have to order a great deal of material for clients from catalogue descriptions, it being obviously impossible to know all of the hundreds of varieties of things like Peonies, Phlox, and Iris, for instance. But I am staggered by the enormity of the task ahead of anybody who dares to advance a comparative rating for most of the garden stuff in common use. Perhaps some societies will consider the feasibility of adopting some sort of a standard rating as an experiment. There is certainly a need for such a thing. For example I find in half a dozen catalogues Peony var. Humei offered eight years after the Cornell Experiment Station Bulletin No. 278 printed the following description of it:

" . . . . Weak, low-growing plant, shy bloomer, inclined to blight. Inferior bloom, poor fragrance and an undesirable bud which is likely to waterlog. . . ." I do not blame nurseries for offering it. It may have especial value for its color or lateness or something else. But the incident shows the necessity for the experimenter and grower to get together on varieties. Much experimental work is being carried on in the way of sorting out and culling out varieties, and growers are doing a big share of it themselves in an earnest endeavor to give the customer the best that any type offers. The magazines have done wonders in bringing to the attention of every one the varieties which have showed superiority over others. There still remains the crying need of a court of last appeals through which every plant must get its rightful recognition—namely, the classified score card. Why can't some one who has the time and inclination start one as a hobby? Perhaps Mr. Sturtevant will submit a more comprehensive list of Irises to test out whether his scheme of making absolute ratings will find a stumbling block in the ideas of other Iris devotees.

STANLEY WHITE, *Boston, Mass.*

THE RUNNER BEAN "PRIZE-WINNER"

THIS is a very much improved Scarlet Runner introduced by Sutton & Sons, Reading, England. The pods which are produced in great numbers right through the summer are very straight and average 12 inches in length; some are even longer. They are of splendid quality for string beans, being remarkably brittle. The plants are most attractive when in flower and worthy of a place in every vegetable garden. The Massachusetts Horticultural Society and the Gardens' and Florists' Club of Boston have each made awards of merit to this bean.

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SPECIAL OFFER. One of each of the above charming gems of the Iris Aristocracy will be sent for **$5.00.** This and above special offer are made to *G. M. Readers only*, so please refer to this advertisement.

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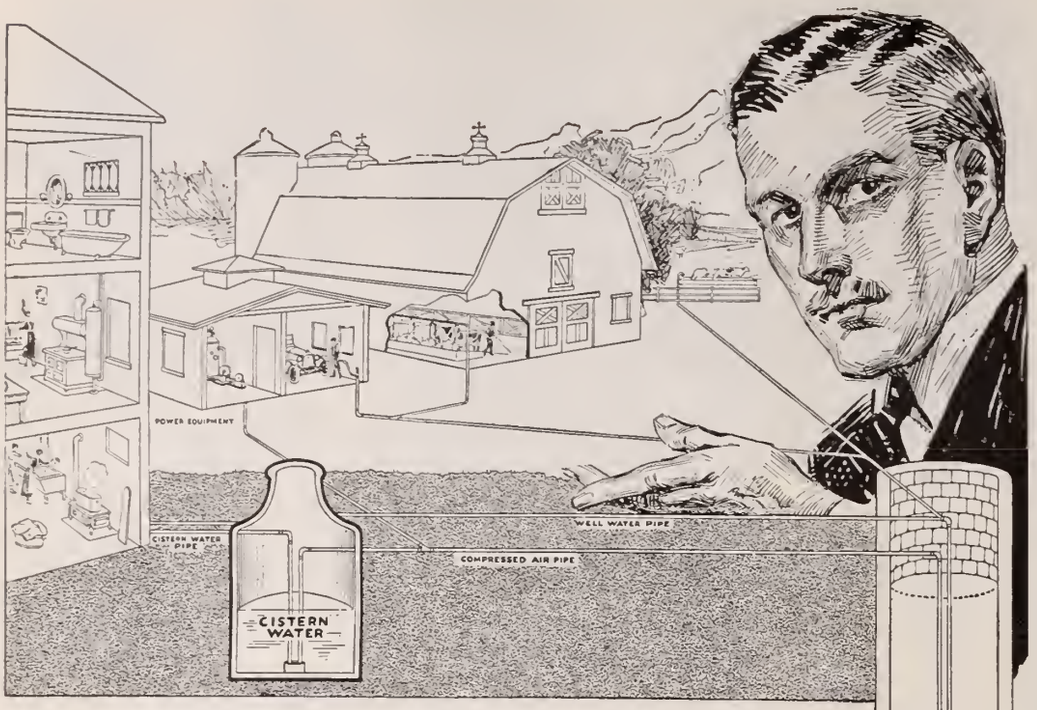


Here's the Man and Here's His Work

THIS man is the trained representative of the Milwaukee Air Power Pump Co. He lives and works in your own county. His work was to increase the value of this farm, and increase farm profits. He did it by installing what you see in the above illustration; fresh water direct from the well and cistern to the farmhouse, barn, watering trough, dairy and lawn; no storage tank or stale water. And he put electric light in all the buildings.

He installed a flushing closet, put hot and cold running water in the farmer's kitchen and bathroom; fresh drinking water direct from the well to the house, water in the barn for the cows; electric light in all buildings.

So doing, this expert made a modern farm. He has been trained, and it costs nothing to get his advice. See him. Ask him what he can do for you; let him question you about your needs. If you decide he can help you, tell him to go ahead; and he'll increase the value of your farm and your profits.

We have a representative in your county. If you don't know him, write us.

MILWAUKEE AIR POWER PUMP CO. 908—3rd St., Milwaukee, Wis.

Milwaukee Air Power WATER SYSTEM "DIRECT FROM THE WELL" — EITHER OR BOTH — Milwaukee ELECTRIC LIGHT SYSTEM

THE BAY STATE NURSERIES, North Abington, Mass.

Carry a full line of

Northern grown Nursery Stock—If interested send for Catalogue

W. H. WYMAN, Proprietor

IRIS

CLARENCE W. HUBBARD

Grower of Peonies and Irises

6144 LAKEWOOD AVE. CHICAGO, ILL.

Alcazar	$1.00	each	King of Iris	40 cts.	each	Parc de Neuilly	40 cts.	each
Caprice	35 cts.	"	Kochi	20 "	"	Parisiana	75 "	"
Dalmatica	35 "	"	Lohengrin	40 "	"	Perfection	30 "	"
Eldorado	50 "	"	Loreley	30 "	"	Prosper Laugier	50 "	"
Fairy	25 "	"	Mrs. Alan Gray	35 "	"	Quaker Lady	50 "	"
Her Majesty	25 "	"	Monsignor	45 "	"	Queen Alexandra	40 "	"
Isoline	75 "	"	Oriflamme	75 "	"	Rhein Nixe	40 "	"

Grow Your Own Strawberries

What a great satisfaction it is to eat strawberries picked fresh from your own plants. How much better they taste—and what a different flavor from market berries.

Giblin's Pot-Grown Strawberry Plants

Set this summer will yield luscious fruit next spring. Circular listing standard and new varieties sent on request. Plants after August 15th.

ROBERT A. GIBLIN, Spring Valley, Rockland Co., N. Y.

FRYER'S NEW IRIS

I have the largest amount of seedling Iris of any breeder in the U. S. Besides those that have bloomed I have 5000 seedlings of the tall bearded Iris transplanted in rows three feet apart with plants one foot apart in the rows. Very few of these have ever bloomed, but nearly all of them should bloom this month.

A descriptive list of 86 varieties on request.

WILLIS E. FRYER, Mantorville, Minn., U. S. A.

Ten Fine Named Peonies

For $2.50 or 20 for $5.00

All different and truly labeled. A chance to obtain a fine collection at half price, these are selected from varieties that I have in greater numbers. With the $5.00 collection I will include one plant of Baroness Shroeder free. I have a fine stock of Lady Alexandra Duff, Le Cygne, Soulange, Mons, Martin Cahuzac, Sarah Bernhardt, James Kelway and various other fine sorts. Send for catalogue.

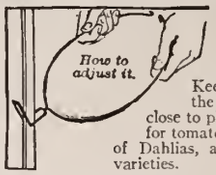
W. L. GUMM, *Peony Specialist*

Remington, Indiana

IRISES

Now is the time to plant the WINTER BLOOMING IRIS unguicularis (stylosa). Blooms six months in Southern California. Send for prices.

The Dean Iris Gardens, Moneta, California



A hardwood stake ⅞ inch square, 3, 4 or 5 feet long, with a strong wire support instantly adjustable to any height.

Keeps plants in air and sun, and from the ground. Permits cultivation close to plant. "Adjusto" supports are fine for tomatoes and bring out the full beauty of Dahlias, and all the slender, tall growing varieties.

Buy "Adjustos" at a garden supply store or write direct to us. Ask for our free catalogue

FORREST SEED CO., Cortland, N. Y.

Honest Seeds, Prices, Packets

"ADJUSTO" PLANT SUPPORTS

Would You Believe It?

We are still receiving requests for Home Landscapes, 1918 edition, from folks who have chanced to have some friend show them a copy.

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HICKS NURSERIES

Box M

Westbury, L. I., New York

Specimen flower of Jubilee, photographed in the garden

PRIZE WINNERS AT PEONY SHOW

JUBILEE and LE CYGNE

again won the highest honors at the National Show of

THE AMERICAN PEONY SOCIETY

Jubilee Roots - - - - $25.00 each
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Price list of other varieties upon request

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Get an Even Distribution of Fertilizer

Kirkspray enables you to build up your lawn—to supply the nourishment it needs for proper growth—in the easiest and most economical manner. Kirkspray does away with messy, evil smelling fertilizers, and it saves labor.

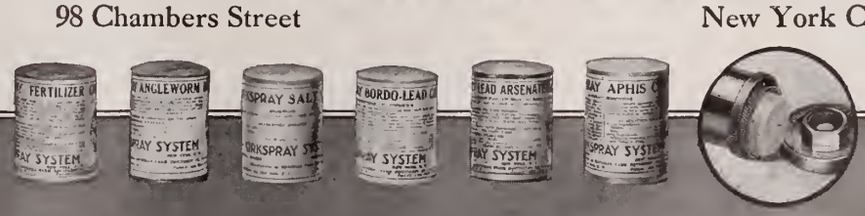
Kirkspray does its work *as you sprinkle,* so that food is absorbed by the roots in a fluid state. It consists of a hollow, nickel-plated cartridge holder, in which is placed a highly concentrated, soluble fertilizer cartridge. Kirkspray attaches to any garden hose. One cartridge is sufficient to fertilize 100 square feet of lawn.

In addition to material for plant building and fertilizing, there are Kirkspray cartridges for destroying insects, angle worms, fungus growths, leafblight, etc.

Variations in water pressure do not affect the strength of the solution. Quick—clean—odorless—efficient!

The Kirkspray container and cartridge fillers are sold by seedmen and hardware stores. If your dealer can't supply you, write us for full particulars, giving dealer's name and address.

The KIRKSPRAY SYSTEM
98 Chambers Street New York City



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Time—money—and disappointments.

You save all three by ordering your Bulbs from the Ten-Ten Bulb Book, with its money saving import-order prices.

We must, however, have your order by July 25th, so that we can forward it to our Holland Growers, and have it packed especially for you there.

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The Ten-Ten Bulb Book, like our Ten-Ten Spring Catalogue you've heard so much about, is arranged especially and expressly to help you buy quickly, easily, intelligently.

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IMP SOAP SPRAY
Sure Insect Killer

IMP Soap Spray is a scientifically prepared compound that is destructive to insects without injuring plants or roots. Does not spot leaves, fruit, grass or deface paint work. May be used on fruit trees; shade trees; flowering shrubs; vines; garden truck; and on all sorts of plants, both under glass and out of doors.

It is most effective against rose bug; mill bug; white, black, green and rhododendron fly; red spider; thrips; aphis; fruit pests; elm leaf beetle and moths. Very economical, one gallon is mixed with 25 to 40 gallons of water. Full directions on each can. Order direct if your dealer cannot supply.

Pint can	$ .50
Quart can	.75
Gallon can	2.25
5 Gallon can	10.00
10 " "	18.00

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Here's a rain-machine ready to use the moment you attach your hose and turn on the water. It's 50 feet long, and waters 25 feet on each side —2500 square feet in all.

One watering ample for a week in driest weather.

Takes but a few minutes to shift to another part of grounds.

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The Gilson Way of Gardening provides the proper tool for every job and person.

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By William R. Dykes

An authoritative treatise with accurate description, 48 beautiful natural color reproductions and 30 drawings of this flower. "The text is literally packed with reliable information for the botanist and for the grower of irises." "The drawing and coloring could hardly be surpassed in delicacy, artistic finish, and faithfulness." 245 pages, 11¼ by 17½, half morocco. Price $37.50, transportation extra (weight 11 lbs., 8 oz.)

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THE weather prophets predict a dry, scorching summer. Unless your lawns and gardens are properly protected by Cornell Systems of Irrigation, the summer beauty of your home will be marred by burnt and yellow grass, and your usually productive garden will shrink and die.

The only safe insurance is the Cornell System of "Rain, when you want it." With the underground lawn sprays—

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With the Overhead System for your garden, your vegetables and flowers will get exactly the proper amount of moisture for best cultural results. For with the adjustable feature of the Cornell Sprinkler you can get any degree of moisture from a fine mist to an April shower.

Write to-day for particulars

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Japanese Gold-Banded Lily

The accompanying photograph shows a field of this Lily growing in our Cape Cod Nursery.

This stock is grown from wild bulbs collected in the mountains of Japan; not from the diseased stock of the rice fields.

Home-Grown Bulbs. (For October delivery) $10.00 per dozen; $75.00 per hundred.

R. & J. FARQUHAR COMPANY
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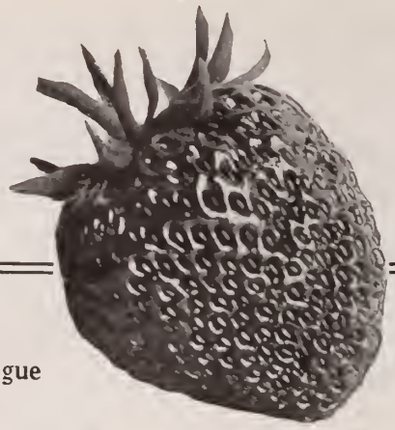

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Only the Best Varieties

Lovett's Strawberries

Pot-Grown Plants for Summer Planting

Our plants give a crop of finest berries in two to ten months from planting—the Everbearing varieties in two months; the others the following June.

Our Catalogue No. 2 tells all about them. *It is Free.* If you would have bigger and better berries than you have ever had before, plant Lovett's Pot-Grown Strawberry Plants.

J. T. Lovett—Monmouth Nursery

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Strawberry Specialist for 42 Years

The Only Shade Made With a Ventilator

ENCLOSED with Vudor Ventilating Porch Shades your porch becomes a delightful place in which to enjoy the out-of-doors all summer long. They give you a sleeping-porch also without added expense. You can see passers-by but they cannot see you.

Vudor Porch Shades are made of wood slats beautifully stained in permanent colors. Ventilator woven in the top—an exclusive feature—gives perfect ventilation. Write for color illustrations and the name of your local dealer.

HOUGH SHADE CORPORATION

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SELF-HANGING

Vudor

VENTILATING PORCH SHADES.

PEANUTS

5 lbs. FREE TRIAL

Fresh & Appetizing

For Week Ends— Garden Parties and All Summer Outings

I'd like to send you a bag of these wonderful shelled peanuts—"Pride O' Perquimans," and if you don't think they're the best peanuts you've ever tasted, you may return the unused portion of the bag by parcel post, and you won't owe me a penny or be under any obligations whatsoever.

They come to you unroasted, in a 5-lb. bag, with a little booklet which tells how you can have delicious home roasted or salted peanuts whenever you wish, with little time and no trouble. It also tells of other ways to prepare these luscious crisp nuts.

Just send me the coupon below, and I'll send the nuts by parcel post prepaid. If after you've tried them, you want to keep the rest—and you will want to—you may do so by sending me only $2.25 in full payment within three days after the big 5-lb. bag reaches you.

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EASTERN PEANUT COMPANY

Dept. 106, Hertford, N. C.

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Send along the 5-lb. bag of selected, hand picked, shelled, Jumbo Peanuts with your pamphlet "Ten Ways To Enjoy Peanuts." I'll sample them at your expense, plain roasted or salted, according to your directions, and will either return the unused portion of the bag, by parcel post, or remit $2.25 in full payment, within three days.

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We've Made A New Material For Filling Your Tree It Bends With The Wood Does Not Crack or Loosen

Stand right under your biggest, sturdiest tree.

Look straight up the trunk, and you'll find that, in the slightest wind, it sways and twists.

Just naturally, if there's a decay cavity in it, it will sway and twist all the more.

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That's just what Bartlett's **Flexifill** does.

At your request, one of our Experts will gladly show you what **Flexifill** is. And our free booklet on tree care, tells all about it.

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20,000 Irises Must be Sold, and Here is Why:—

Recent Real Estate operations deprived us of a ten acre field holding part of our stock of Iris. These will either have to be disposed of at some expense, or transplanted at greater expense. We prefer to sell them in *quantity* lots, to either Estate Owners for mass planting or to the trade. Since price will depend *entirely* on the quantities required, we invite correspondence. Please refer to G. M. when writing.

Ask for a copy of our Fall Catalogue of Bulbs, ready about Sept. 15th.

John Lewis Childs, Inc. **Floral Park, N. Y.**

PEONIES, GUARANTEED TO BLOOM

True-to-Name

Seventeen years ago we embarked in the business of growing hardy plants. Peonies, Irises, and Phloxes soon became leading specialties. And because we know them and grow them, we *guarantee to replace free of charge* any that do not behave as per description.

$5.00—Bargain Collection A—$5.00

8 Double Peonies, all different, fine large roots for	$2.00
12 Iris—fine ones, all different, for	1.00
25 Narcissus, choice named varieties, mixed	1.00
25 Darwin Tulips, mixed, for	1.00
Total	$5.00

Special Premium:—Send $5.00 for the entire collection and get *12 bulbs of Lilium Superbum free.* This is a fine hardy Lily, sure to do well for you. We prefer shipping by express. If desired by parcels post, add postage to prepay 20 lbs.

Write for our Free Catalogue TO-DAY

Our collection of *rare, new Peonies* is one of the largest in the East. Quality plants at prices that appeal to all. Please let us hear from you.

Babcock Peony Gardens **Route 79** **Jamestown, New York**

Peonies

PEONIES

Our two **Gold Medal Collections** of the choicest **American and European Varieties** include **more rare and beautiful Peonies** than may be seen at any one place in the entire world.

Because of the lateness of the season, they will be at their best, late in June and very early in July. We cordially invite your visit.

Here are some of our Special Gold Medal Varieties

SOLANGE, THERESE, TOURANGELLE, LA FRANCE, RAOUL DESSERT, JUBILEE, GINNETTE, MONT BLANC, LADY ALEXANDRA DUFF, PHILLIPE RIVOIRE, EXQUISITE, GLORIOUS, LE CYGNE, the WELL-KNOWN SHAYLOR SEEDLINGS, the best of THE BRAND'S, THE FAMOUS THURLOW SEEDLINGS and hundreds of other well-known varieties all may be seen in their glory.

Visit Cherry Hill Nurseries or Write for Catalogue

Come and see a wonderful sight. Those who cannot visit personally are asked to permit our catalogue to visit them. May we hope to be favored by an early request for it?

T. C. Thurlow's Sons, Inc.

Cherry Hill Nurseries

West Newbury Mass.

Bigger Berries
for Next Year's Garden

These three new varieties are not only bigger, but are better in quality. That's fact, not fiction.

Kevitt's Jubilee is called a "black" strawberry because of its deep red color. Produces big crops of big berries. Fruits are always carried well above the ground. $2.50 per doz., $8.00 per 50, $15.00 per 100 plants.

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Buckbee is the best possible combination of color, size and flavor. The rich color and large size give it a most appetizing appearance. Flavor is delicious. $5.00 per doz., $9.50 per 25, $18.50 per 50, $35 per 100 plants.

All of these remarkable berries are perfect flowering. Plants are extra strong, *pot-grown*. Send for illustrated catalogue G.

William M. Hunt & Company
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Farr's Bulbs Imported to Order

Special Discount to Early Buyers

In accordance with my usual custom, I have contracted with Holland growers for Hyacinths, Tulips, and Narcissi in sufficient quantities to supply the demands of my customers. In view of the shortage of bulbs, I consider that I have been exceptionally fortunate in securing stocks which will be of the same high quality that I have furnished in past years.

My Bulb Catalogue for 1920

is now being mailed to my regular customers; to others it will be sent on request. It will be of distinct advantage to you to make your selections immediately, as it is important that

Orders Should Reach Me Before July 15

otherwise the varieties you desire may be exhausted, because someone else has tastes similar to yours. A special discount will be allowed on all orders received before July 1st. See the catalogue for full details.

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Consultant in
Practical and Decorative Gardening
Naturalistic Plantings
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The charm of little gardens and the balance and beauty of larger gardens are due to careful thought and consideration
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New dwarf hardy low border
Box-Barberry
Originated and Introduced by
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Send for Box-Barberry Folder and Nursery Catalog

Wild Strawberries
Crossed with garden varieties; part easily from the husk, then handle like cherries. Plants mailed $1 dozen.
Wm. M. Freeman
New Meadows Idaho

New Wonder Strawberry
De Lue's Judith

Awarded silver medal and three first prizes by the Massachusetts Horticultural Society. Was the first native berry to arrive in Boston market in the season of 1919, bringing

One Dollar per Quart Wholesale

while the best New York and New Jersey berries were selling for forty cents per quart retail. This is the highest price ever paid for a berry at wholesale in Boston market.

Combines High Quality with Firmness

De Lue's Judith is a long season, very productive, wonderfully flavored, sweet and juicy strawberry of beautiful form and so firm as to allow of being dropped four feet from the hand to the floor without injury. The plants are vigorous and healthy, having *perfect blossoms* and making an abundance of strong runners so they can be rapidly multiplied.

Just as *De Lue's Golden Giant Sweet Corn* excels among other varieties of sweet corn, so does *De Lue's Judith Strawberry* surpass in excellence other varieties of strawberries both for the home and the market garden.

Prices: One doz. plants, $2.50; 50 plants, $9.00; 100 plants, $15.00.

Potted plants set out in August or September will fruit next summer.

Prices: One doz. pots, $3.00; 50 pots, $11.00; 100 pots, $20.00.

Send check or money order—no stamps.

Send for Literature on Strawberry and Sweet Corn

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One Summer's Rent Will Buy a Home

The money spent on a few months rent of the average Summer cottage will buy you a house that will last a lifetime. Hodgson Portable Houses are built for permanence. Only the best grade of red cedar and well seasoned Oregon pine frames are used in the construction of Hodgson Portable Houses. They are weather-tight.

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Hodgson Portable Houses are really beautiful but by means of Hodgson lattice, flowers and vines their natural beauty can be enhanced. Then, if you own a car the Hodgson Portable Garage will interest you. Write today for our catalog.

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The Recognized Standard Insecticide

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Aphine. Is the safest form of "insect insurance." The best remedy known for green, black, white fly, thrips and soft scale. Easily applied—Effective.

Fungine. For rust, mildew and all sorts of blights.

Vermine. Sure eradicator for insects affecting plant roots.

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Over 800 Acres of Carefully Cultivated
TREES
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PERENNIALS

Those interested in planting will find it to their advantage to consult our service department, before purchasing anything in this line.

A comparison of our stocks, prices and service, will prove why we have been "*Successful for over a century.*"

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SINGER BUILDING NEW YORK

PETERSON'S

Guaranteed Peonies and Iris

OUR SPECIALTY

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We will replace with three every plant blooming untrue to description.

Send for descriptive price list just issued

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They are known from ocean to ocean as sure remedies, safely handled and easily applied.

Slug Shot kills Potato Bugs, and other pests that chew foliage. Sold in 1 lb. cartons, tin canisters and in bulk.

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Write us for Booklet——
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Most large seed stores sell Hammond's Gold Medal Remedies. Let us mail you a free copy of "Insects and Blights" which, for thirty-six years has helped this nation save gardens.

HAMMOND'S PAINT AND SLUG SHOT WORKS

BEACON NEW YORK

The New Britain Tractor

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TRAVELS faster than a working horse, and draws more load.

Does more work than a horse and does it better.

Turns quicker than a horse, and in less space.

Costs less than a horse to operate and maintain.

Drives saw, grinder, silo filler, sheller, cream separator, pump, dynamo.

Draws plow, truck, disc, cultivator, harrow, drill, weeder, mower, sprayer, roller.

Ample horse-power at the drawbar, six horse-power at the belt. Plenty of power. Unusual stability. Instantly flexible control. No complicated levers and handles. Cranks in front like an automobile. Chrome nickle steel gears and only the best materials used throughout.

A high grade product by the makers of fine precision tools for 32 years.

Built in two models. Both are described in detail in booklet, sent free on request.

THE NEW BRITAIN MACHINE COMPANY

New Britain, Conn.

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A Summer Home

All song birds raise two, and usually three broods of young each year, selecting a new nesting site for each brood of young, so if your houses are put out now they are sure to be occupied.

Dodson Houses

win the birds—built by a bird-lover who has spent a lifetime studying their habits and how to attract them to beautiful Bird Lodge, his home on the Kankakee River. *Free Bird Book sent on request*, illustrating Dodson Line, giving prices; also beautiful colored bird picture FREE.

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President American Audubon Association
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Dodson Cement Bird Bath. Height 32 in. Basin 34 in. in diam. **Price $19.50.**

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VENTILATING
PORCH SHADES

A Porch You'll Enjoy All Summer

AEROLUX Ventilating Porch Shades make any porch livable and comfortable. Half outdoors and half inside such a summer porch offers all the joys and delights of the out-of-doors,—comfort with economy.

Aerolux Porch Shades, made of thin linwood splints, protect against the summer sun, against rain and wind. While affording perfect seclusion, they permit the cool, refreshing breezes to enter. Adaptable to sleeping porch and sun parlor as well; easy to install and operate.

How to Select Porch Shades

Get this information by writing for free literature, diagrams, suggestions on shading, color, measurements, arrangement and simplicity of hanging, also name of Aerolux dealer.

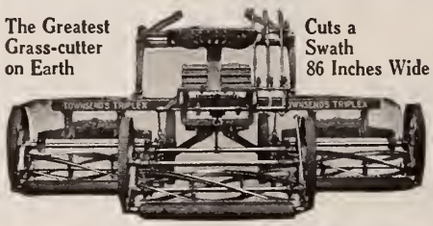
THE AEROSHADE COMPANY
239 Oakland Ave. Waukesha, Wis.

"More Home to the House"

TOWNSEND'S TRIPLEX

The Greatest Grass-cutter on Earth

Cuts a Swath 86 Inches Wide



Floats Over the Uneven Ground as a Ship Rides the Waves

One mower may be climbing a knoll, the second skimming a level, and the third paring a hollow. Drawn by one horse and operated by one man, the TRIPLEX will mow more lawn in a day than the best motor mower ever made; cut it better and at a fraction of the cost.

Drawn by one horse and operated by one man, it will mow more lawn in a day than any three ordinary horse-drawn mowers with three horses and three men.

Write for catalogue illustrating all types of Lawn Mowers.

S. P. TOWNSEND & CO.
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It sounds like "A hen without feet" simply because the idea is so new and different. "Buffalo" Portable Fencing Units are sectional and portable. No posts or fence stretcher needed. Simply push the legs in the ground and wire the sections together at the ends. A boy or girl can erect them and transplant the sections to a new location in a few moments.

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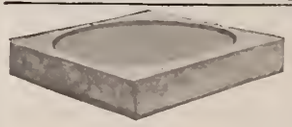

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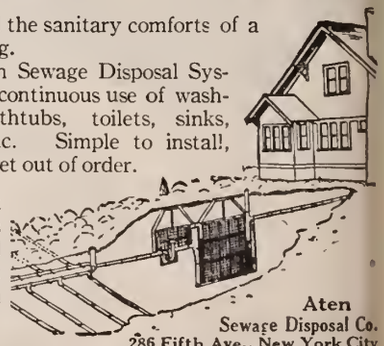

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THE COUNTRY LIFE PRESS, GARDEN CITY, N. Y.

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GARDEN MAGAZINE

VOL. XXXI. No. 6.

AUGUST, 1920. Price 25c.

Doubleday, Page & Co., Garden City, N. Y.

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MY garden favorites are many, but none can aspire to the place held by *the* Lily among Lilies, the chaste, pure white, fragrant Madonna or Annunciation Lily. An inspiration of poets and painters for centuries, it rules supreme now in many of the foremost American gardens. During late June and early July it forms a never ceasing source of fragrance and delight to its owners.

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Adhering to the principle that the best only is good enough for that critical clientele of garden hobbyists who patronize the House of Scheepers, I contracted for the cream of the crop with the most careful growers who manage the choicest fields in northern France. The result is, that I now offer one of the greatest lots of Madonna Lily Bulbs ever brought to this country.

Packed in original hampers, hundred extra heavy bulbs $30.00; 50 of these heavy bulbs $17.00.

A Catalogue "De Luxe" free with every order

Please do not ask us to send this catalogue free without ordering. While our last month's advertisement tried to make it plain that because of the extraordinary cost of this Book of Gardens, we could not distribute it indiscriminately, we have nevertheless received many requests not accompanied by orders or cash. The catalogue alone costs $5.00 which are refunded in form of a due bill good with $25.00 orders. However, we shall make an exception to this rule and send the catalogue free with orders of either fifty or hundred lots of Lilies as offered above.

Grow Them in Clumps

Grow them in single or double borders; grow them against a background of sky-blue Delphiniums or among groups of dark green Evergreens. Grow them anywhere and everywhere,

For Greatest Beauty Ever

John Scheepers, Inc., Flower Bulb Specialists 522 Fifth Avenue **New York City**

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Peony Planting Time

is near—so order NOW!

With the recollection of the last blooming season still fresh in your mind, it should not be difficult to *decide now* what you want to plant next month. No matter how extensive or select a collection yours may be, to improve it you should add

Five Floral Masterpieces

One and all a triumph of the hybridizer's skill.

Avalanche. Pure snow white.
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Every one guaranteed to make you feel proud you own it.

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Marechal Valliant. Immense, light red, shaded mauve.

Special Offer One of each of four beautiful creations will be sent for **$3.00**

Let "Peonies for Pleasure" Help

This beautiful booklet "De Luxe" holds a great treat for every Peony admirer. It will properly introduce you into the land of Peonies, give you lots of facts, some fancies and helpful cultural notes, together with unbiased opinions of our Mr John Good who has made a life study of Peonies. Since the supply of this treatise (*not* a catalogue) is running low, we would appreciate your referring to Garden Magazine when asking for it.

Good & Reese Co., Largest Rose Growers in the World **Springfield, Ohio**

THE GARDEN MAGAZINE

AUGUST 1920

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LEONARD BARRON, Editor

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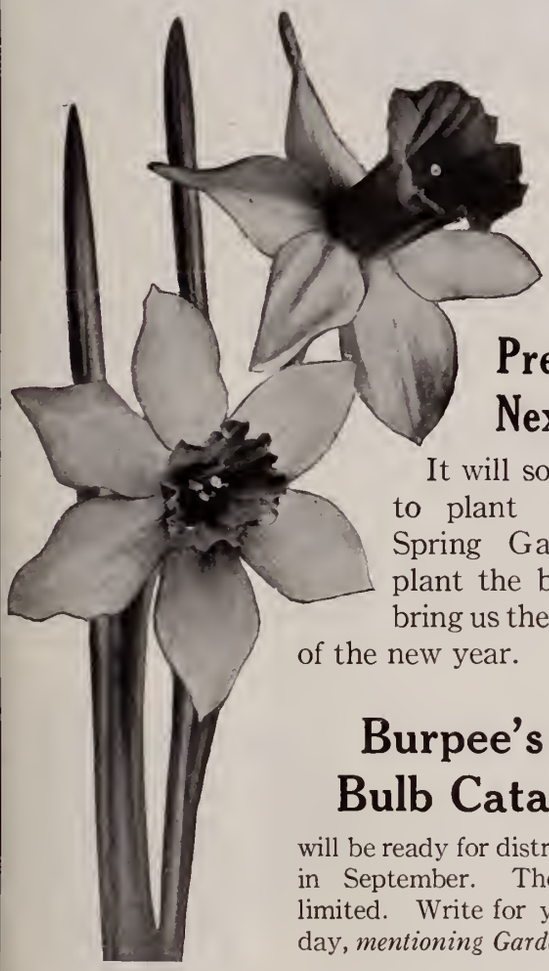
Tulips, Hyacinths Daffodils, Narcissus



Lilies
Iris
and
Peonies

Prepare for Next Spring

It will soon be time to plant your early Spring Garden and plant the bulbs which bring us the first flowers of the new year.

Burpee's Fall Bulb Catalogue

will be ready for distribution early in September. The edition is limited. Write for your copy today, *mentioning Garden Magazine.*

W. Atlee Burpee Co.

Seed Growers Philadelphia, Pa.

Fall Planting Proved!

Perhaps you are skeptical as to the wisdom of Fall Planting. The results depicted below may convince you.

A planting of Framingham Evergreens on the estate of C. E. Riley, Esq., Newton, Mass. This planting was made in the Fall of 1917—just previous to the severe winter of 1917-1918.

August for Evergreens

This is conceded to be *the* month for the most successful transplanting of Evergreens of all kinds. The plants are at rest and may be moved without danger to the past season's growth or next season's development.

Our wide range of stock enables us to offer all practical sizes, all habits of growth, all textures of foliage, and all degrees of color to be found among *hardy* Evergreens.

Our Book—"Beautiful Home Surroundings"

is replete with practical suggestions for designing your planting and for selecting suitable varieties.

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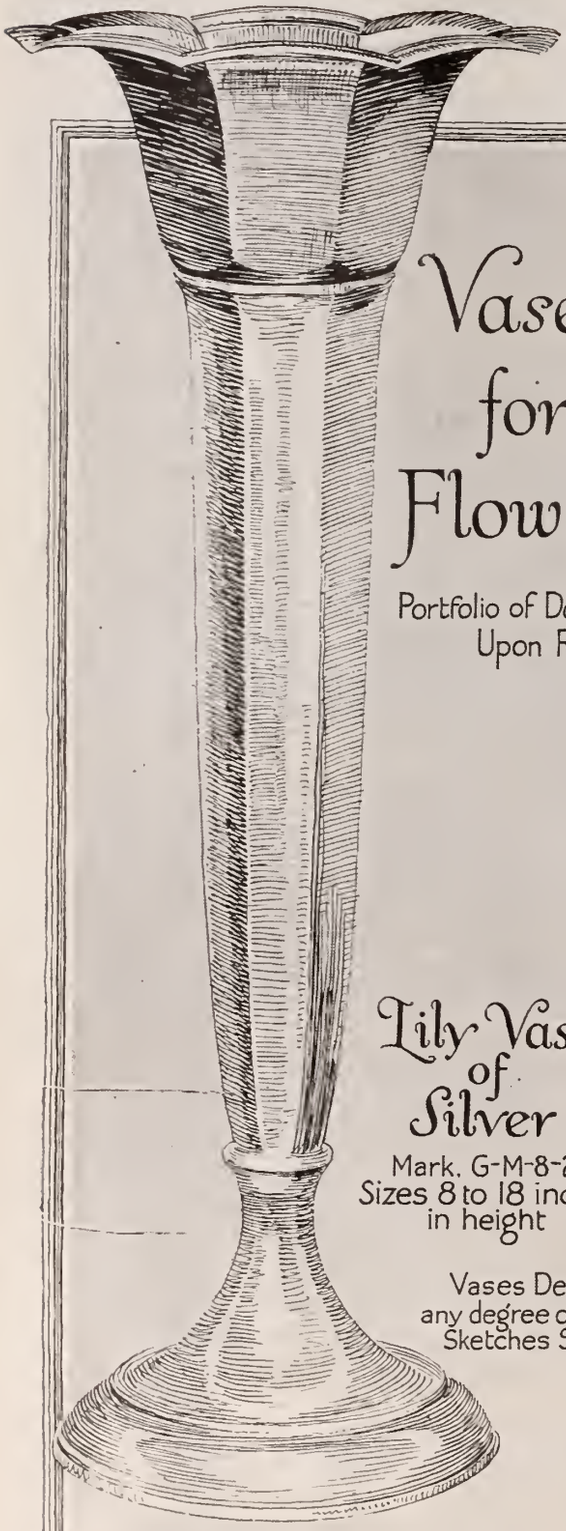

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Portfolio of Designs Upon Request

Lily Vase of Silver

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Sizes 8 to 18 inches in height

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any degree of importance
Sketches Submitted

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Cypripedium acaule, also called Lady's Slipper or Moccasin flower, is one of the most interesting of our hardy native Orchids. It is fully described on page 59 of our catalogue for which please send.

Many of America's Wild Flowers far surpass in beauty their cultivated cousins. For the hardy border or rockery, for high and dry or low and moist situations, for sunny or shady spots, nature provides abundant garden material and *we have all the worthwhile.*

August Suggestion

Each month during the Fall planting season we propose to approach you with a definite suggestion. Throughout August you may plant

Trillium Grandiflorum

The prettiest of the lovely three-leaved night shade family. Thrives best in low, moist places. *Each 10c; dozen $1.00; 100 for $5.00; 1000 for $35.00.* For best effect plant them in quantity and colonies.

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Pronounced by many to be the most unique book published in the trade. Really a textbook of many wild and curious forms of plant life. Your free copy awaits your call.

Edward Gillett Fern and Flower Farm **Southwick, Mass.**

Weeber & Don

Chinese Cabbage or Pe-tsai Should be Sown This Month!

As told elsewhere in this issue, this is *the* month to make your principal sowing of this remarkable salad plant. Good either raw as a salad, cooked as greens or eaten like Celery or Slaw. Be sure to thin out plants to stand 6 to 8 in. apart in row. *Pkt. 10c; ¼ oz. 20c; oz. 50c postpaid.*

Time to Start New LAWNS

Fall is a splendid time to make new or renovated old lawns. W. & D's Special Mixtures for every situation, take the uncertainty out of Lawn Making. "Bonnieseed" Lawn Mixture for normal situations. *Qt. 40c; 4 qts. $1.25; bu. of 20 lbs. $8.00 prepaid.*

We shall gladly make special recommendations for special soils and special prices for larger quantities as well as specific mixtures.

Write for Mid-summer Catalogue

offering other flower and vegetable seeds for present planting, besides pot-grown Strawberry Plants and seasonable garden requisites. Please write for your free copy.

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Weeber & Don, *"Sturdy Seeds"*
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The Cream of the "World's Best."

The very fine ones in large supply.

Send for our list now.

GLADIOLI

The very best of all other growers' sorts. Many very fine new ones of our own breeding. Admittedly the very best world wide. It will pay the very exacting amateur to see these in bloom about August 1st to 15th.

List ready in the Spring.

Quality over all.

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ROSEDALE EVERGREENS

Provide Year-Round Cheer

YOU can enjoy a landscape as cheery and inviting in winter as in summer. Plant Rosedale Evergreens this Fall, using large sizes where immediate effects are desired. They offer a wide variety both in outline and in color of foliage.

Those who have planted our stock in past years are enthusiastic over the splendid success they have had in transplanting and growing Rosedale Evergreens. This success is largely due to our practice of frequent transplanting which forces a compact fibrous growth of the root systems. Out of an order for $8,000 worth of trees, mostly Evergreens, only three trees failed. Many leading landscape architects specify Rosedale Evergreens.

Remember that our large trees were chiefly grown when labor costs were low. You can never again get such trees at our present prices.

Write for Catalogue to-day. Order now for August and September delivery.

Order Peonies for Fall Planting

By selecting Rosedale Peonies in early, mid-season and late varieties, you can enjoy a month of magnificent bloom every year. Every known peony shade from pure white to deepest maroon. Special Catalogue of Peonies and other Perennials now ready. Write to-day.

"Prices as Low as Consistent with Highest Quality"

ROSEDALE NURSERIES

Home of Well-Grown Evergreens

Box A Tarrytown, N. Y.

The Brand Peonies

Originated by O. F. Brand & Son, America's foremost hybridizers of the Peony

It is with the greatest pleasure that I now look back over the performance of the Brand Peonies in the field, during the season now just gone.

It has ever been my honest conviction that the only test of the true worth of a Peony is the performance of that Peony in the field.

And by this test the few Brand Varieties we have introduced have been judged in selecting them from the thousands upon thousands of seedlings we have grown during the last twenty years.

After the blossoming season is gone, and the vivid impression made by daily contact with the flowers has gradually passed away, misgivings have sometimes come to me that my memory as to the worth of my own varieties has become defective, and that the mere fact that they are of my own creation, has caused me to overestimate their comparative worth.

But this year's experience has but added to my opinion that these very varieties when put to the acid test, that is the field test taken as a whole, are the equal of any line of Peonies ever introduced.

My selections have always been made for a flower of great beauty and of large size, a plant of good habit and great profusion of bloom. Moreover, I have demanded that these qualifications should come true every year.

The following, I am convinced are such flowers:—

Brand's Magnificent, the great dark bluish red. A flower with great broad symmetrically arranged petals like those of a rose.

Charles McKellip, another great bright red of a peculiar shade. A flower that as the plants become older, will often be found in the show room.

Chesline Gowdy, the great cream white cone shaped flower for which we get so many unsought praises from the East. First Prize seedling at Cleveland National Show, 1918.

Elizabeth Barrell Browning, said by many to be the most beautiful Peony ever grown. By vote of the members of the American Peony Society pronounced "the finest Peony ever originated in America."

Frances Willard, The Peerless White, classed by many as one of our very best bloomers, one of the world's best.

Luella Pfeiffer, an immense flower, with large pure glistening pinkish white petals with just stamens enough interspersed to make it fascinatingly beautiful.

Judge Berry, the great show peony. A dainty flower of great size of a beauty fit for a "garden of the Gods."

Longfellow, the *peerless red*, pronounced by Peony experts at the Reading National Show "the greatest, brightest, most distinct, first-class red Peony ever grown."

Mary Brand, fast becoming recognized as the greatest commercial bright dark red in the world.

Richard Carvel. What Mons. Jules Elie is among pinks, Richard Carvel is among reds. A magnificent fragrant bright red, in bloom with Edulis Superba. Pronounced by one enthusiastic admirer, the "Brand Superb."

Phoebe Carey, the soft delicate one color lavender pink. Slowly becoming recognized as our best flower. A great lovely pink, grown on long stiff stems so long that I saw a great plant in Mr. Boyd's Movilla Garden collection, so tall that I hardly had to stoop that I might inhale its wonderful fragrance.

And Martha Bullock, that wonderful flower that in our own opinion, based on an active experience of over 40 years as a professional Peony grower, we proclaim "The World's most beautiful Peony."

We have an immense stock in all ages and sizes, from divisions to four year clumps, of our own productions and of more than 400 of the very best varieties of all the great growers of Europe and America.

These roots are grown in the Virgin Soil of Minnesota, where one often has to dig through three feet of the very richest surface soil before striking subsoil.

Growing the roots in such soil enables us to send our customers stock that gives more than satisfaction, as evidenced by the many letters of praise received by us last season.

Something New in Peonies

For the last nine years I have been continuously at work on an entirely new strain of Peonies. Some of these flowers, beautiful beyond my fondest hopes, come from an entirely different line of breeding from anything I have ever used before.

The results have been marvelous. I have flowers of immense size, of the most perfect form, and of the daintiest and most wonderful coloring. The plants are of the most perfect habit, possess stiff stems, and are wonderfully profuse bloomers.

And then I have a Ruffled Peony

Ever since I first set eyes on the old ruffled Gladiolus "Eugene Scribe" I have been determined that I would produce a ruffled Peony. The marvelous ruffled introductions of Mr. Kunderd, but added fuel to the desire. And now, at the end of this twentieth year as a breeder of new Peonies, I have what I believe the Peony loving public will welcome with extravagant joy, a ruffled Peony of Dainty Coloring and Wonderful Beauty.

All of our varieties, both old and new, will be found described in my beautiful new catalogue now out, which is free to all true lovers of the Peony.

A. M. BRAND, Faribault, Minnesota

41 years a professional grower of Peonies

The Garden MAGAZINE

Vol. XXXI, No. 6 — August, 1920

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BOTANICAL
GARDEN

Arthur G. Eldredge Photograph

A GARDEN ALCOVE OF SOFT COLOR, GLINTING SUNLIGHT, SWEET PEACE AND SOUND

Under a canopy of standard Wistarias with Actinidia on the wall, the deeps of the tiny pool, half hidden by native Ferns, receive, with low greeting, their own, in this unique retreat in the garden of Mr. Bayard Thayer, at Lancaster, Mass.

AUG 2 1920

Mattie Edwards Hewitt Photograph

THE REIGNING MONARCH OF MIDSUMMER IS THE GOLD-BANDED LILY OF JAPAN

And borne regally is its coronal of blossoms though it consorts most democratically with the commonest flowers and adapts itself to the shadier places that are often so difficult to light up. Garden of Mr. G. W. Curtis, at Easthampton, Long Island

Arthur G. Eldredge Photograph

TO LEARN THE VIRTUE OF LEAVING UNDONE IS WISDOM BEYOND PRICE

As this splendid basin, where the water's surface is free from vegetation and thereby open to reflect trees, clouds, and sky, and to record the least stirring zephyr, must convince. Blairsden, residence of Mr. C. Ledyard Blair, Peapack, N. J. James Greenleaf, Landscape Architect

PLANT BRIEFS

LOUISE BEEBE WILDER

DISCUSSES SOME NEGLECTED POPPIES

UNLIKE most plant families the Poppies seem to have no black sheep within their fold, no poor and weedy members to be kept out of sight; indeed, the very least among them is possessed of so gay a charm, that it is regarded with delight wherever its vivacious blooms are seen. Nevertheless, save for the numerous annual forms derived from P. Rhoeas and P. somniferum, and the various showy hybrids of P. orientale, the family is very poorly represented in gardens, and several good annual species ignored.

The seed of annual Poppies should be sown as early in the season as possible in the place where the plants are to flower as it is not possible to transplant them with any certainty of success. The biennial and perennial sorts also dislike disturbance but if removal takes place when the plants are very small the risk is slight. I believe it may be said of few Poppies that they are reliably perennial with us, whatever may be their character at home, but their chances of continuance may certainly be increased by raising them from seed, planting them in full sunshine, in soil that is only moderately rich but sharply drained. They love the sun and the wind, and damp is ever a danger to them. Where this is suspected a collar of flat stones drawn about the crown, or a dressing of gravel over the ground about the plants will usually safeguard them through a wet winter. Cold has no terrors for most of them, nor has heat, if they are made otherwise comfortable; and once fairly settled they will self sow freely, catching a foothold in the most unlikely places.

Papaver nudicaule, the Iceland Poppy, is better known than most of the wild Poppies, and of late some very fine strains of it have been introduced, notably Pearls of Dawn and Baker's Sunbeam, which give us, in addition to the white, yellow, orange, and scarlet forms already possessed, the most lovely pink and apricot tones. P. nudicaule is a charming dwarf plant with sturdy rosettes of deeply lobed leaves and many blossoms carried on stems about twelve inches tall. Considered a perennial it is at best a short-lived one, sometimes dying off during the first winter. As it is a native of the Arctic Circle, however, it is safe to assume that cold has nothing to do with this apparent delicacy and that a lack of free drainage is much more apt to be the cause. Planted in light, rather gritty soil, in a position where sun and wind may reach them freely, these plants will be very fairly steadfast, and if too many seed pods are not allowed to form will give their lovely blossoms throughout the summer. If seed is sown early the plants will bloom the first year.

Papaver alpinum is akin to the Iceland Poppy but more diminutive, more fugitive and more lovely. These are the wild Poppies of the Alps. They are to be found on the high shingle of the moraines, their little tufts of finely cut gray leaves nestled among the stones, their fragile rounded blossoms on four-inch stems held boldly to the sun and wind; and he who tries to tempt them with ordinary border conditions is courting speedy bereavement. They are plants for the highest places that the garden affords—the heights of the rock garden, the top of a retaining wall where the soil is gritty and free, the brow of a windy hill. On account of their long tap root they are particularly impatient of disturbance, so if the seed be sown where the plants are to remain the best results will be obtained. There are several forms of the Alpine Poppy, but it takes a deal of patient searching through many catalogues to come by any but the type. There is P. Kerni, a very tiny form, and one with delicately fringed petals, and this spring I have a packet of P. rhaeticum, of which it is said, "The flowers are very *fragrant* and generally yellow, but are white on chalky ground." One cannot but look forward with delight to a fragrant Poppy.

P. rupifragum comes from the mountains of Spain. It is perfectly hardy and more reliably perennial than any Poppy of my acquaintance. Its handsome gray-green rosettes will establish themselves anywhere, but in rich soil it produces a most ungainly length of wire-like stem topped by small, frail blossoms, whereas, kept to a strict diet, it remains nice and tufty, sending up a veritable fountain of bloom on stems of seemly length. P. rupifragum atlanticum, from Morocco, is much like the type save that the blossoms are scarlet instead of soft apricot color, and P. Heldreichi, said to belong to Asia Minor, is to me indistinguishable from it. These gay-hued Poppies are delightful naturalized on sunny, rough banks in half wild places. Here they will self-sow and multiply and if they are given the companionship of blue and white Campanulas and Spiderworts and the sky-blue Flax a gay and charming effect may be maintained for many weeks. They may also be allowed the freedom of the garden where they will roam about forming many a happy association and rescuing many an unlikely spot from bareness; but they are best denied a footing in the more select areas of the rock garden.

P. caucasicum is much like the foregoing, but a little softer in color, a bit more compact of habit, if anything so airy as a Poppy may be said to be compact at all—altogether a more conservative plant and far better suited to the rock garden. Its tidy blue-green rosettes are extremely ornamental, and it is fully as hardy as rupifragum though quite clearly a biennial.

P. tauricolor, a Levantine, is described by Mr. Farrar as resembling a coppery Meconopsis, which certainly sounds unusual and desirable. I once had a packet of the seed of this species but lost the young plants through some fatality before they were out of the frame.

P. pilosum is a sturdy Greek mountaineer with a strong tuft of hoary leaves and tall, much-branched stems bearing several reddish-buff blossoms several inches across. A good plant for borders or rough banks, and very fairly perennial.

P. californicum, a gay little annual from the Santa Inez mountains should be better known in its own land. It bears frail orange-red blossoms on very slender stems and is pretty enough to grace a corner of the rock garden or to flutter along the edges of the borders where it will keep itself going by self sowing. (Do not confuse with Eschscholtzia, usually known as the California Poppy.)

P. pavonium, an annual from the sandy plains of Turkestan, is one of the best of its kind. Its habit is compact and neat and it bears in greatest profusion bright scarlet blossoms with an inner ring of black. "The flowers are peculiar in having two horns upon the sepals."

GARDEN FEATURES OF SYNTHETIC STONE

EDWIN K. BORCHARD

Acknowledged the Dominant Material of the Age in Which We Live, Concrete Has Possibilities for the Artist Which Are as Yet Almost Unsuspected

BECAUSE of the nature of the material composing it, synthetic stone or cast stone (which are the names applied to concrete in its finer or ornamental forms) not only resembles natural stone, but actually *is* stone. Let us understand this thoroughly. Portland cement is pulverized rock so treated that it has the property of temporary plasticity, afterward again becoming stone. The worker in ornamental concrete takes ground marble and marble chips or ground limestone and chips, mixes them with this portland cement in gray or white depending upon the color required, and the resulting material really is stone itself. Thus, it is apparent that cast stone ornaments are not imitations of stone, nor indeed intended to be, but are stone itself, cast instead of carved to the required form. Hence it is a perfectly sincere and legitimate medium for the artist, provided it is sincerely and legitimately—that is, frankly—used.

Obviously this property of plasticity brings cast stone garden pieces within the reach of owners of the tiniest and simplest of gardens. No large blocks of stone need to be shipped from quarry to cutting yard, and the costly hours of patient cutting and chiselling are eliminated; yet the artist is as essential of course, as ever. The artist recognizes above all else—or first of all—the limitations of any medium, and knows intuitively how to practice restraint. He knows that groups or figures from life, unless in conventionalized form, should be avoided in such a medium as synthetic stone, at present anyway. Perhaps as the art of moulding it progresses, we shall some day have replicas in synthetic stone of beautiful pieces of sculpture just as we already have them in bronze. But until then it is best to confine ourselves to the vases, benches, columns, pediments and the like which offer ample opportunity without subtle pitfalls.

Even thus, there are good and bad pieces in synthetic stone—not bad in the sense of quality or permanence but bad art. The cheaper pieces fall short on the score of appearance. This is because to achieve cheapness, output must be great, hence such pieces are turned out in a purely mechanical way, often by the manufacturers of concrete building blocks! They are not claimed nor expected to be other than a machine-made product, are sold just as they come from the moulds, and hence are characterized by smooth, lifeless appearance, with little clear-cut detail or ornamentation.

Such pieces may serve a useful purpose where low cost is a consideration, and where the piece is more or less masked by shrubbery or plantings. But the best decorative concrete is made in a quite different manner than that just described. A few manufacturers—assuming for their workshops sometimes the name of "studio" and really deserving such a designation—put just as much care and artistry into their product as goes into a fine marble or bronze.

For after coming from the mould concrete may be scrubbed, ground, and polished—or best of all, tooled and carved—in exactly the same manner as marble or granite. The object of any of these processes is to remove the dull, lifeless and artificial-looking film or skin of cement from the surface. When this is done the true color and stone-like texture is revealed in all its beauty. There is moreover no mistaking the appearance of concrete so treated; so if the question of how to distinguish between the good and the not-good arises, let it be remembered that the fine work shows a sharpness and fineness of edges and detail and, upon close examination, minute particles of the stone used for mixing with the cement will be seen embedded in the matrix of cement. This is a sure indication for pieces brushed or ground after moulding, while for the carved pieces the marks of the tooling will be readily seen.

When we speak of tooling and carving, the object of using

PERGOLA COLUMNS, PAVEMENT SYMBOLS, AND A SUGGESTION OF PAGAN ALTAR

Developed in synthetic stone of warm ivory tint and planted with aspiring upright Juniper, and the suggestive Vine, reconstruct the atmosphere of a prehistoric temple as well as create a lovely garden shrine for to-day

synthetic stone as compared with cut stone seems to be not so evident. But it is to be remembered that we still retain the advantages of repetition and moulding to form. Synthetic stone is moulded to exact shape and the tooling merely means a light going-over to remove the cement film and sharpen up edges and detail. In cut stone the finished piece must be hewn from a solid block, and of course a replica must be similarly brought forth, slowly and carefully—and not always successfully as to reproducing the original. But just as we cast the metal into the mould for a bronze statue or other work of art, we cast concrete into a mould to form a synthetic stone ornament.

It seems almost needless to caution against the selection of garden ornaments which offend because of too great elaboration or superfluity of numbers, for the true garden lover knows too well that beautiful effects result from simplicity rather than from ornate elaboration and quantity. For the small garden or lawn perhaps one simple piece will be far preferable to two. Ornament that is ill chosen, though perhaps in itself meritorious, is lamentable in general effect.

On the other hand, ornamental urns, benches, sundials, and statuary always have been considered an essential adjunct to well planned gardens and grounds. And well chosen and placed they always will be. In such notable examples as the park at Versailles, for example, statuary, urns, and fountains mark the natural divisions or add interest to well planned vistas. Such works of art, hand carved of marble or fine granites and limestones, are necessarily very expensive, almost prohibitive indeed in price, except for the most elaborate gardens and parks. To take the place of these costly ornaments, garden owners and planners have recourse to terra-cotta pottery and synthetic or cast stone ornaments. Both are far less expensive than marble or granite, and both are available in objects well designed and executed with true feeling and sincerity.

All lawn and garden ornaments should be carefully set in place to insure them a solid foundation and a look of stability.

THE BEST IN STONE

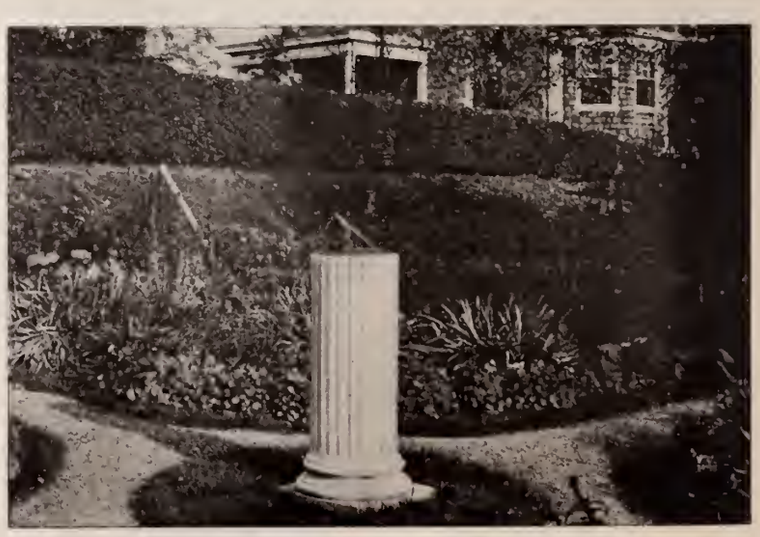
Providing it is simple in line and detail the design that is suitable for cut stone is quite as suitable for stone that is cast

A COMPLETE MOTIF

Benches flanking low steps whose buttresses afford opportunity for the use of a pair of vases, distinguish a garden's transitions

INVARIABLY RUGGED YET OF FLOWING, GRACIOUS LINE

Delicacy of curve is as possible in synthetic stone as in any other medium, the whole matter resolving itself in the last analysis into the old question of good taste



A SUNDIAL PEDESTAL OF MORE AMBITIOUS CONCEPTION

Here the classic column, with its refinement of fluting and base moldings, well demonstrates the potentialities lying in a material sometimes regarded with suspicion because as yet rarely understood

Built with grilled openings to house a phonograph, the above might be a tool-house

(At the left.) A close-up of the vases of the preceding page, and their evergreens

Reproducing an ancient Byzantine design, concrete also provides this well-head's setting (Right)

This is especially necessary for large pieces such as benches, sun dials or fountains. A concrete foundation is useful in this connection and need not be in evidence in the least, for it fulfils its purpose if placed sufficiently underground to be covered with sod. To make such a foundation excavate to the proper size and depth and fill the opening with concrete mixed in the proportion of one part cement, two and one half parts sand and five parts broken stone or pebbles. Before this foundation has fully hardened the ornament is set upon it and all is carefully leveled to bring it to final position.

Garden walls of concrete are built upon a similar foundation whether they are poured into forms and reinforced, or constructed of concrete blocks. In either case a surface finish is of course required to bring the finished wall up to the standard of texture and appearance demanded; in the first instance to remove the film which is characteristic of the material when it emerges from a mold, in the second to conceal the blocks. A skilled worker in synthetic stone is able, by mixing it to different consistencies, to apply it as plaster and give it practically any surface character desired.

WHO LOVES A GARDEN SOONER OR LATER LOVES A GARDEN WALL, TOO!

With such possibilities in the substitution of cement for brick and stone and the labor that these involve, as this wall in the garden of Mr. Henry Proctor, at Phillip's Beach, Mass., demonstrates, this first essential of the garden need not be delayed to become its last feature

WHAT AUGUST BRINGS

AFTER all, August is a month of months for the real gardener, though to the uninitiated, who looks upon the full summer season as a period of nothing but heat and drought, the mysteries of gardening during this time seem to be nothing less than ordinary hard labor. To the true gardener, however, the opportunity of intimate work with, and joy in, his possessions does not savor of labor. In quiet repose and calm reflection he can lay foundations for great things to come and build more securely for next year than is perhaps possible during any other single month of garden work. For in the spring there is the feverish rush of trying to catch up with the advance of the season; and in the fall there comes the necessity of preparation for the approaching winter. And there is so much to be done in providing protection, in harvesting, and in storing for winter use that, from comparison with those two periods, this present is big with leisurely opportunity.

ALL the world knows that August is an accepted time for the planting of evergreens. It does not also equally realize that almost anything else can be planted just as well, if planted in the same way. No one ever thinks of moving an evergreen, especially in midsummer, without the conventional ball of earth; and if it is to be shipped any distance it is baled as well, in order to keep the soil intact around the roots. We have been driven to do this because it is perfectly obvious that the top of an evergreen could not well be reduced by pruning to compensate for any root injury without hopelessly ruining the specimen. So the transplanting is properly done by retaining all the root system and its adjacent soil.

Apply the same principle to deciduous trees and shrubs and they can be moved just as well of course. But we do not do it; and we do not put it into our calendar of routine events because there are other seasons when deciduous plants are dormant—and they can then be handled more easily. Not so with the evergreens. At whatever time we plant them they must be moved with the earth-ball. So we take the opportunity which a lessened pressure of other duties brings and busy ourselves with evergreen planting in August. There is too, a further advantage in all this planting of evergreens now. For at this time the foliage effects of the surroundings can be measured, and the new tree can be placed in its exact position and its full effect determined with regard thereto.

AND would you have Strawberries next year? Who would not, who could? Strawberry planting, preferably from potted plants, especially if they are to be shipped any distance, done this month will result in a bed in fair condition and ready to yield a crop next spring. It is all a matter of attention to the little details of cultivation, and giving the plants all they need in the way of deep soil and plenty of material on which to feed.

NOW, too, is the opportunity for making, or making over, the herbaceous border, for there is much to be planted now at greater advantage than later. Notably it is the season for planting both Iris and Peony. These subjects have a period of vigorous active growth in spring, when they deliver their glorious crop of flowers; then a period of comparative rest, followed by another of active growth, during which they lay up for themselves stores of nutriment for the coming winter and particularly for the fruition of the following spring.

From now on until the fall season is well advanced, all kinds of herbaceous plants which fall into this group may be shifted and replanted at will. Here is the great opportunity for the amateur gardener who spends his vacation in his garden. The period in which we now enter offers indeed the greatest possible opportunities for the reconstruction of old, and the making of new herbaceous borders. It was not so long ago to be sure, when the mere suggestion of planting at any other time but in the spring was received with suspicion. But how great a change has come across the face of things! Some Peony growers indeed, emphatically state that they will only accept orders for late summer delivery. (They call it "fall delivery" but as a fact it is late summer planting.)

SOW seeds now of Perennials and Biennials and save a year's waiting. Pansy seed sown now will give plants to carry over the winter for bloom next spring, if in a coldframe. Practically all the herbaceous Perennials will make a stronger stand from seed sown now than if the same seed is kept and started in the spring. And in the flower garden there are two bulbs that should by all means be planted now, if they can be procured—the Madonna Lily which makes a rosette of leaves in the fall before resting for the winter, and the Daffodils. Contrary to general practice Daffodils will do better and will give a sturdier growth and a stronger flower if replanted at this time so that they can make a good growth before the ground is frozen.

EFFECTIVE watering during periods of drought which are almost sure to occur during the long summer months, very often becomes a serious problem. The plants undoubtedly need water; but they needs must have it in certain quantities and after certain methods, else the results may prove positively detrimental. When the atmosphere is dry, a mere sprinkling of the surface of the ground will prove of small benefit to growing crops. On a heavy soil the hot sun quickly dries and bakes the surface of the ground, and this hastens the evaporation of moisture from subsoil sources. Water run into trenches that have a slight slope sometimes proves effective, and for some kinds of crops it is the only method possible. In general, it may be said that, while the gardener is about it, he should not merely sprinkle, he should *soak* the ground; and, as soon as the surface dries, should powder it for a "dust mulch."

Here are some schemes for watering that have been used with success. The first is watering by capillary attraction: toward evening, or on a cloudy day, set a bucket of water beside the plant to be watered; in the bucket place one end of a burlap bag, and permit the other end to lie on the ground above the plant roots. In a few hours water will have been gently and evenly distributed to the plant; and as the earth was not packed in the process, there will be no crust formed immediately. Or second, when watering with a hose, tie a burlap bag over the end of the pipe, and lay it at the roots of the plant. The bag will distribute the water evenly, no hole will be dug by the force of the water, and there will be no waste of it in running off, as the more extensive surface of ground exposed to the water will have time to drink it all up.

Still another very effective method of watering is a species of sub-soil irrigation. Between plants of any kind that are spaced in rows, or, for that matter, beside any plant, before the stalks have attained their growth, bury ordinary tin cans, with holes in their bottoms; or use drain tile. These should be sunk until they are flush with the soil. Then let the drought come! Simply fill the cans or tile with water now and then, and the plants will have all the moisture they need. This watering has been used successfully on Tomatoes, Peppers, Lima-beans, Cucumbers, and even on Raspberries and Strawberries.

But these schemes are, so to speak, emergency methods, making the best of an acute situation. It will be better by far to install an adequate irrigation system of overhead or underground pipes according to circumstances, with plenty of water ready for use whenever needed; and bear in mind that plants well grown in their early stage can withstand some dry weather and even like it.

IMAGERY IN THE GARDEN

STEPHEN F. HAMBLIN
Instructor in Plant Material, School of Landscape Architecture of Harvard University

Approached Timidly Heretofore or Altogether Neglected, This Matter of Expressing an Idea Through the Garden, Precisely as Concepts Are Expressed in the Other Arts, Unfolds Limitless Possibilities

"For the things which are seen are temporal;
But the things which are not seen are eternal."

WHAT do the trees and flowers of your garden say of things that are not biological, of things unseen and eternal? Art has its eternal unseen as well as religion. And imagery is very present in other arts, as figure of speech or song motif in literature or music, and directly, in the objects themselves, in sculpture and architecture. Why not metaphor and personification in the garden, and symbol and suggestion? The furnishings of the garden may and do contribute to the hidden meaning to be sure, particularly as the sister arts are brought in; but may not the plants themselves contribute in a way no other feature can? They have character and each is the embodiment of an idea, considered from one aspect. The fact that it is not the usual aspect from which we view them is no valid reason for disregarding it.

The garden is art, and the plants are in part the objects through which this art finds expression. Of all places the garden is the spot where plants speak to us directly, where they express not only their own life story but certain sentiments from association with man. A plant growing in a garden should have meanings and associations that a similar plant in a nursery or

AGAINST MOONLIT SKY AND SEA THE EVERLASTING PINES

Everywhere in the gardens of Japan this, their image of immortality, uplifts the soul, not alone with the marvellous beauty of its tracery but with the lofty thought which it inspires

the wild woods cannot have. Merely because it was planted in that spot it acquires a new range of meanings. Obviously therefore a carefully considered garden has, or may have, much to say that is not measured by the commoner natural laws. Yet we hear little of the symbolic use of plants in gardens to-day; it is a step toward garden perfection that we have yet to recognize, apparently. There is too much of setting forth of plants to please the eye alone, in orderly pictorial array. This thought of garden imagery lifts the garden above the commonplace, gives it a character of its own, and takes its art out of the realm of the merely decorative.

The difficulty has been, I suppose, that the plants are natural

TURNING THE CLOCK BACK ON CIVILIZATION

Hidden in a bit of wilderness on the estate of Mr. John H. Fisher, Redlands, Cal., this campfire shelter, inspired by the ancient adobe dwellings of the mesa, brings to vision a teeming nation moving into relentless oblivion

objects themselves, proper to a garden; and their further suggestive meaning is not easily understood. Yet here we may make effective, even though restricted, use of unusual horticultural forms that the eye marks at once as not wholly natural features, their presence to be explained by further reason than a function as vegetation.

Topiary work for example is in part accounted for as weak imagery, especially when animals and furniture are done in plants. But except in very formal or elaborate gardens this kind of image making has little value, except as reminiscence of the past. The figures do directly suggest definite objects, but defeat their own ends by their very directness—by their broad and altogether literal, therefore clumsy, appeal.

PLANTS may subtly, by associations in the mind of the beholder, bring into the garden natural features wholly exterior to the spot. Willows, Iris, Rushes, and other water-loving plants along a stretch of sand may introduce a sense of water though no water is visible; tufted Junipers and Sweet Fern may (with a few rocks) put a rocky pasture into a piece of level and uninteresting lawn; or even the plant itself may represent the rock or hill or island, as is done in gardens of Japan. The Japanese "dry brook" is another case in point, the complete tortuous water-course being dug, bedded with pebbles and gravel appropriately planted along its banks and bridged where a path demands a means of crossing, precisely as a brook would, or might, be—with not a drop of water in sight nor expected. The imagery is so eloquent, however, in the hands of the Japanese artist, that one's senses accept the suggestion even to the extent of supplying the water's murmur as it would be if this actually gurgled over and among the stones.

The next step beyond suggesting natural objects is portraying esthetic values. This subtler phase is wholly in the realm of art and it need have no connection with nature, religion, or persons or places, though it gains immensely in force of truth if it has visible connection with things actual. Subject to the laws of art and guided by good sense and good taste plant motifs expressive of abstract thought or ethical concepts may perfectly well be created for the garden; for the sister arts have the same kind of thing. In gardens of the past, in all ages of greatness, there has been a great deal of this use of plants.

Some of this we have inherited, more of it we have lost: possibly color schemes for flower gardens are a modern expression of one lesser element or phase of it, though the direct connection is not apparent. Undoubtedly much that we have of plants suggesting mental states, through association—as the "funereal Cypress"—is part of this ancient treasure, but as a garden factor or possibility we are appreciating less and less even the little that remains. Which is lamentable—for it is most difficult to evolve or to control. It should not of course, be forced; but the fact that in gardens of other lands and races certain plants have definite religious, ethical, or other emotional associations, and that we have inherited this feeling through the ages, makes it legitimate and proper for us to make much of this once more, if we can.

IF RELIGION, for example, can express symbolically in plants and planting—as witness the use of the Lily—then the gardens about churches quite as well as church architecture, can contribute to the story of the Christian faith. In the new landscape-cemetery idea there is a possibility that the planting may take on a new significance. Civic ideas of education, transportation, legislation, as embodied in public buildings, might have further emphasis through the adjacent tree planting, as the Plane-tree was the civic emblem in ancient Greece.

Three things are to be considered, separate yet interdependent, when seeking hidden meanings in the use of certain plants in the garden. First there is personal sentiment, which is purely local, accidental, and of little use in another garden. It cannot be manufactured, but used only as some local factor gives it excuse for being. It is therefore special, never general. But second, some personal or local usages of plants, or associations, may at last take on a wider application, and thus become true symbols with a story. (Thus a symbol evolves in a slow way—this is the process from time immemorial. The garden, however, has been less enriched in this manner than other arts, or more probably its riches have been long lost.) And then there is the third thing, which we may call the art-expression, in which the plants, as well as statuary or other inanimate objects, express certain ideas that together convey the story and picture the garden is designed to present. This may be just a simple thought or abstraction, or as complex as imagination can supply.

A CERTAIN plant necessary for a certain story-effect may therefore become sentiment, symbol, and art rolled in one, enormously full of suggestion, showing that it is hopeless to try to separate wholly these three phases of the garden story-telling possibilities of plants.

One value in very direct suggestion comes in the use of selected plants in relation to the natural topography and the environment of the planting. A very little hill can be made to seem much larger by adding a few narrow or erect trees, or even better by stunted, crooked, windswept trees and shrubs to give the feeling of an exposed hilltop. A small valley or meadow becomes larger and more dignified by the planting of a few trees and shrubs with horizontal branches, thus increasing the idea of extent. A narrow section of the garden between two important portions becomes more restricted and alley-like with columnar trees and shrubs in straight lines or wall-like rows.

To a certain extent these uses of irregular, horizontal and vertical vegetation are effective through geometrical similarity, but there are psychological factors of association also. A few trees

or shrubs in just the right spot will give the desired effects; a few more will jar harshly, while yet a few more will clutter the spot and render the whole work meaningless. This kind of image making is in the actual, of course, and only a first step toward the conveying of thoughts and principles. But it is a step.

On the other hand in the placing of certain plants in reference to certain soils or sites we are merely going nature one better. Rock and water gardens owe a large part of their appeal to the obvious relation of plants to situation. And this is supposed to be the essence of wild gardening; but many "wild" gardens are crazy rather than wild. It behooves us, indeed, always to remember that, by restricting some plants to special places or uses, the garden will be no less "natural" and have more purpose (when understood) than the nursery-like gathering of well-grown plants that may make good eye pictures, but lack all other values. Nature practises very rigid selection (ecology) in her planting groups; she does not put everything everywhere.

NOW a word more as to further direct values. Certain plants, perhaps of little beauty in themselves, can be used to emphasize the basic principles of a design; they strengthen or temper the purpose of structural features, as rounded bushes by a turn in the path; horizontal Hawthorns by a small quiet pool; purple-leaved shrubs to deepen shadows of a bay in the shrubbery; trees with small or much-divided foliage to give indefinite distance to a vista. Here the plant is more than an object of nature, but a natural object still.

If the garden is art, and art is expression, then the combination of flowers, trees, grass, walks, seats, sky, and sunshine must suggest universal truths—and my personality, assuming I am the designer. This sounds difficult, yet it must be true. There can be art expression in a flower border as well as flowers; but there is no denying it is very rare these days!

WHERE A GREAT TREE DOMINATES AND INVITES TO REST

Of wood, first painted the color of the Pine-needles beneath and then of those overhead, thus arriving at full harmony of color with its environment, this seat in the Parrish garden at Cornish, N. H., is rich in quiet suggestion

The garden planting in other words should be individual, may be symbolic, and yet must be in strict conformity to garden expression. The very restrictions thus imposed indeed have value—as a sonnet triumphs over a jingle. And this is the phase of garden-story making that can be builded as rapidly as we will, drawing upon what has been done in the past, using the fundamental principles of the art to build upon, expressing the highest in ourselves through the art to-day—and to-morrow.

FILLED WITH THE TENSE QUALITY OF THE MYSTERIOUS EAST

Opulence of tropic vegetation and dominant Palm form, obviously inspiring the form of the fountain spray, embody an Arabian Nights tale in the Palm garden at Millpond Plantation, Thomasville, Ga.

PEONIES THAT WON THE PRIZES

Annual Meeting of the American Peony Society, Reading, Pa.

PEOPLE who grow Peonies are thorough-going gardeners. They come to the meetings of their Society, many travelling great distances, and they bring blooms from afar—the fact that the blooms at the place of meeting may not be in perfection at the moment of the exhibition does not mar its success. Easterners were glad to welcome their Western friends on June 10th and 11th and to talk Peonies in particular, and gardening lore in general.

If a few "high spot" invidious selections may be made probably Therese, Le Cygne, and Jubilee, not forgetting the old Festiva Maxima, will live in the memory of this gathering.

Of course there were others and as representative of the leading varieties we may name the prize winning collections in the open class for ten varieties, three blooms of each. Mr. James Boyd, Pa., took first honours with these varieties: Therese, Le Cygne, M. Jules Elie, Mme. Calot, M. Martin Cahuzac, Jubilee, Felix Crousse, Festiva Maxima, Marguerite Gerard, Mme. Emile Lemoine. The second place, and no mean one at that went to Mr. E. M. Buechly, of Ohio, with La France, Festiva Maxima, Therese, Le Cygne, Jubilee, Karl Rosenfield, M. Jules Elie, Mme de Verneville, Frances Willard, La Verne. These lists can serve prospective purchasers as a pretty good guide for the basis of making a collection that will give both quality, variety, and some rarity.

In the individual classes the prize winning varieties were as follows: White or cream, Duchesse de Nemours and Festiva Maxima; light pink or pink and cream, Octavie Demay; dark pink, Edulis Superba; red or crimson, Louis van Houtte; all of which were shown in the classes calling for twenty blooms.

Mr. Bonnewitz's Jubilee carried off the honors in the six specimens, any variety, with M. Jules Elie the variety in second place. For the best single bloom the variety Le Cygne won both first and second prizes.

In the advanced amateurs' collection of ten named varieties, three blooms of each, the winners were, first: Le Cygne, Kelway's Glorious, Mary Woodbury Shaylor, Mignon, Therese, Lady A. Duff, Boule de Neige, Festiva Maxima, Adolphe Tousseau, M. Martin Cahuzac; and in the second place exhibit the most noteworthy blooms were: Le Cygne, Lady A. Duff, Agnes Mary Kelway. For fifteen blooms of any one variety Adolphe Rousseau took the honors.

In the novice classes the leading varieties were: white, Jubilee, M. Dupont, Avalanche; light pink or pink and cream, Eugenie Verdier, Marguerite Gerard; dark pink, Mme. Geissler; red or crimson, Karl Rosenfield; and the best six blooms from a member of the Society who had never before exhibited the winning display was Souvenir de Gaspard Calot.

Of course there were lots of other varieties and large collections in the display of a hundred blooms each. The range was very great and covered all the favorites already enumerated, and many others. It was notable that the Brand varieties occupied prominent positions in the larger collections—in its crimson class, Longfellow has achieved a front rank place, and Judge Berry, a fine pink was impressive.

The Society has had its most prosperous year and has added 83 members to the roll. Next years' exhibition and annual meeting will take place in Boston in conjunction with the Massachusetts Horticultural Society and it is suggested that Canada be visited in 1922. Mr. Lee R. Bonnewitz, Van Wert, Ohio, was re-elected President with Mr. A. P. Saunders, Clinton, N. Y., as Secretary.

L. B.

A BOUQUET OF PRIZE WINNING BLOOMS

Grown by Mr. Lee R. Bonnewitz in Ohio this three year old root of Jubilee (Mrs. Pleas' production) carried 16 buds, of which 14 were taken to the Reading, Pa., meeting. Twelve won prizes

THE BROAD REACH OF A PATRIARCHAL SYCAMORE TREE IS ALL-EMBRACING
While the American Plane-tree suffers from a fungous disease which does not attack the European variety, magnificent specimens are not infrequent near old dwellings, for the beauty and majesty of the tree were appreciated by the earliest settlers

WALKS AND TALKS AT BREEZE HILL

WHEREIN IS REFLECTIVE, CRITICAL, PHILOSOPHICAL AND FRIENDLY COMMENT

J. HORACE McFARLAND

Of Some Evergreens That Weathered Our Worst Winter and Others That Did Not, Thereby Offering a Mystery to Pique Interest and Discussion

THE Editor tells me that I may talk to garden friends in this column, from time to time, of plant experiences. To start right, let me explain that Breeze Hill gardens are those of a busy man who loves the things that grow on God's earth, who finds his garden work as recreatively effective and absorbing as golf is to some of his acquaintances (though they cannot believe it!), and who has neither the guidance nor the hindrance of any skilled help.

The gardens and the home they surround are really on a hill that is more than breezy in bitter winter weather. The two-and-a-third acres of the plot are very large acres, because of the natural divisions by the old trees and old hedges I found when I came to own this quarter-circle (I call it my piece of pie!) some eleven years ago. These trees—a great and grand Sycamore, a fine Linden, six big Horse-chestnuts, three Pines, seven Hemlocks, and some rather decrepit Norway Spruces, together with a sizable Buffum Pear, two Persimmons and a dozen small sour Cherry trees—suggested certain divisions, confirmed by a picturesque and meandering row of Arborvitaes, ten or twelve feet high and quite on the down grade of life. A dozen old Grape-vines, planted, it was said, in 1858, a vault, a well, a wrecked greenhouse, and an ice-house of similar value, completed the impedimenta of 1909.

The soil? There wasn't much that was arable. Of shrubs, some old Lilacs, a dozen "old-fashioned" Roses in a shaded corner, and a few Deutzias and Spireas; weeds—such as might be expected where cultivation had been minus for five years; Dock and Poison Ivy, Shepherd's Purse and Sorrel, Poke-weed and Plantain, Dandelions galore!

The ideals for these gardenerless gardens developed slowly enough to avoid disastrous mistakes. A good friend who is a great landscape artist showed me the natural centre line, the vertical axis, through the living-room of the house and from the pie's point to the middle of its curved edge, at right angles to the dominant Arborvitae hedge, which gave the horizontal axis. The centre garden was the old greenhouse location, and the

west garden was built slowly on newly graded clay shale. The east garden happened around that Pear tree and the Mulberry and the Apricot I forgot to mention.

It has been the desire to make pictures in plants from, and to, the rambling old house. Also, I have desired to grow and bloom the unusual plants and shrubs; and the folks at the Arnold Arboretum as well as my friends among the more expert nurserymen have helped in the realization. Climbing Roses hedged in the centre garden, the Barberries bound the whole place around, and a dwarf fruit garden—with an espalier for fun—came in due time. My plant appetite has included annuals and perennials, and my human hunger called for plenty of vegetables and fruit.

So this is Breeze Hill, with a decade passed; and the time is here when I ruthlessly pull out as well as hopefully plant in. Not barbered, not extensive, not always neat, certainly not expensive, these gardens give me and mine Roses and Strawberries, Peas and Pears, much pleasure and some perplexity. Now, too, I can feel that others share the pleasure, for there are no gates at the five entrances, and I welcome real plant lovers any time, all the time. They come; sometimes a garden friend, sometimes the laundryman. Breeze Hill is a very democratic place!

HOW THE EVERGREENS WINTERED

NOW that the summer is here, and all growth maturing, one can properly estimate the ravages of the last winter on coniferous evergreens. At Breeze Hill the winter was seemingly waning before any damage occurred to them. Perhaps March did not itself accomplish the harm, only serving to show it. At the end of February no hurt to the trees was apparent, while when April opened some of the family seemed to have been scorched as if by flame.

The old Arborvitaes—Thuya occidentalis—were hard hit, both in the hedge and among the isolated or "specimen" trees. The hurt was not regular, but incidental—that is, out of each ten trees in the hedge, two or three were burned, and one tree on the lawn lost one of its three upstanding stems.

The big Norway Spruces show no especial winter injury, though, as is their sorry custom, they are slowly dying, having in some forty years reached their limit of endurance of this climatic range.

FEW EVERGREENS ARE AS LOVELY AND NONE ARE HARDIER

The Douglas Fir (Pseudotsuga Douglasii) exhausts superlatives since it is one of the tallest, most important; and most rapid growing of Conifers as well as one of the most strikingly beautiful

That heretofore weatherproof conifer, the Japanese Yew (Taxus cuspidata) surprised me. One spreading plant of it did not lose a single leaflet, nor was its deep and rich green modified in the least. Another, thirty feet away, had some tips browned a little, but was not seriously injured. The third, an upright and handsome specimen, had a full fourth bitten out of it, on the north side, and although I have given it special water treatment to the extent of many barrels, but little recovery is in sight, and the wood on the injured side has shriveled.

A NEAR-BY Carolina Hemlock (Tsuga caroliniana) is injured on the same side, and nearly as much, while a smaller plant just a few feet away is uninjured. The northern Hemlock, T. canadensis, was not bothered, nor were any of the Pines. That lovely evergreen, Abies concolor, came through in one specimen without injury, while another was defoliated, but is recovering.

I have, and highly prize, two Douglas Firs, one of the refined bluish form that makes the Colorado Blue Spruce seem like a tree bounder! Neither lost a leaf nor a twig, and both are in splendid vigor, with branches sweeping the ground. The White Spruce was uninjured, as also was the noble brachyphylla Fir (Abies homolepis). Abies Fraseri shows just a little annoyance at a winter which made many marks. The so-called Japanese Umbrella Pine (Sciadopitys verticillata) was wiped out.

That beautiful evergreen, filling a place of its own and indispensable in a garden, the Pfitzer Juniper, took no notice of the terrors of Jack Frost. The other Junipers, both tall and dwarf, and their related "Cedars," were uninjured. The common White Spruce—not much of an evergreen in gardens, to be sure—showed no ill effects.

NOW why were some coniferous evergreens injured and others uninjured? Why did they all pull through the zero temperatures, the ice encasement, and the bitter winds of January and February, some of them as detailed above in Breeze Hill garden hitting hard luck in March?

I do not know; does any one? I have been inquiring from all who think they know, and I get nowhere. One thoughtful investigator at a great university spent chilly hours in the open with his microscope, studying cell structure, at the time when he believed the injury was being accomplished. He was quite sure when he talked to me that he knew all about it, and that the injury occurred because, with the tree substance frozen so as to prevent the easy flow of the sap to supply continuous evaporation, the sudden shining of the winter sun demanded more of this sap than could be transpired, whereupon the cells either burst or burned. When I told him that all the injury to the Breeze Hill conifers was on the northwest side, away from the rays of that winter sun, his theory, so far as those trees were concerned, certainly burst!

Another acute hybridizer and observer blames the injury on ice encasement, but that does not account for parts of the same tree escaping, nor for specimens of the same species close by also escaping. Still another theory holds that, with the ground deeply frozen, the flow of sap is badly interrupted and the tree cannot support the demand for evaporation, whereupon the wind and the sun together burn the leaves. But why should they burn some leaves and not others, as above detailed? Some time we will find out why these frost injuries to presumably hardy trees occur. I hope other readers of THE GARDEN MAGAZINE will observe and report as a help in that direction.

DELICATE GRAY-GREEN IS THE WHITE FIR

This beautiful tree (Abies concolor) native of southern Colorado, where it reaches a height of two hundred and fifty feet, retains its conical form with branches sweeping the ground on specimens forty years old and over, and is a splendid garden tree

A Plant Nuisance

When Breeze Hill Garden was started, a well-intentioned nurseryman wished on me one plant of Polygonum cuspidatum, the foliage, habit, and flowers of which were very pleasing for one season. Observing that it seemed to be disposed to adopt the particular border in which it was placed, I removed it at the end of the second season, but I neglected to plant it properly on the burn-pile, unfortunately putting the husky roots in a corner which was regarded as of no particular importance.

It has been exterminated from that corner every year regularly for the past seven seasons, and I presume will go on and on forever! Its heavy underground roots, resembling nothing so much as an enlarged non-shining strand of dark brown Christmas tinsel, will travel fast and far, sending up scout shoots to the atmosphere every inch or so. If the ground is wet enough and my arms are strong enough, and I get the proper hold at the proper place, I can reduce the evidences of but not seriously discourage this dreadful habit on the part of these roots. They love to worm themselves through the roots of other plants, and they have so treated some very excellent Mallows that I am fain to destroy the latter to get rid of the former.

I mention this confounded plant because I do not find any nurserymen's catalogue which offers it to innocent purchasers, telling the truth about it—or all of the truth; perhaps. It should either be planted in a solid concrete tank without drainage, or with a red flag. But better yet, it should not be planted at all!

(EDITOR'S NOTE: *A walk and a talk are as often the result of circumstances as of deliberation; and, even so, these WALKS AND TALKS AT BREEZE HILL with Mr. McFarland (who among other things is president of the American Civic Association) will occur every little while, as circumstance invites or special occasion demands. As regards the hardiness of the plants of which he speaks, it is to be noted that Breeze Hill is situated just outside of the city of Harrisburg, Pa.*)

LOOKING DOWN ON BREEZE HILL ITS ELEVATION IS LESS PERCEPTIBLE THAN ITS NAME WOULD INDICATE

Hedged round with shrubs and trees it is a little plateau of interest and achievement where we know that not even a daily walk could exhaust interest and novelty—for Mr. McFarland himself says so

PLEASANT PATHS and PERGOLAS in PASADENA

Photographs and descriptions by
ESTHER MATSON

A FLOWER-TWINED TEMPLE OF PAN

In a wide sweep this single colonnade defines the southern bounderies of an extremely formal garden and with its low balustrade provides at the same time a most delightful setting for the statue of the piping Pan which occupies the commanding spot therein. Though not a pergola in the exact sense of the word, such a structure as this is quite as happy an enhancement of the garden, when well placed. Here it has a positive *raison d'etre*, is not blatant nor self-conscious, and is well planted. Known to our Colonial ancestors under the name of "arbor" or "green gallery," structures similar in purpose if not in appearance were a feature of practically all gardens making any claim to distinction whatsoever—and of many which did not. And to all gardens to-day the green gallery is possible if a pergola or colonnade is too ambitious to be considered

A COLONNADED DRIVEWAY

Marking the approach to a stately house, the utmost refinement of line here distinguishes a feature which, in itself, is of most robust conception. The grade and curve of the roadway are also carefully studied, the result being that impression of gracious hospitality and invitation which the home should convey to the approaching guest

PALE SHADOWY IRIS OF LILAC HUE

Stretching away between clipped hedges a long path like this at the right holds, in its shade and colors of shade, the pensive charm which recalls what Eden Philpotts has said—"The Iris is to the garden what Chopin is to music." Le Notre, the great French master of the art of garden making, used paths especially to emphasize effects of distance; and though he dealt chiefly with large gardens in the "grand manner" the principles he developed are as useful in the small garden in the "humble manner"

WINDING INTO THE DEPTHS OF COOLER SHADE

(Below) The pavement of moss-green tile is bordered on one side by grass and on the other side by the glistening Coprosma which in the sultriest season never loses its appearance of being freshly bathed in dew, while overhead the soft foliage of a Peppertree brings John Sedding's "wizardry of green gloom" inevitably to mind

A LOVELY LOITERING PLACE BETWEEN HOUSE AND GARDEN

What can compare, in a land of vivid sunlight, with steps of purplish brick such as are seen on the right, overhung by Wistaria that drapes a pergola whose round columns of creamy stucco record, in the movement of the vine's shadow cast thereon, every vagrant breeze?

A COLUMN OF GREEN SHOOTS SKYWARD

This red brick path leading from the house terrace through a little Rose-roofed arbor to a children's playhouse, reminds us in its directness of those garden paths in the days of good Queen Bess that were quaintly named "forthrights." Straight tree and straight path are well combined

HERE WE HAVE UTILITY AS WELL AS BEAUTY

Backed by a lattice, this simple pergola aids in screening the service-court and provides support for climbing Roses that will, when fully grown and covering it, distract attention altogether from the purpose which it serves. This is highly desirable in any screening feature, since curiosity is never piqued with regard to what may lie beyond if the screen itself is sufficiently important and interesting, architecturally or florally

CHINESE PE-TSAI, THE SALAD MOGUL

A. B. STOUT
Director of Laboratories, N. Y. Botanical Garden

Growing at Last in Popular Favor Is This Gigantic Oriental Which, Though Still Unknown to Many, Has Long Been a Full Citizen in Other Gardens

FROM the viewpoint of the gardener, the proper proof of a salad plant may well be in the successful *growing;* but his wife, the other members of the household, and the occasional guest will hold that the real proof is in the *eating.* Yet these two tests are closely related. The gardener must for example, learn how to grow Lettuce and Celery, since the table quality of the plants is more or less modified by the way they are grown; but nevertheless it is the inherent individual characteristics that give to each its cultural needs and its distinctive merits as a food.

Considered by both these tests, the Chinese Pe-tsai is a salad or leafy vegetable whose merits entitle it to a prominent place in our vegetable gardens. When its cultural needs are understood and met, it is as easily grown as Lettuce, and there are indeed few persons fond of salads, who do not acclaim it upon first trial as the aristocrat of its class. In its general habit of growth Pe-tsai is somewhat like Cos Lettuce, but the "head" of leaves in most varieties is much larger and more compact and the inner portion is more completely blanched.

A SALAD FOR A FAMILY

Truly a giant in comparison with the average head of lettuce and yet it is practically as easy to grow and will mature in 90 days

The thick fleshy midribs of the leaves are juicy, tender and brittle like the best of Celery. The leaves of the inner portion of the head are more crisp, more tender, and have more body or substance than the best of Lettuce. The taste is sweet, with a mild and agreeable flavor characteristic of the most delicious of tender young Turnips. The term "Cabbage" often applied to the Pe-tsai is indeed a decided misnomer: the plant differs from head Cabbage in texture, in flavor, and in palatability—and presumably also in digestibility. In fact, Pe-tsai is more closely related to the Turnip than to the Cabbage, and may well be called a Turnip that runs to a head of leaves instead of producing a fleshy root. And it is an annual instead of a biennial. As a salad the only plant that rivals it in excellence and delicacy is the Witloof Chicory (commonly called French Endive).

The inner half or two-thirds of a head of Pe-tsai, such as is shown in the illustration, is naturally well self-blanched and can be served as a salad alone, or in combination with other vegetables. This portion may be chopped fine and served as a coleslaw. The entire head and especially the outer leaves may be cut in pieces, cooked, and served with a cream sauce. The fleshy midribs of the larger leaves may be prepared and served in the manner of Asparagus, and the plants may be cut at any stage of their growth for use as pot greens quite as Spinach is used. A considerable portion of the crop now produced commercially is shipped to the larger cities, where it not only supplies the Chinese markets but is rapidly finding its way into more general sale.

Without doubt the main crop of Pe-tsai will continue to be grown in autumn from seed sown directly in the field during late July or in August. However, the home gardener may find it an advantage to employ the transplanting method for the autumn crop. Seedlings started in pots can easily be given partial shade and supplied with water during the heat of August, thus providing more fully conditions that are necessary for rapid growth. When handled in this manner plants of a fall crop begin to reach maturity in 60 days from seed. There is little danger of "over planting" the fall crop, as the cool weather which then prevails promotes the keeping quality of the heads and plants may be left standing until after the first frosts. Indeed, rather severe freezing does not noticeably impair the eating quality, but frozen plants shrivel and dry out if exposed to the dessicating effects of winds and sunlight, and this spoils their flavor.

The mature heads may be pulled after the first light frosts and stored in a cool cellar. They may be placed in layers in straw and covered with sand, as is practised in the storing of various vegetables in outside pits; they may be stood upright in a coldframe and packed and covered with leaves or straw; or they may be left standing in the garden if protected by leaves or straw. With the advent of cold weather a banking of earth may be added. In my own garden (in the suburbs of New York City), heads of a fall crop were kept in the manner last mentioned until New Year's day, 1919, when the last head was used. Heads packed in straw just before hard frosts early in November have kept well in a coldframe until February.

Numerous strains or races of the Pe-tsai are already known in America and show differences in time of maturing. Certain varieties produce small heads not much larger than Cos Lettuce. Other sorts, which are reported to be somewhat like Spinach in habit of growth, are suited to late autumn and winter cropping in sections where the winters are mild. Like most plants which are grown for their leaves the Pe-tsai flourishes best during cool

weather. A few years ago the directions for growing it, issued by the U. S. Department of Agriculture, were as follows:—"Not suitable for spring planting. When sown early, it runs to seed without heading. Sow in seed beds late in July; transplant 15 inches apart in rows 2-3 feet apart, in rich moist soil."

From the experiences of more recent culture it has been found that in the commercial growing of Pe-tsai as a fall crop, the seed can be sown directly in the soil where the plants are to mature.

Occasionally planting it for a spring crop is recommended, and one well-known seed firm gives the following instructions:

Plant early in the spring, at the time Lettuce is sown, in drills one-half inch deep in rows one foot apart. Thin to stand ten inches in the row when the plants are three inches high. Sow in the open ground, as the plant is somewhat checked in its growth by transplanting. In sections of the country where the summers are hot, a fall sowing is advisable. Plant the seed, in the same manner as described for spring sowing, in the early part of August. A period of from 120 to 130 days is required to bring the heads to full size."

I have had excellent success in growing the plant as a spring crop in cultural tests at the New York Botanical Garden, and it would seem that the methods used will insure a good crop in spring in almost any locality where the plants can safely be placed in the field not later than May tenth. The treatment given is simply that of growing plants under glass for some 30-50 days before they are transplanted to the field, extra precaution being taken not to disturb the roots in transplanting. The seed is sown in seed pans or in flats any time after March first. When the seedlings are about one inch tall they are carefully transferred to small earthern pots, usually 2-inch size. Before the plants become "pot bound" in these, but after there is a good development of roots, they are shifted to larger pots of 4-, 5-, or 6-inch size as may be convenient. If the season is well advanced the smaller sizes are used. When handled judiciously and transplanted at the right time there is no appreciable check and the plants grow rapidly and continuously. Such plants as the one illustrated, ready for transplanting, can often be grown in 30-40 days. After they are properly "hardened" they can be planted out, preferably during cool damp weather after the danger of frost is past. Five or six weeks later heads of full size are often ready for use. The length of the growing period from seed is thus reduced to 70-90 days. The plants shown here were grown on a good garden soil with no special supply of fertilizers, but were kept well watered.

A HUSKY YOUNG SEEDLING

Out of a 5 inch pot, all ready for transplanting to the garden this husky six-week old is yet carrying its seed-leaves. "Keeping it growing" is the secret of a good salad plant

This method of spring culture is practicable for home gardens when either a greenhouse or a hotbed is in use. Possibly the young plants can be grown in flats instead of in pots, especially if some device is employed to keep the roots of individual plants separate and intact as by the use of "dirt bands," such as are used in growing seedlings of Tomatoes and Melons for transplanting.

Pound for pound, Pe-tsai can be forced as cheaply as Lettuce. It can be grown in practically the same length of time (possibly under average conditions 10 days longer will be required) and a head is much larger. As is the case with Lettuce, mature plants of Pe-tsai, left standing for some time during hot weather, become wilted, the outer leaves die and the main stem shoots up into flowering branches. In the vicinity of New York City there is little loss of this sort however, until in July, and the crop in August of course escapes it completely.

IS THERE A MORE PRODUCTIVE SALAD PLANT

(Left) A typical head of the spring crop photographed June 20; seventy days from seed. It weighed 7 lbs with outer leaves removed. (Centre and right) The heart of the Pe-tsai is composed of tender, juicy and naturally well-blanched leaves. The heart of a single head fills a dinner plate and will serve from four to six persons

RAISING NEW ROSES FROM SEED

WALTER VAN FLEET
Physiologist, U. S. Dept. of Agriculture

The seeds (50) are carefully placed in the soil and then lightly covered

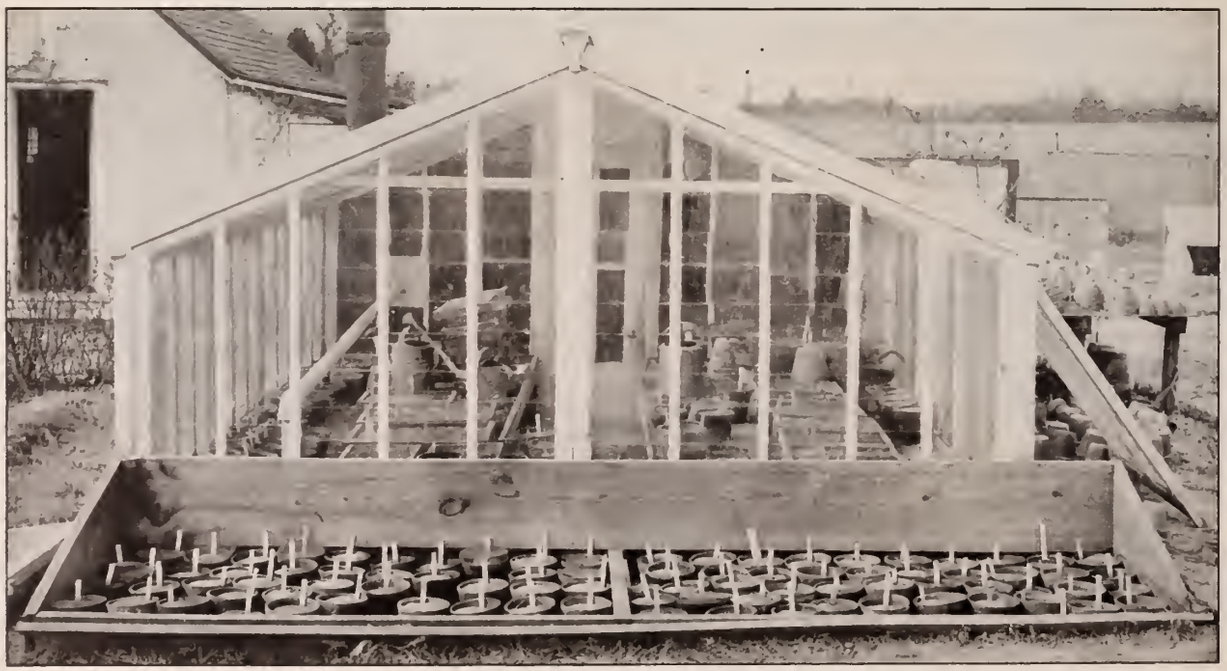
Germination is often scanty in the first year as this pot shows

Five hundred hybrid seeds in this tray planted Nov. 17, 1919 had given only this stand of plants by June 4, 1920

[EDITOR'S NOTE: *Our readers have become more or less familiar with the fact that Dr. Van Fleet has devoted many years of effort to raising new Roses for American gardens, and that we are to-day enriched by such results of his labors as Silver Moon, Dr. Van Fleet, etc. Occasional reference of his work has brought forth a certain number of requests from among our readers as to the way of doing it. And so Dr. Van Fleet tells his own story here. Plant hybridization holds great fascination. It must ever be a labor of love, in which the achievement is the great prize. Hence it is a field of opportunity for the true amateur to be priced in love, not money—in the ever present thought that one's efforts may be of benefit to the world. The work can't be hurried, patience must be exercised for nature's own methods must simply be given direction. The only real "mystery" in hybridizing is the great patience that the worker must exercise.*]

ROSE heps or fruits vary greatly in their time of ripening, according to the species from which the seed-bearing variety has descended. Rugosa Roses, the new Rosa Hugonis, R. lutea, and a few other species, both native and exotic, ripen the hep as early as July and August and they had best be collected before they soften; but the great majority of cultivated varieties, including the Teas, Bourbons, Hybrid-teas, Hybrid-perpetuals, Multiflora and Wichuraiana climbers, do not mature until the fall or early winter.

Opinions differ greatly as to the degree of ripeness best favoring germination of the contained seeds, some growers allowing the heps to remain until well frosted and even partially decayed on the plants. But in my own experience best results follow gathering the fruits when well colored but still firm. The bony



WHAT WONDERS FOR FUTURE YEARS LIE HIDDEN HERE?

In this little glass house and adjoining frame all the manipulation of the seed cleaning, saving and germinating are carried on. The seed pots are held for five years to be sure that every seed has its chance to grow

YELLOW FLOWERED ROSES OF THE FUTURE

Seedlings of Dr. Van Fleet's crosses of Rosa Hugonis, R. altaica, and Harison's Yellow. Hugonis is on the table at the right; altaica at left hanging down; Hugonis seedling with large flowers extreme right; Hugonis and Harison's Yellow cross, semi double second from right. Rosa Wilmottiae upright in centre

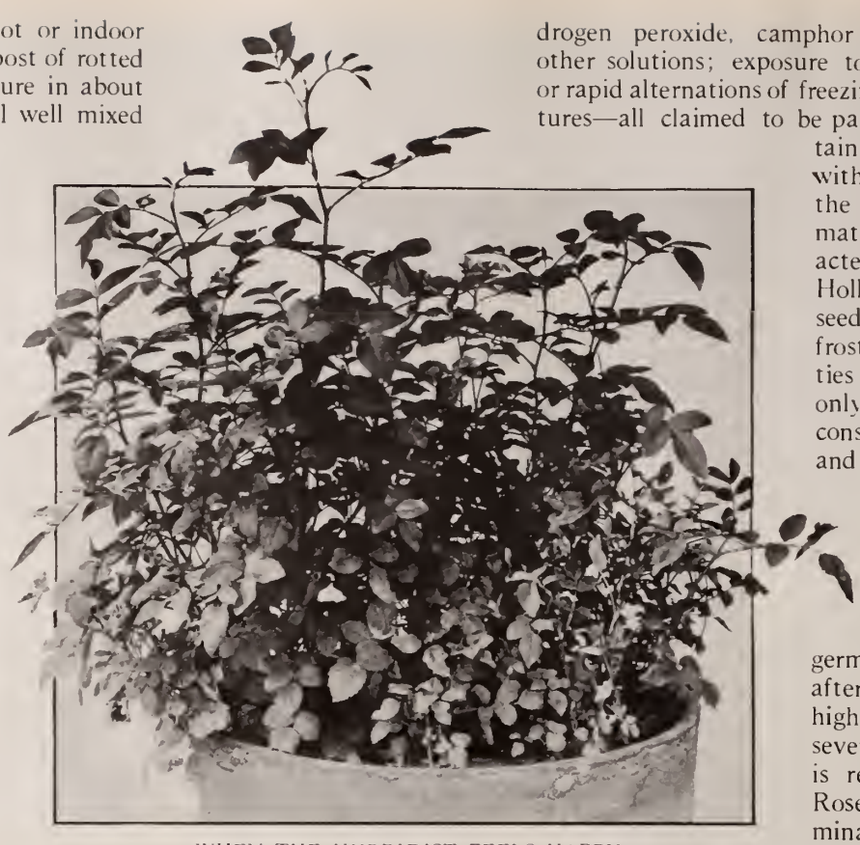
akenes or seeds have at this time slight vital attachment to the hep or fruiting-body, and are mature enough to germinate readily under proper conditions. It is an old practice to place the heps in moist sand and allow them to rot until the seeds are liberated, but I have found no advantage in the process and have even thought this slow method of decay favored disease later among the seedlings.

If the seeds must be kept for any length of time before planting, the heps may slowly be dried in shade, or the seeds removed, packed in small cloth bags and stored in a cool, not too dry, place. If in quantity they may also be stratified in the manner of forest seeds by placing them, after removal from the hep, in layers in pots or boxes of moist sand, secured by wire netting from the attacks of vermin and partially burying the containers in moist earth, preferably in a rather shady place in the garden, where they may be left to the action of the weather throughout the winter.

As a rule it appears best to sow Rose seeds as soon as removed from the heps and this may be done in well-drained pots, flats or box-beds in the garden. Scarce seeds, particularly those representing careful attempts at hybridization, should have a separate receptacle for each variety or crossing, and should always be carefully labeled. When seeds are sown in quantity they are best placed in rows in roomy flats, frames, or seedbeds

in the open. The soil for pot or indoor culture should be a good compost of rotted sods, sand, and fine old manure in about equal proportions. Bonemeal well mixed in at the rate of a tablespoonful to a six-inch pot of soil affords a useful stimulus to the plants as they develop, but other forms of commercial fertilizers should be avoided. In frames and garden beds the soil should be rather more compact in texture to avoid the necessity of too frequent watering. I have had best success in the latter when formed of rather moist loam, but good drainage, so that water does not long remain on the surface, is essential in every case.

Rose seeds are seldom free in germination and appear best sown rather thickly. From 25 to 50 seeds may be accommodated in a six-inch pot—probably the handiest size for the purpose—and they may be sown at the rate of two or more seeds to the inch, in rows four to six inches apart when in garden or frames. Have the soil previously well firmed, the seeds properly distributed, and covered with about half an inch of clean sand, smoothly pressed down. If in frames or open beds the seeds may now be left largely to the course of nature, except that weeds and other encroaching vegetation should carefully be removed; but pots, boxes or flats, whether under glass or plunged in the open, will need regular and copious waterings.



WHEN THE HYBRIDIST FEELS HAPPY

Here is an exceptionally strong stand of seedlings of a Rosa Soulieana hybrid

GERMINATION, except among the dwarf Multiflora or "Polyantha" varieties is most uncertain. Seedlings from the same gathering may come up at irregular intervals, from a few days after sowing to several years! Tea and Multiflora seeds sometimes germinate within a week or two under warm, moist conditions; Hybrid-teas and Hybrid-perpetuals may require many months, some lying dormant as long as *seven years* and then coming up with considerable vigor. Seeds of Rosa Hugonis, R. wichuraiana and other hybrids usually germinate the following spring if properly sown when ripe and well exposed to frost, but occasional individuals come up in a few days under specially favorable conditions. Sweetbrier, Dog Rose, Rosa Hugonis, R. Soulieana and the seeds of a large number of old world and native species usually lie dormant until the second year after sowing, though there are individual exceptions. They are best grown in seed beds under ordinary garden conditions. Roses of the Tea, Bourbon, and Rosa gigantea sections, R. Banksiae and the Cherokee and Macartney Roses and probably other tender forms from southern Asia, require greenhouse treatment practically at all times but seedlings of the general run of garden and dooryard Roses may very well be grown without glass protection if one has patience to wait for their tardy germination. Seeds of the little Polyantha nana Roses offered by dealers may be grown in an ordinary window box like Cabbage or Tomato plants and should profusely bloom the first season.

A MULTITUDE of experiments have been tried to hasten the tardy development of Rose seeds. Soaking in hot or cold water; immersion in concentrated sulphuric and other acids or alkalies to char or soften the bony hulls; treatment with hydrogen peroxide, camphor water, manganese and other solutions; exposure to intense chemical cold or rapid alternations of freezing and thawing temperatures—all claimed to be partially effective with certain other seeds—have failed with Rose seeds. Beyond the slow wait for after-maturity, apparently a characteristic of Rose, Hawthorn, Holly, and some other bony seeds, the normal action of frost and the solvent properties of snow water appear the only agents worth taking into consideration. That frost and snow are not actually necessary, even though advantageous, may be concluded from the fact that seeds of some of the most dilatory species of Roses have germinated in the greenhouse after continuous exposure to high temperature for five to seven years. Great patience is required of the seedling Rose grower. Hope of germination should not be abandoned until examination shows that all of the hard shells have decayed and the contained germs have perished. Tender Rose seedlings, of the everblooming classes, particularly those raised from Hybrid-tea parents, require close attention and are best cared for in a well-equipped greenhouse, though occasional plants may pull through under frame or window garden conditions. Mildew, aphides, and black spot (an obstinate leaf disease of this section), claim a large proportion, even under expert care. Many runts and cripples, the result of uncongenial cross-pollinations at some period in the life history of the parents, are sure to result and can rarely be induced to thrive, but a fair proportion of reasonably vigorous plants, capable of being reared to blooming maturity, may be expected. These may be transferred to small pots of the deep form used for Rose cuttings and grown on until large enough to be set in the garden.

Seedlings of the hardy garden varieties of Roses had best remain where sown for the first season even if quite crowded, and removed the following spring to trial rows or beds, setting them two or more feet apart each way. Rose seedlings of the hardy types will endure considerable cold and exposure when small, but should have moderate protection against unusual frosts. Deep, rich soil and an open sunny position in the garden are needed for best results and these conditions should be striven for to the best of the grower's ability. The soil about the plants should always be well worked and they should never be interfered with by weeds or other near-by plant growths. A situation in full sunlight is always best for young Rose plants.

Seedlings of the various constant-blooming varieties usually attempt to bloom when quite small—in some cases even in the seed-leaf stage—but these precocious efforts greatly retard gorwth and should promptly be suppressed in the interest of future development by pinching out the tiny buds as soon as they can be distinguished. The plant must have reasonable size and vigor before it can perfect blooms of normal character for the variety and considerable time must elapse before their special merits or lack of merit can fairly be judged.

Plants of the large-growing garden classes bloom the second or third year from seeds if sufficiently developed, but several seasons further are often required to fully determine their gen-

eral character. If hardy Rose seedlings are grown all coddling after the early stages should be avoided. Give good attention and fair wholesome cultivation, but avoid too great anxiety to preserve the weaklings. Frost, drought, and disease, within reasonable limits, should be allowed to take their toll, as only the inherently vigorous individuals should survive. The preservation of weak-growing varieties, be they never so attractive, is the bane of Rose culture. Good, healthy, free-growing and profuse-blooming novelties, and an occasional exception of striking character, needing the minimum of care in after culture will be raised in the future as in the past, if only abundance of seedlings are grown from superior parents.

A VISIT TO THE ROSE FACTORY

J. HORACE McFARLAND

IT WILL be noted that I do not write of *a* Rose factory, but definitely of *the* Rose factory. A number of Rose-workers are now hybridizing Roses in and for America, and I do not minify the worth of their efforts and their results when I refer to Dr. Van Fleet's establishment at Bell station, in the wilderness between Baltimore and Washington, as the one place where the most effort and the broadest effort is proceeding to produce better Roses, or rather better outdoor Roses, for American door-yards.

Other hybridizers are seeking continually for size, color, and commercial quality in that special field which flourishes under glass and markets a cut product. Captain Thomas is breeding broadly and intelligently toward the eventual hardy everblooming climbing Rose with initial successes, and some casual rosarians are adventuring in climbers by conventional crosses.

But Dr. Van Fleet, with the wide reach of the Federal Department of Agriculture back of him, with command of the native forms of all the world, with long years of experience and the patience bred of many efforts, and most of all with that uncanny sixth sense of feeling for what he cannot see, is uniquely working all the time, every day—and long days of non-union hours at that!—toward his goal of the Rose that will take its place with the Lilac and the Hydrangea as a hard-luck shrub, found in every bit of ground near a home that has room for a single plant.

NOT THE CONVENTIONAL IDEA OF A ROSE BUSH

Rosa Hugonis is a flowery shrub of unusual merit, giving its clear yellow blooms in the earliest spring and in rich luxuriousness. One of the new and perfectly hardy plants from Western China

ANY honest Rose-lover will admit that the highly-developed Hybrid-tea Roses of the day, lovely as are their blooms, are difficult and elusive as plants. They are subject to bugs and bothers, and Jack Frost lays his chill hand upon them with annual frequency. When they are at their June best of bloom, the flowers are marvelous, but the bush has little to commend it, and in the heat of our July and August days it is all too often leggy, leafless, and lorn. We coddle it then with sprays and manures, and hope for the fall days of regenerating coolness, in which before freezing we may expect to have some new growth and some wonderful blooms.

Yet the fact remains that most American homes having a bit of ground to serve as a garden are practically Roseless. Indeed, the total sale of Rose plants in the United States in 1920 did not provide more than one fifth of a Rose plant for each home in the land—and when I consider that my own little garden had about a hundred new plants I feel like a Rose robber!

The truth is that the Roses of to-day do not commend themselves as universal and easy shrubs, and therefore most of us know them by grace of the florists and by tradition of our grandmothers' gardens.

It is to meet this need, to put the influence of the Rose into more homes and lives, that Dr. Van Fleet is laboring. He hopes to furnish the land with Roses that are not only lovely when in bloom, but are sightly garden plants when out of bloom. He wants to provide these Roses with resistance to cold and to disease, so that they will be as dependable as Mock-oranges.

Several visits to his Rose factory in May and June show progress, gratifying and astonishing to those of us who admire, but merely encouraging to the Doctor himself. He has new varieties of entrancing loveliness, covered with broad single and semi-double blooms from purest white to clear lemon yellow, and with tints of salmon and pink. He has shrubs with carmine blooms, and the whole gamut of reds is being run through his working in the deep-toned Roses (especially R. Moyesi) of far-away China.

Hardy yellow Roses have been more of a hope than a fact in America. We have several, but they are painfully deficient as shrubs. The introduction in recent years of the Chinese Rosa Hugonis has added very notably to our resources, both as to color, floriferousness, and shrub quality. Hugonis is a lovely rose, and it adds not only color and good habit to the garden, but as well is desirably early to bloom, anticipating other roses by half a month and continuing for about three weeks to furnish its arching wands of clear and lively yellow.

Despite its reluctance to produce fertile seeds when crossed with other species, Dr. Van Fleet has succeeded in doing wonders with Hugonis. With the fine Rosa altaica it gives forms of great beauty in bloom, foliage and plant. Flowers measuring as much as three inches across are seen on the plants of these hybrids, with foliage that is different and pleasing, and with a graceful shrub habit.

CROSSED with the familiar and excellent Japanese Rosa rugosa, Hugonis has yet dominated even this vigorous form to a notable extent and the resulting hybrid seen in May was semi-double, full and large, beautifully cupped, and in pleasing pink shades. Some of these rugosa crosses are dwarf in habit, giving promise of a desirable border form, utterly different from anything now in our gardens.

Another intermixture of Hugonis is with a white form of rugosa, and the hybrid surprisingly shows pink shades, the sulphur heart of the full flowers—averaging nineteen petals each—being the Hugonis contribution. This beautiful bloom does not fade to pure white, retaining its distinction to the end.

Hugonis crossed with the fine American Hybrid-tea Rose Radiance has given, five years from the seed, a plant of good form, covered with very fragrant semi-double blooms of light salmon pink, tipped with a deeper hint of Radiance. This hybrid is a Rose delight.

Rosa Moyesi is a very distinct Chinese wild Rose, the sizable flowers of which, in the best forms, are a peculiar and pleasing deep dark red, while the hint of blue in the green of the foliage, and the strongly upright growth of the canes, further distinguish it. Dr. Van Fleet has worked wonders with Moyesi. One hybrid with Wichuraiana shows large single blooms of glowing crimson surrounding a white eye, which in turn encircles bright yellow stamens. The bush is of vigorous pillar habit.

Another Moyesi hybrid is with Rosa Engelmanni of the American west, and it seems to Dr. Van Fleet a conspicuous and desirable sort. The flowers are large, of even bright carmine, which does not fade blue, though the foliage has in it a distinct bluish tint.

Along the approach to the Rose factory, on one visit to it, were blooming certain brilliantly crimson double Roses, which proved to be of an unnamed rugosa hybrid—just an incidental treasure. Dr. Van Fleet has used rugosa effectively for many years, and is yet at it, as we have seen. He has some fine hybrids between Wichuraiana and forms of the "China" Rose, one of which, "W. C. 24," blooms its pink flowers constantly on a dwarf and very attractive bush. A hybrid between the favorite white climber Silver Moon and the old Tea Rose Isabella Sprunt, provides full flowers in clusters of a delicate lemon shade. What the hybridizer calls a first-rate hedge Rose, because it is of suitable form and blooms throughout the season, has in it a mingling of rugosa with Triomphe Orleannais. It has been sometimes called Rosa Iwara.

BUT I may not continue to catalogue the exhibits, lest I run out of adjectives, or commit the familiar solecism of describing each of these really "new creations" as "the best ever." The whole display is fascinatingly interesting to a Rose lover, not only because of the sheer novelty and beauty of the Rose hybrids, but because of their great importance to this yet Roseless land of ours.

Here, I firmly believe, are some sorts that will put Roses in the yards and in the hearts of hundreds of thousands of Americans, when once the official red-tape and the unofficial but very real terror of Congress have been overcome. If the American Rose Society can be an instrument in arranging to help in proper commercial distribution of some of these new Roses, it will again justify its increasing influence and membership. Recent correspondence with the Secretary of Agriculture, Mr. Meredith, provides hope for a working arrangement for dissemination under equitable conditions.

A FEW FACTORY SAMPLES

Part of the Rose garden where Dr. Van Fleet gives his "creations" their try-out. In the foreground a promising Wichuraiana and Pernetiana hybrid. Blooms 4-in. in diameter, cream-white with salmon centre, "as double and as perfect as a Dahlia"

A PATIO PLANTING IN FLORIDA

WILLIAM A. COOK

WHERE THE COOLNESS OF THE PLANTS OFFSETS THE HOTNESS OF THE BUILDING

A happy association of house and garden that characterizes the semi-tropical home where the sense of "coolness" that belongs to growing plants is drawn upon to provide the proper atmosphere in an inner court or sort of roofless room. Here also opens up a large field for harmonious planting and furnishing schemes

THE inner court around which dwellings in certain tropical countries have always been built, provides a combination of outdoors that is literally within-doors, since it is enclosed by the rooms of the building yet open overhead to the sky and the elements of rain and sun and air. Hence it is a spot wherein true out-of-door vegetation of large size may be used, as well as lesser plants; and a rendezvous whose intimate character demands a planting of carefully considered detail.

The atmosphere of splendid lofty strength created architecturally in this residence of Mr. James Deering, at Miami, Florida, might be further emphasized by the use of strong growing, woody vines trained up the blank wall spaces and then carried horizontally along the balcony, Bougainvilleas being especially fine for such a situation. These may be had in other colors than the familiar purplish hue, the rose pink being lovely or the crimson lake shade of red—or the brick red, for brilliant tropical effect. This is a suggestion as an alternate treatment for such a spot, if trees were not desired. Vines alone, with a ground planting of Palms, will produce a sumptuous result.

The large trees (Pithecolobium dulce) of the present scheme however, supplemented by the tall, slender, delicate foliaged Parkinsonia aculeata (seen at the right, supported by Bamboo stems) furnish a variety of interest and an outdoor leafiness which only a patio admits. Some of the Palms that keep them company are Livistona chinensis (at right) and Cocos plumosa or C. flexuosa (left of centre); and then there are Crotons in the corners and English Ivy low down—neither exclusively tropical yet both fulfilling their purpose—with the delicate tracery of Bignonia unguis-casti beginning to show on the wall.

AN ADJUSTABLE TYPE OF GARDEN

MARTHA HASKELL CLARK

Developed with Special Reference to Areas of Miniature Size, the Japanese Style of Garden Design Admirably Adapts Itself to City Conditions

MORE and more are the city dwellers endeavoring to secure for themselves a modicum at least of the pleasures of the garden. And though many of the commonest things of the ordinary garden are denied them—such as the long vista over a park-like expanse of sward, or the trim perennial border, or the broad pathways and general air of spaciousness of the country—the particular type of garden with which we are here concerned, which has been carried to such perfection by our friends the Japanese, is eminently suitable and perfectly possible.

None in this country—save a Japanese himself—can hope to have a veritable Japanese garden; and none should for a moment aspire to have. For the true Japanese garden is a natural outgrowth of race sentiment, tradition, and not infrequently religion, and requires years of unbelievably careful planning and minute attention to details before it reaches completion. Moreover, when it is at last complete the most admirable example of the Japanese garden might seem very bare and flowerless and unlike a real garden to our untrained, hence perhaps unseeing, western eyes.

DEEPENING SHADOWS FULL OF MYSTERY

A true Japanese garden, an expression of tradition, sentiment and often religion, is not a practical possibility for Americans but the method may be adopted as here where the diminutive scale brings a sense of a greater expanse on a confined area

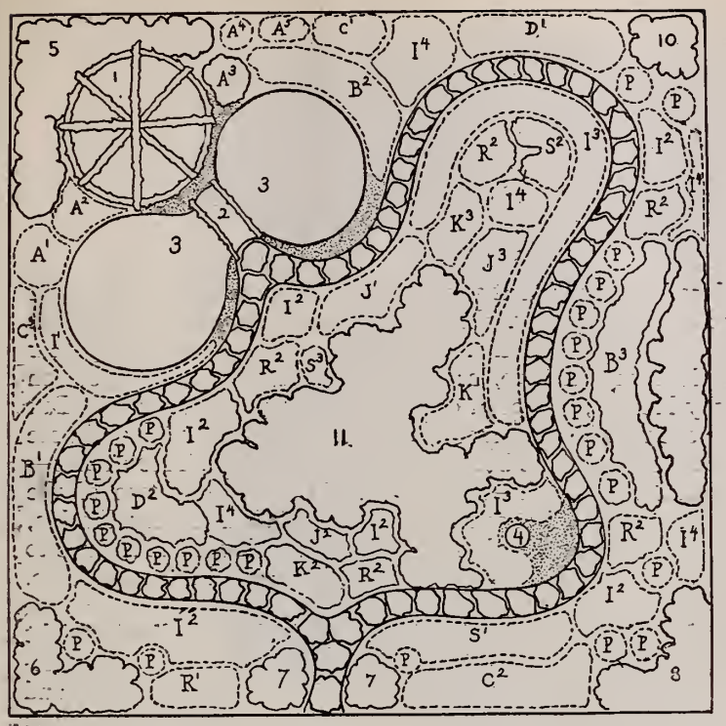
It is simply the Japanese garden type, so often wrongfully called a "Japanese Garden," that offers so many invaluable suggestions to the owner of a city lot or a small suburban place. For it allows of narrow winding paths that make the most of the tiniest area's dimensions in an astonishing way, of sharp turns and twists that afford delightful opportunities of surprise and garden interest, of vistas in miniature, of tiny cascades and water-gardens, in short, of full and artistic use of every available foot of space. Such a garden can be admirably developed within a plot of ground from twenty-five feet square up.

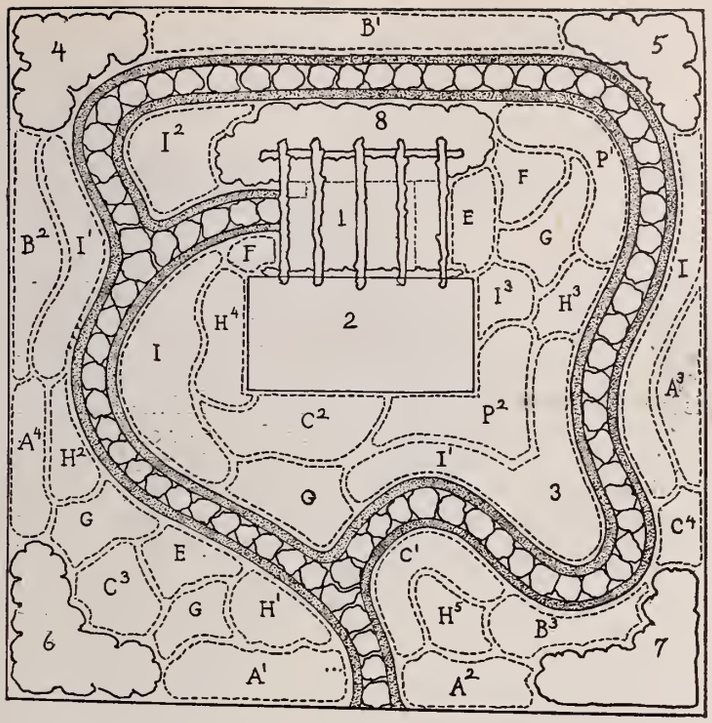
The two designs given on the opposite page are based on the assumption of a larger area, these having been prepared for a space fifty by fifty feet in size. But there are suggestions in them that will apply to almost any size plot; they may themselves indeed be elongated one way or the other to fit a narrow space, and the planting reduced until it likewise conforms. Planting keys for each accompany them, garden number one having been planned for both garden display and cut flowers for the house, garden number two for garden display primarily.

Key to Design I:—1, Arbor or tea-house with annual and perennial vines: 2, Rustic bridge: 3, Water-garden, with Water-lilies and Nelumbiums: 4, Stone lantern with vines: 5, Japanese Cherry: 6, White Lilac: 7, Forsythia: 8, Persian Lilac: 9, Mock-orange: 10, Japanese Quince: 11, Hybrid Rhododendrons mixed: A-1, Bambusa Metake: A-2, Erianthus Ravennae: A-3, Miscanthus (Eulalia) japonica variegata: A-4, Bambusa Henonis: A-5, Arundo Donax variegata: B-1, B-2, B-3, Hemerocallis flava, aurantiaca and Thunbergiana: C-1, C-2, C-3, Japanese Maples vars: japonicum aureum, polymorphum dissectum, atropurpureum, and rubrum: D-1, Azaleas in yellows and flame color: D-2, Azaleas in pink and white: I-1, I-2, I-3, I-4, Iris vars. Siberian, Flag, Japanese, and Oriental: J-1, J-2, J-3, Japanese Anemone Whirlwind, Queen Charlotte, and Prince Heinrich: K-1, K-2, K-3, Oriental Poppy Goliath, Princess Louise, and Silberblick: P, Japanese Peonies in mixed single and double: S, Shasta Daisy: R-1, Rugosa Roses, single pink and white varieties: R-2, Hybrid Tea Roses, Irish Star, Irish Fireflame, etc.

Key to Design II:—1, Rustic thatched arbor or tea-house with vines: 2, Water-garden with water plants: 3, Stone lantern with vines: 4 and 7, White Lilac: 5 and 6, Purple Lilac: 8, Persian Lilac: A-1, A-2, A-3, Pink, white and scarlet Mallow: B-1, B-2, B-3, Azaleas in flame and orange, pink and white, and white and pale yellow: C-1, C-2, C-3, C-4, Aster laevis, nova-belgae flore plena, puniceus, and novae-angliae: E, Oriental Poppy: F, White Day-lily; G, Pyrethrums double and single in white and shades of pink: I-1, Flag Iris in lavender, white and yellows: I-2, Japanese Iris: I-3, Siberian Iris in dark blue and white.

As a final warning (the idea of a Japanese garden is so insidious that warnings are continually needed!) let me again say that here is a type of gardening distinctly national, speaking a language, we may say, of which the most of us are ignorant—if not altogether unaware. Let us adopt its suggestions therefore, but *never undertake to copy* a Japanese garden—unless the entire area can be wholly and completely hidden.





DESIGN I
(above)
With a view to utility as well as effect an abundance of flowers for cutting for indoor use may be had from the Lilacs, Azaleas, Iris in rich variety, Oriental Poppies, Peonies, Roses, and Japanese Anemones. And every bit of space is brought into use with the minor effect of water to give greater expansion

THE CHARM OF WATER

Be it ever so tiny and humble the Japanese motif seems to demand the introduction of water. It not only lends a certain air of life but is forceful in setting the scale for the whole surroundings, and in reflecting the changing shadows of the hours it becomes the central feature of interest

DESIGN II
(above)
Here we have a garden planted on a more reposeful scheme with a rustic shelter secluded in one corner, the central space filled with evergreen shrubs. This is a garden to be entered into for its own sake. The Japanese atmosphere is further emphasized by the placing of two stone lanterns guarding the way to the rustic summer house

A TROPICAL TREE FOR THE SOUTHERN GARDEN

ROBERT S. WALKER

A Relative of the Dwarf and Well Known Prickly-Pear This Attains Large Proportions and Becomes a Veritable Tree, At Once Curious and Useful

THE one species of Opuntia that is the most abundant in gardens, common in the eastern and southern part of the United States and grown on rockeries in the north and in Europe, is the Prickly-pear (Opuntia vulgaris). This is a low-growing plant but in the evolution of the family we see others approach the perfection of a forest or orchard tree. Opuntias grow from the Dominion of Canada southward to Mexico, and embrace more than 125 species. These plants will always attract attention for their oddity, and for this reason they have been grown for many years in greenhouses. But a peculiar thing about them when they are grown for ornamental purposes, is that they are rarely ever satisfying. The grower who keeps them simply as a curiosity is usually not satisfied when he learns of the dozens of other varying types, until he has at least observed them too. The fleshy succulent stalks and foliage carry a peculiar charm that is so different from other plants that they will always be well worthy of a place in the garden.

The larger species long ago passed into the utility class, and have become plants with a dual purpose. They found a use long ago as an ornamental and defensive hedge plant, at the same time producing an edible fruit. Used for hedge planting, they reach the acme of perfection in beauty when they are in bloom. The predominating color is yellow, and a profusion of flowers mixed with the odd stems and foliage, followed with the bright colored pears or fruit, add an original expression to the lawn or garden in those regions that are warm enough to support them.

THE beginning of the Opuntias for use as a food is not known, for when the early Spanish explorers came to the United States the aborigines were cultivating some species for the fruit. The habit of carrying away specimens of everything as a curiosity was a strong one with these early Spanish explorers and specimens of Opuntias were taken back with them and plantings were first made in the Canary Islands, and in the Azores. It was quite natural that they should soon be disseminated to other near-by countries, and so these plants soon found a home in Portugal and in Spain, and from there they spread rapidly to all the countries that border the Mediterranean Sea.

From the latter territory they soon reached the Asiatic Continent, South Africa, and Australia. In many of these countries, although introduced for their value as a garden crop, they have escaped to near-by fields, and became so thrifty that they are regarded as a great pest, for they obstruct the advancement of many profitable crops.

The Opuntia's habit of storing moisture in its stems and leaves and then producing a perfect array of sharp spines for protection at once singles it out as a plant of the desert or semi-arid country. Where rainfall is abundant the smallest species are found growing. For example, the common Prickly-pear previously referred to, is a low spreading plant, thriving out on rocky barrens, and even on the top of large high stones. But any one who is familiar with our common Prickly-pear will see a great resemblance between its foliage and the Tree Cactus—Opuntia brasiliensis—which grows into an erect tree of the forest. When I first saw this tree growing in Leesburg, Florida, it attracted my attention immediately, for it seemed strange to see a tree with the foliage so much like the dwarf I knew elsewhere.

THE tree shown in the photograph is about 20 feet in height and about 8 inches in diameter. It belongs to an interesting group of a genus of which there are three species, each and every one a native of the damp forests of Eastern South America. One species is found growing in Northern Argentina, and the other was found growing in Bahia in the year 1915 by Mr. J. N. Rose, Associate Curator, Division of Plants, of the Smithsonian Institution. The only species of the tree, however, that has received cultivation is the Opuntia brasiliensis. This has been transplanted to middle and southern Florida, where it seems to thrive. The trunk and branches of this species are covered with many thorns, and the flowers are yellow and measure about two inches broad. The fruit is yellow and juicy. The two other species belonging to this group of Opuntias bear oblong fruit of a red color.

ARMED CAP-A-PIE IS OPUNTIA BRASILIENSIS

No amount of stand-offishness however dissuades from the enjoyment of its fruit where this tree is cultivated, though many would call it insipid

Opuntia brasiliensis seems to have acquired a habit directly in opposition to the most of the large thrifty species of Opuntias, for it thrives in damp regions, while they seek the deserts. In this connection, however, it is to be noted that the essential thing for all Opuntias is thorough drainage rather, perhaps, than an arid, dry situation. And as to their tropical or semi-tropical requirements, it would seem that if they have the porous, well-drained soil which they like, a sunny exposure, and sufficient length of growing season to enable them to ripen their fruit and their annual growth, they will endure "almost any degree of cold to be experienced even in the most northern portions of the United States." Certainly they will succeed anywhere that Corn will grow and come to maturity. Members of the Cactus family generally may not be popular in gardens because of their often grotesque appearance, combined with an armament of spines that makes them painful to handle. But none ever fail in enthusiasm for their beautiful flowers, while their adaptation of form to extreme environment is a marvel to the student.

IT'S ALL IN THE GROWING

To the home gardener berries of surpassing size and quality are possible, because extra care and attention can be given. From beds planted at this season with plants that are not checked, but kept growing in good soil, and given space, there will be commensurate returns

LUSCIOUS STRAWBERRIES FOR YOUR OWN TABLE

S. A. HAMILTON

It's a Matter of Attention to Details Which Are Impossible for the Commercial Grower. But the Result Is Surely Worth the Effort

WHEN I built my home in a country town I found that if I desired to have nice fresh strawberries in season I would have to grow them myself, as the available supply was small and poor.

My lot was cut out from the edge of a large Maple grove. Suffice it to say here, that the good top-soil was but two inches thick. The sub-soil was more than two feet deep, and loose and friable, being what was locally known as "rotten-clay," a lime-stone-clay dessicated by the many roots which had grown through it, and the action of time and the elements.

The clearing away of the portion of the lot to be used for Strawberries was begun in mid-summer while the building was erecting, as I desired to set out the plants in mid-August. Many cart loads of stones, rocks, bits of timber, and roots without number were taken out before it was fit for use. During the preceding year I had started a large compost heap, made from soil, sods, grass, manure, bone-meal, and lime, and from this I procured enough to put a top-covering of six inches over the strawberry patch. This was given a top-dressing of horse manure from a stable where leaves had been used as bedding, to a depth of two inches, and the whole dug in to the full depth of a spade, bringing sub-soil to the top. It was given a heavy dusting with powdered lime (air-slaked) and allowed to lie unraked until needed.

Up to that time I had only grown Strawberries at home on the truck-farm in a large way, with horse labor, and with only

indifferent results in the matted-row system. I determined that I would grow the berries in my home garden as individuals under intensive cultivation, in an effort to get the best possible returns from a few plants.

One hundred and twenty five plants, potted ones, procured from a first-class plantsman, reached me on the twelfth of August. I heeled them in and went to work to get the plot ready. Of course 50 more plants could have been accommodated in the "matted-row" system, but "intensive" culture was the order of the day.

The ground was gone over with a mattock. This brought up another cart-load of rubbish to be hauled away, and put the soil in excellent mechanical condition. Just here the first mistake was made in forming ridges with the hoe on which to set the plants, and I made them too high! On these ridges the plants were set a foot apart, and as they were pot-grown they never showed that they had been disturbed, but soon established themselves and by freezing weather I had a nice looking bed of plants.

And now another mistake. I mulched heavily between the rows, or rather around the plants, as they had been set "checkered." I paid little attention to the plants until the snow disappeared in the spring, and the first warm day reminded me of them; when I found most of them hanging in the air on the tips of their roots. Owing to the high ridges, and no mulching over the plants, they had frozen out, and were practically worthless.

On the advice of a friend, I pulled them out and started again, setting young plants out in the same manner as before; but, I again grubbed over the plot, removed some more roots and stones, and set them level instead of on a ridge. They were kept cultivated and weeded like any other garden crop during the first season, and all runners and blossoms pinched off, to increase the size of the crowns.

The next winter the whole bed was mulched with manure between the rows and straw over the plants, to a depth of six inches. When the snow began to melt in the spring I watched them carefully to see that none of the straw blew off the plants, and did not lose one. After removing the straw the manure was worked in between the plants with a shovel and the large outside leaves, most of which were brown or rusted, were pulled off.

When the buds came each plant was carefully gone over, allowing not more than six blossoms to remain to a plant the first season of bearing to conserve enough for plant building because I desired extra fine large berries later on for my own table. At this time I put a handful of chaff around each plant to keep the berries out of the soil.

The size and quality of the resultant berries was a revelation! I picked in one day thirty-six berries which filled four chip baskets, quart size, even full, and others as large at other times. These extra large ones were from the seventy five Bubach No. 5 plants. The other plants were Marshall, and were as fine in every way as the Bubach, but were more round and deeper, and not quite so broad. Sliced strawberries for breakfast were common with us that season.

When the bearing season was over the plants were cleared of the chaff, and worked after every rain and kept free from weeds during the season. The winter treatment was the same as the previous winter, and on up to the time of blooming. That season I removed as nearly as I could one third of the flowers from each plant, leaving the largest ones on the stems.

I had as many as three flowering stems from one plant, with an average of more than two, and when the crop was gathered there were forty-one quarts to the credit of the plot and the crop was more uniform in size as to the two varieties.

The patch got the same treatment for one year more, when, after bearing, I set two-inch pots beside each plant between the rows, sunk to the brim. In these I rooted but one runner from each plant, and when they were well-rooted, cut them loose, and, late in the fall, removed the pot, depotted the plant, and set it back in the hole left by the pot, and I had another plot started, which gave me similar results until I moved from the place, each setting of plants being allowed to stand three years.

This method of growing Strawberries would not do for the commercial grower, but it makes possible choice berries for the home table, where there is room for setting out one hundred and twenty five plants, checkered, on eighteen inch centres.

A RARE LUXURY IN WINTER

In this greenhouse along with Carnations for cut flowers and Parsley as an edging Strawberries are grown on a hanging shelf

AND IF YOU HAVE A GREENHOUSE

Ripe Strawberries in February or even earlier can be had with the aid of a greenhouse or some other glass structure where the plants may be forced. The potted plant is lifted from the open bed and repotted into a large size (6 inch) pot using the regular strawberry-bed soil, with drainage provided, of course, to accommodate the frequent waterings. Placed in house or frame they are kept growing till fall, and then "ripened off" by drying. Allow to freeze and then begin forcing, allowing 8 to 10 weeks to fruiting time. Begin at 35 degrees day and night, increasing to 50 degrees and finishing at 80 degrees day with, 60 degrees night.

THE ROMANCE OF OUR TREES
XI. TREES OF COLUMNAR GROWTH

ERNEST H. WILSON
Assistant Director, Arnold Arboretum of Harvard University

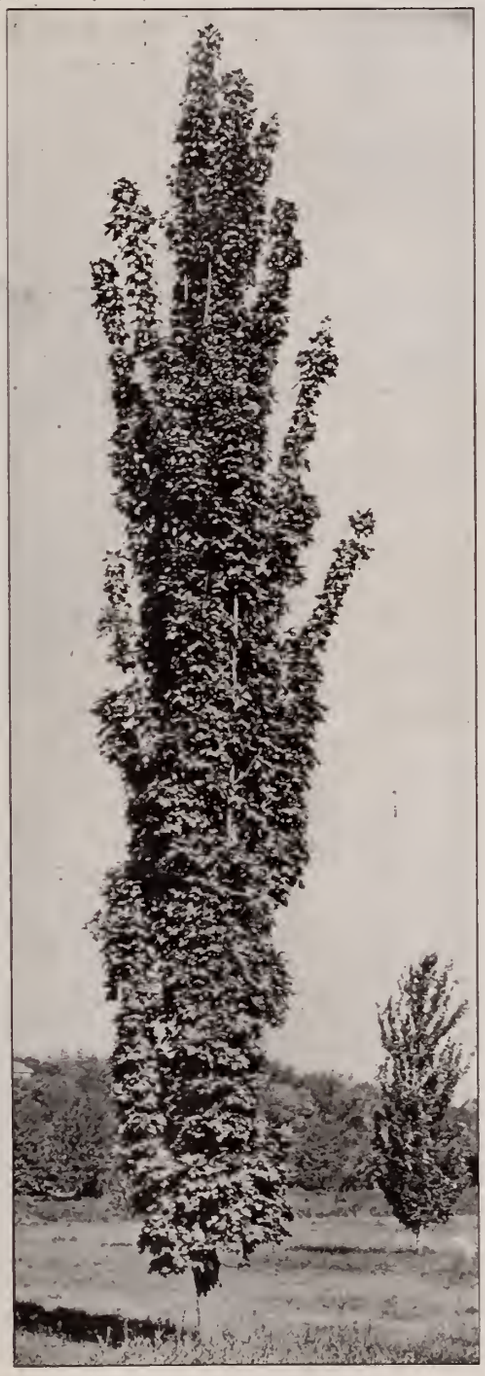
Of Many Kinds These Tall, Slender Individuals Are Invariably Distinctive Whatever their Other Characteristics, and Make Valuable Contribution to Many Landscapes

THE Lombardy Poplar and the Weeping Willow, which were dealt with in our last article, represent two extreme types and are the most diverse variations from the normal habit of tree-forms. Though the oldest authentically known deciduous-leafed trees of their class, they are by no means unique examples. And since trees of their remarkable shape have a considerable field of usefulness it may be interesting to enlarge upon the subject.

If it be asked why Nature should indulge in the development of such abnormal types no answer is forth-coming. The manner in which the peculiar branching habit takes place can be explained, but what induces it and the reason why are mysteries. Light and gravity exercise diametrically opposite effects on the primary root and primary shoot of a tree. The root grows away from light and toward the centre of the earth; the shoot contrariwise, grows toward light and away from the earth. The behavior of secondary and tertiary roots and branches toward light is identical with the primary ones, but toward gravity it is about intermediate, for usually they grow more or less horizontally away from the central axis, in the case of the roots to insure a broad field from which to draw water and food-salts, in that of the shoots to give a wide field for the leaves to intercept light and air and more completely to perform their allotted work in the tree's economy.

In the Lombardy Poplar, however, all the secondary and tertiary branches grow erect after the manner of the primary shoot; in the Weeping Willow the tertiary branches simulate the behavior of primary roots in that they grow downward toward the earth's centre. Of the remarkable and opposite behavior of the branches of these two trees the most casual observer is cognizant; but the why of this phenomenon is a poser even to those most deeply versed in tree-lore. The secret has not yet been wrested from the living substance scientists designate protoplasm. But if it is beyond the wit of man to explain the cause, garden lovers from early times have not been backward in appreciating the value of such strikingly distinct forms of tree-growth for garden embellishment.

Now among such Conifers of the northern Hemisphere as the Junipers, Thujas, Chamaecyparis and Cypresses many species are columnar in outline. In some, especially the Thujas, the branches are actually ascending but in most the habit is produced by the branches being very numerous, short and of equal length and radiating at a right angle. In every case these trees assume a different form as they grow into adults, the character being essentially a youthful condition even though in some it obtains for very many years. Some of the more distinct forms are perpetuated by vegetative propagation and wherever these and the parent forms are hardy they have great garden value. In fact the oldest cultivated tree of upright habit, the Italian Cypress (Cupressus sempervirens) belongs to this class. However, owing to exigences of space these can have no further mention here. In some trees both erect and pendulous forms are known in the same species. This is the case in the English Yew, the European Beech and Birch, and in the Norway Spruce; yet curiously enough there is no fastigiate Willow and no weeping Poplar.



A NATIVE TREE SELDOM SEEN

The upright Sugar Maple (Acer saccharum, var. monumentale) is a very beautiful example of the sentinel type of tree

Let us consider the upright branched forms of tree-life typified in the Lombardy Poplar and known as "fastigiate trees." Of such there are quite a number that are hardy in the colder parts of this country. They belong to widely separated families and their number is constantly being added to. Probably all known are seminal variations of spontaneous origin and owe their preservation to man, who has propagated them vegetatively by cuttings or graftings. In countries where raising trees from seeds has long been practised most of these fastigiate trees have been discovered. Among American species five only (Silver, Sugar and Red Maples, Tulip Tree and White Pine) have given rise to fastigiate trees. Of these, that of the Tulip Tree and of the Silver Maple originated in Europe and probably that of the Red Maple also. The other two owe their preservation to the Arnold Arboretum and take rank among the best of their class.

The Fastigiate Sugar Maple (Acer saccharum var. monumentale) is one of the narrowest of all trees and is strikingly distinct in appearance. The branches are comparatively few, quite erect and the tree is well adapted for planting by the side of narrow roads. The parent tree was discovered in 1885 growing in a cemetery in Newton, Massachusetts. The tree in the Arboretum collection, which is now fifty feet tall, is a graft from this.

The upright form of the Red Maple (A. rubrum var. columnare) was found

One of the narrowest of trees is the Exeter Elm (Ulmus glabra var. fastigiata), a form of the Scotch Elm which originated in a nursery in Exeter, Devonshire, nearly a century ago. Truth to tell it is a rather ugly tree of little merit save that it is curious. On the other hand the Cornish Elm (U. nitens var. stricta) is beautiful. This is the common Elm in Cornwall and parts of Devonshire, and at its best is a tree eighty feet tall and fifteen feet in girth of trunk. The lower branches curve outward and upward while the upper ones are short and ascending and the symmetry of the tree is graceful and pleasing. Very similar in habit is the Guernsey Elm (U. nitens var. Wheatleyi) which appears in some nurserymen's catalogues under the name of Ulmus campestris monumentalis.

Fairly well known is Quercus pedunculata var. fastigiata, the Cypress Oak, of a variety of the English Oak, and very variable in foliage. In western Europe it grows to a large tree but in this country, growing in 1889 in the old Parsons' Nursery on Long Island, New York, but nothing is known of its history. It is rather broader in outline than the fastigiate Sugar Maple and is most decidedly a valuable tree. The form of the Silver Maple (A. saccharinum var. pyramidale) originated in Späth's Nursery in Germany and we have only small specimens. As its name suggests, it is pyramidal in outline but it is not so striking in appearance as the two already described. Of the many species of Maple native of the Old World only the Norway Maple has sported into an upright form. It is known as Acer platanoides var. columnare, but is really pyramidal in habit.

A very distinct tree is Liriodendron Tulipifera var. pyramidale, the fastigiate Tulip Tree. This originated in the nursery of Simon Louis near Metz, Alsace, and has been grown in the Arnold Arboretum since 1888. It has the familiar large leaves of the type but the branches are quite upright. Like the parent it is not attacked by pests of any sort and it deserves to be widely known.

AT THE LEFT THE UPRIGHT POPLAR

Suggesting its Lombardy relative in outline Populus thevestina has nevertheless a marked individuality and great beauty of its own to commend it

A FINE COLUMNAR RED MAPLE

Whence came Acer rubrum var. columnare, originally? No one to-day can tell, though the discovery of the first one known is but thirty years old

though it is quite hardy, it is short lived. It grows rapidly here but rarely lives more than thirty or forty years. The same is true of the fastigiate Birch (Betula pendula var. fastigiata) which has a narrow crown of erect branches. In passing I may say that it is strange that among such a large tribe as the Birches, the common White Birch of Europe alone has sported distinct forms.

Among the midsummer-flowering group of trees—the Lindens—there is one with upright branches. This is Tilia platyphyllos var. pyramidalis, a European tree whose branches taper from a broad base to a pointed apex, hence it is pyramidal rather than erect in habit. The European Hornbeam (Carpinus Betulus) has given rise to two forms of upright habit. One (var. globosa) in spite of its name is a very compact fastigiate plant though dwarf, while the other (var. pyramidalis) is well described by its varietal name. One of the most interesting of all fastigiate trees is the Dawyck Beech (Fagus sylvatica var. dawyckii). This remarkable form of the European Beech originated on the estate of my friend Mr. F. R. S. Balfour at Dawyck, Peebleshire, Scotland, and is now 50 feet tall. It is an old tree with dense, quite upright branches and is a striking contrast to the type. The propagation of this fastigiate Beech has recently been taken up by European nurserymen and young plants in the Arnold Arboretum are doing well.

The European Crataegus monogyna, a Hawthorn, has produced two varieties with upright branches. One (var. stricta) is a tree with a broad crown, bearing dull red fruit; the other (var. monumentalis), a recent acquisition to our collection, is a narrow and strictly pyramidal plant. In some European nurseries a fastigiate form of the Horsechesnut (Aesculus Hippocastanum var. pyramidalis) is grown but I have not seen this.

Besides the Lombardy there are two other Poplars that have erect branches. One of these is Populus alba var. pyramidalis (better known as P. Bolleana), a form of the White Poplar native of central Asia which was introduced into Europe and this country about forty years ago. In habit it is as fastigiate as the Lombardy Poplar and exhibits much variation in shape of leaves, which are white on the underside. The other is P. thevestina, and though in habit and foliage it is similar to the Lombardy, its bark is nearly white. This tree grows in Serbia, the Crimea and in Algiers; and in the Arnold Arboretum it has made rapid growth and proved quite hardy.

Among Conifers of the type of growth under consideration Pinus Strobus var. fastigiata is destined to be of great importance. The original tree was discovered about 1895 in a garden at Lenox Mass., and the trees now growing in the Arnold Arboretum are grafts from this. It has compact, ascending branches forming a conical crown, and it ought to be widely propagated by nurserymen so that garden-lovers may possess this lovely tree. The Scotch Pine (P. sylvestris) has many seminal and geographical forms and among them one (var. pyramidalis) of fastigiate habit. Of the Norway Spruce (Picea Abies or P. excelsa) a great number of abnormal forms are known, and among them at least two (var. columnaris and var. pyramidalis) with erect branches. The parents of these are said to have been found wild in the European forests.

One of the loveliest of hardy pyramidal Conifers is Douglas' Arborvitae (Thuja occidentalis var. pyramidalis), sold by many American nurserymen under the name of Thuja occidentalis pyramidalis Douglasii. It is a tall, narrow plant of rich green hue, and was raised some time before 1855 by Robert Douglas

OF TRUE SPIRE FORM IS THE DISTINCTLY WORTH WHILE UPRIGHT GINKGO

This splendid specimen of the Maiden-hair tree (Ginkgo biloba var. fastigiata) growing in Fairmount Park, Philadelphia, beside the Horticultural Hall, where it has grown since the Centennial of 1876, boasts a girth of four and a half feet

A WHITE PINE

Destined to be of great importance is Pinus Strobus var. fastigiata, shown at the left, the original of which was discovered in 1895 in a garden at Lenox, Mass.

THE TULIP TREE

Originating in Alsace, this variety, which is Liriodendron Tulipifera var. pyramidale, will be deservedly popular since its form is good and it is as free from pests as the type

in his nursery at Waukegan, Illinois. And since I have mentioned an Arbor-vitae I cannot resist saying a word or two about the Incense Cedar (Libocedrus decurrens). This tree grows wild on the western slopes of the Cascade and Sierra Nevada Mountains from Oregon southward to near the Mexican boundary, and also on the Californian coast range. In the Arnold Arboretum it is hardy only in a sheltered nook near the top of Hemlock Hill. It has ascending branches forming a columnar crown and is of a rich, dark, shining green hue. It is one of the most distinct of all hardy or nearly hardy Conifers, and in Great Britain and Ireland—where it was introduced by John Jeffrey in 1852—many stately columnar specimens full fifty feet tall adorn lawns and pleasure grounds.

One of the most famous and best known of erect-growing trees—but alas! not hardy in the New England states—is the Irish or Florence Court Yew (Taxus baccata var. fastigiata). This most distinct Yew was discovered about 1780 on the mountains of Fermanagh, Ireland, near Florence Court, the seat of the Earl of Enniskillen, by a tenant-farmer named Willis. He found two plants. One he planted in his own garden where it died, the other he gave to Florence Court where it grows to this day. From this tree, which is female, cuttings have been distributed and from it all the true Irish Yews in existence have been derived.

Many fine specimens of this Yew are known, some more than thirty feet tall. The habit is columnar and compact, with all the branches and branchlets directed vertically upward. The leaves are dark green and shining and spread radially in all directions from the branchlets. It is very effective as a garden tree but requires pruning and tying at intervals to keep it in good shape. There are forms with golden (aurea) and silver (argentea) tips to the branchlets. Pollinated by the Common Yew, seeds have developed which have given rise to less fastigiate forms such as erecta and cheshuntensis, which have found their place in gardens. Another form (elegantissima), raised from seeds resulting from pollination by the Golden Yew (Taxus baccata var. aurea) has the young leaves yellow and the old ones with white margins.

Very valuable for gardens in the colder parts of this country should prove the upright form of the Japanese Yew (Taxus cuspidata var. Hicksii) which quite recently appeared among some thousands of seedlings of the type in the nursery of Isaac Hicks & Son, Westbury, Long Island, New York. Mr. Henry Hicks obligingly informs me that the seeds were "probably collected from the plant which stood northwest of the residence of the late Charles A. Dana, Glen Cove, Long Island, and which was later moved to the estate of William D. Guthrie, Locust Valley, Long Island."

A Japanese plant analogous to the Irish Yew is Cephalotaxus drupacea fastigiata, introducted into the Botanic Garden at Ghent in 1830 by von Siebold. It is commonly cultivated in the warmer parts of this country, but is not hardy in eastern Massachusetts. The branches are strictly erect and the leaves, which spread on all sides of the shoot, are leathery and blackish green. And there are other trees of fastigiate and pyramidal habit, but as finality is not attempted, this may fittingly conclude with reference to a remarkably distinct and valuable variety of our old friend Ginkgo biloba.

This form (fastigiata), with its compact ascending branches, has a bright future before it as a street and avenue tree. The oldest and finest trees known grow in Fairmount Park, Philadelphia; and concerning these the Commissioners courteously supply the following information:—"There are five specimens of the pyramidal form of Maidenhair Tree (Ginkgo biloba), at Horticultural Hall. One measures 3 feet 9 inches in circumference and is 36 feet high; the other four measure from 4 feet 5 inches to 4 feet 9½ inches in circumference, and are from 45 to 55 feet high. The one with the smallest circumference has two leaders. We have no definite information as to when these trees were planted, but our oldest employee at Horticultural Hall states that a group of young Ginkgo trees was exhibited on the south side of the Hall in 1876. Two of this group were transplanted in 1882 to the north side of the Hall, and from the similarity of measurements we presume the others were moved at the same time. It might be of interest to you to know that near Woodford Guard House in Fairmount Park, we have a specimen which shows both the spreading base and the pyramidal top."

PEARS AS A DESSERT AND CANNED

IDA M. ANGELL

Not Prized as Highly as It Would Be if More Housewives Knew Its Culinary Possibilities, this Delicious Fruit Needs Our Attention Drawn to Its Many Merits

PEARS that will carry well to market, and Pears that have good selling qualities are offered in great numbers, and are all very fine—but what interests the housekeeper most of all are the kinds that make the best table fruits, and that are the most satisfactory for filling the preserve closet. And from my own experience I recommend a Clapp, a Bartlett, and a Seckel tree. These three will give an almost continuous supply from August first until well into October — and many for canning one way or another.

Pears should never be left on the tree until ripe, however. The Clapp so treated is pretty sure to rot at the core, and so do some others. The time for picking is when they are fully colored and have reached full size, and the stem snaps easily from the twig. They will still be very hard at this stage, but must be ripened indoors to be at their best. Clapps are ready for picking and smothering about the middle of August; this is about two weeks before they would ripen if left on the tree.

They are "smothered" by wrapping in papers or burying in sifted coal ashes, to keep them from light and air. A dry, cool, dark room is the best place to store them. If too warm they will soften too rapidly and rot. Making several pickings at intervals of a day or two, leaving the smallest and hardest till the last, will prolong the season and avoid having too many all ripe at once.

THE OLD SECKEL PEAR

Grows well over a large section of the country; though small is highly flavored and an abundant cropper. An ideal variety for the home garden

Careful hand picking, to prevent bruising, is the only way to treat these Pears, which are of the large, early, melting type. One must remember that they haven't the tough enduring qualities of apples. It does not take many days to soften them by the smothering process either—so watch them closely, for when they once begin they will have to be sorted over every day to keep ahead of decay.

But the Clapp is a hardy and productive tree, and is recommended for sections where other Pears fail. Many of the fruits reach half-pound size and this, with their fine shape and beautiful coloring, places them high on the list as a hand fruit. They are not as rich in flavor as a Bartlett, but are nevertheless very juicy and delightful.

Pick and store the Bartlett in every way the same as the Clapp. The season is about two weeks later, making it a convenient successor to the earlier variety. It is the better known of the two and has the reputation of being the most important Pear at the present time. It is an annual bearer and begins while the tree is quite young. It is also very productive. Bartletts are longer keepers than Clapps, so that they nearly meet the Seckels. These last are the most excellent keepers, and very late. And no other sort can as a matter of fact surpass them in flavor.

Any small garden without two or three Pear trees falls short of the profit and pleasure that it should produce. Our three trees mentioned here yield annually about ten bushels of fruit. The Flemish Beauty, a very rich-flavored Pear, was once a prime favorite, but of late years it has developed two bad traits, namely rotting at the core and cracking. The Kieffer Pear is inferior in fruit, but is popular because of its robustness, productiveness, and keeping qualities. Baking improves the flavor of this.

Winter Pears are not as well known in the Eastern states as they deserve to be; by their help the Pear season is extended from August till spring and their keeping qualities equal those of apples, if they are given the proper care. And Pears are excellent material for the canning enthusiast, so there need be no waste whatsoever of the fruit. As it is possible to can them with wrong methods without retaining the quality which makes them so palatable and worth while, three old-time well tested Pear recipes are appended.

BAKED PEARS

All windfalls and odds and ends of hard pears can be put to a good use by baking. To any quantity of the peeled and cored fruit take an eighth of the bulk in sugar and the same quantity of water as sugar. Bake long and *slowly* in a pudding dish, covered. When a dark color they are ready to use, or are excellent to can for future use.

CANNED CLAPPS AND BARTLETTS

Both Clapps and Bartletts are excellent canned, the former being distinguished for their beautiful appearance and tenderness, and the latter for their rich flavor. An old rule is the following—only well ripened pears being used:—Make a syrup of the proportion of one cup of sugar to two cups of water. When this is boiling add enough peeled pieces of the fruit to fill one or two jars and cook until tender, but not too soft to hold the shape well. Fill heated jars and pour in enough syrup to fill every crack and cover as usual. (If opened a couple of hours *before using* the natural flavor will be restored. Canned fruit used as soon as opened is insipid.)

PEAR JAM

Pear jam does not appear in many cook books. Here is an old rule: In the first place, make it a point to do the canning and the jam making on the same day. Put every perfect piece in one bowl for the canning, and all imperfectly shaped pieces, or those that are too soft into another, for jam. This insures only choice fruit for canning, and just as much jam, and just as good, without wasting any of the choicer fruit unnecessarily.

Break up the peeled fruit with a potato masher. Add a half-pound, or more, of sugar, to a pound of fruit, according to the sweetness desired. Cook slowly until the fruit is transparent and very soft, then jar in the same manner as any jam. It might be well called "pear honey" as the flavor is suggestive of honey.

AMONG OUR GARDEN NEIGHBORS

EVERY GARDEN MEANS A HOME

THE ACTUAL working out of the order of the Federal Horticultural Board, familiarly known among gardeners as Quarantine No. 37, is having its effects on our gardens generally. Many a plant hitherto popular and quite familiar has not been available in quantity this season, and the practical impossibility of getting many of these things in the ordinary channel of commerce, either now or in the immediate future, has brought home to many who were more or less indifferent the far reaching influence of this order. The real sufferer is the true amateur who grows plants for their intrinsic interest and beauty; and the effect of Quarantine No. 37 in excluding so many of these garden favorites has brought a rude awakening to a great many people.

Unfortunately the experience of the present season is only a taste of what may be yet to come, unless some better and more practical interpretation of the measure be brought into operation. But the present is not the time to split hairs over a discussion as to why the Scilla is excluded and the Hyacinth admitted, notwithstanding that the botanists may not be fully decided, in the case of a few individuals, as to what is one and what is the other. Nor must personal feeling and personal gain be allowed to intrude into the discussion and consideration of the future application of the order. Rather must we look on the question broadly and with a view to the interest of the horticulture of the entire United States.

On June 15th there met in the Museum of Natural History, New York, a group of delegates from various horticultural organizations, some fifty in all, representing ornamental horticulture, trade societies, the leading amateur horticultural organizations, garden clubs, private individuals and so on, for the purpose of calmly discussing the effects of the Quarantine as now interpreted and administered by the responsible authorities; and to consider in as broad a way as possible the real intent and proper application of the act under which it exists.

The conference was originally conceived by the Horticultural Societies of Massachusetts, New York, and Pennsylvania, and with Mr. T. A. Havemeyer as temporary chairman, New York Horticultural Society, and W. P. Rich as Secretary, Massachusetts Horticultural Society, the proceedings were opened. Mr. J. Horace McFarland was elected as permanent Chairman and the organization was completed by the formation of a permanent committee as follows:

E. C. Vick, representing American Dahlia Society.
I. S. Hendrickson, representing the American Gladiolus Society.
S. S. Pennock, American Rose Society.
F. R. Newbold, Garden Club of America.
Mrs. Thomas Newhall, Garden Club of Philadelphia.
J. K. M. L. Farquhar, Gardeners' and Florists' Club of Boston.
T. A. Havemeyer, Horticultural Society of New York.
Wm. C. Endicott, Massachusetts Horticultural Society.
Martin C. Ebel, National Gardeners' Association.
Miss Hoyt, New Canaan (Conn.) Garden Club.
Fred. A. Dawson, representing Olmsted Bros., Boston.
F. R. Pierson, New York Federation of Horticultural Societies and Floral Clubs, and also the Society of American Florists.
J. A. Manda, New York Florists' Club.
F. K. Thomas, Rhode Island Horticultural Society.
Frederick Cranefield, Wisconsin Horticultural Society.
Mrs. Francis King, Women's National Farm and Garden Association.
F. W. Kelsey, American Forestry Association.
Mrs. Peckham, New Rochelle (N. Y.) Garden Club.
Richard Vincent, Jr., Baltimore Florists' Club.
Miss Bell, Flushing (N. Y.) Garden Club.
Leonard H. Vaughan, Horticultural Society of Chicago.
Mrs. Pendleton, Cincinnati Garden Club.
Mr. Vaniseck, Newport Horticultural Society.
John C. Wister, Pennsylvania Horticultural Society.
Mr. Olmsted, American Society of Landscape Architects.
J. Edward Moon, American Association of Nurserymen.
Leonard Barron, Garden Magazine, New York.
A. T. De LaMare, The Florists' Exchange, New York.

IN THE course of the proceedings Mr. A. C. Burrage (Mass.) spoke and an address was read from Prof. C. S. Sargent, Arnold Arboretum. The latter pointed out that after the 40 years of work of the Arboretum in carrying on explorations and importations of new plants from all parts of the world, the effect of Quarantine No. 37 was absolutely to call a halt to any future explorations and work of that institution in introducing new plants notwithstanding the increasing knowledge of available plant material for cultivation in this country.

It is worth noting in passing that, in all this time and in handling a greater amount of new material from unknown places than any other individual or organization in the country, the Arboretum has never in one single instance been accused, or even suspected, of introducing an injurious insect or a destructive disease!

The feeling of the conference was plainly that such steps as may be necessary to exclude injurious insects and destructive diseases be supported; but it was urged that a system of inspection at various ports of entry could be maintained to accomplish this, and that the present method of shipping everything to Washington and thence to its destination was impractical and destructive of the business. Mr. John C. Wister, speaking on behalf of the Pennsylvania Society, presented in concise form five grounds on which that organization finds fault with the present conditions; and these are here given as a general summary of the feeling of the delegates in attendance.

First it can find no proof of the necessity for a general quarantine; second, it resents the assumption that plant pests do not reach this country on other materials than horticultural products, which materials should, therefore logically be barred; third, it objects to the arbitrary, inconsistent rulings of the F. H. B. in carrying out Qu. 37 regulations; 4th, it favors an

inspection service at ports of entry as more logical and effective and more desirable than the present arrangement; fifth, it objects to the attitude and action of the F. H. B. in assuming the tasks not only of the prosecuting attorney against plants and introducers of plants but also of the judge and jury as well.

In order to give action to the conference the permanent committee, enumerated above, later named an Executive Committee of five to act with the Chairman, with power to plan future work and to report back to the general committee. This committee is as follows:

A. C. Burrage, Massachusetts; E. C. Vick, New York; John C. Wister, Pennsylvania; Frederick Cranefield, Wisconsin; Mrs. Francis King, Michigan.

As matters stand at present the Executive Committee is in a position to collect data for the purpose of making a proper presentation to the authorities, in the hope that in the near future the gardening interests of the country will be served rather than hampered by the administration of the quarantine. As the Chairman pointed out, we are dealing with an act of Congress; empowering the quarantine, and the fact of quarantine cannot be lightly wiped aside; but its administration with some regard to the interest of the industry and the art which it touches, may be brought about in a way that will be helpful to the entire country. In the meantime, the permanent committee is compiling data that it may in due time offer a working solution of the problem, satisfactory not only to garden lovers of America, but also to those in the administrative offices at Washington who have upon them the onus of carrying out the provisions of the law.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

Birds and Water-lilies in Florida

THE GARDEN MAGAZINE is always full of interesting possibilities, but the May issue with the articles on Water-lilies and pools is truly wonderful. They appeal to me particularly not only because it happens to be 87° in the shade, but because we hope to have a combination bird-bath and lily-pool when we become permanent down here. The site of it is occupied at present by a twenty-five year old Rose bush, so we gather yellow and white Lilies from the lake and put them in the tub under the faucet in the side yard where the jays, threshers, cardinals and mockingbirds come to drink which is visible from the dining room and happens to be in full sun at lunch time.—G. D. BEADEL, *Leon Co., Florida.*

Cosmos and Wood Ashes

ALTHOUGH I knew a small quantity of wood ashes is a good fertilizer for most plants, it was quite by accident I discovered that Cosmos fairly revels in it. I planted seeds of the pink and the white varieties around the space where the ash heap had stood and a few of the seeds were dropped on this spot, and the ashes were so deep that I didn't suppose anything would grow there. These seeds germinated; and, to my surprise the plants were the finest I had. May be that the ashes had nothing to do with it and it was only a coincidence that one of these plants bore crimson blossoms, though to my knowledge there had never been any crimson Cosmos growing in our yard or the vicinity. I sowed seeds of white and pink Cosmos about five years ago, and since then have always planted seed saved from these plants, and never before had any but white and pink blooms. Have received a packet of seed labeled "double Cosmos." First I have heard of it so am curious to see what it proves to be.—MARY RUTNER, *Traverse City, Mich.*

How Is This for a Spider's Web?

THINK of a spider's web forty by sixty feet in size! And try to conjure up the size of the spider that spun it! It should be stated at once, however, that the web illustrated here, is not a real spider web but an "ornament" on the lawn of a Chicago man's home. The creator of this interesting oddity conceived the idea of attempting to see how closely an actual spider's web could be reproduced with rope. So he selected two immense trees on his lawn and spun this web between them. It is so strong that a boy may easily climb to the top of it. Of course the spinner could not attain the

IF SPIDERS REALLY MADE WEBS LIKE THIS?

minuteness of the actual spider's web, but he came so near to it that, at a short distance, the illusion is perfect and rather startles the person coming unexpectedly upon it.—ROBERT H. MOULTON, *Illinois.*

Saving the Strawberries

BEATING the birds to the Strawberries became our great problem. It was solved by dangling strips of tin from cords stretched over each Strawberry row. The tin was cut from old tin cans, a hole punched in each strip, and the strips tied to the long cord at frequent intervals, leaving a couple of inches play between the tins and the cord. The object is constant motion of tin. It whirls and sways with the slightest breeze, and the added reflection of the sunshine helps scare off the birds. Since installing the tin system, we haven't lost even one berry to the birds.—B. D. BELL, *Santa Cruz, Cal.*

Growing Mulch in Strawberries

THE ideal mulch for Strawberries is one that is grown among the vines and falls over among them with the first freeze of winter. Oats or Sorghum sown separately or together make an ideal crop for the purpose, and if there is sufficient moisture in the ground, the seed sown the last of August will make ample growth before the first killing frost. Oats will continue to grow till a killing freeze, when they will fall over and afford ample protection through the winter without smothering the plants, and in the spring will be there to protect the berries from the dirt. The seed should be sown thickly in the cultivated space between the rows and covered. Some seed will also fall among the plants and come up.—H. F. GRINSTEAD, *Missouri.*

Scilla Sibirica From Seed

SINCE the Federal Horticultural Board has prohibited the importation of the bulbs of Scilla sibirica into the United States it may interest some of the Neighbors to know that I have a few bulbs which I grew from seed in ordinary soil. Two years ago I noticed what appeared to be tiny seedlings near a small planting of Scillas. These I removed to a protected spot, and this last spring I was delighted when most of these sent up tiny spikes with two, three and four little bells on them, and of the same heavenly blue shade as the parent bulbs. I now gather every seed as soon as ripe, which is about the first of June. The little round pods open very quickly after beginning to turn yellow and the seeds are easily lost. I plant them immediately, and preferably in soil mixed with a little sand, as I believe the Scilla prefers a somewhat light soil. Seeds held for a time shrivel. Whether this affects their powers of germina-

tion, I am unable to say, but I prefer to plant them as soon as collected. As Scilla sibirica is a species and comes true from seed I do not see why this exquisite spring flowering bulb should not be propagated here as well as in any other country. It's a little floral gem and we should have more of them.—Mrs. R. W. Walters, *Springfield, Ohio.*

Sweet Corn Saved from Jack Frost

When a heavy frost threatens your garden, a spade and some muscle will save your unharvested Corn. Select the stalks which have ears that are ready for the table and those with ears only partly filled. Instead of pulling the ears, dig up the plants by the roots so that some of the earth will cling. Then pack the roots closely in a ring, leaving the centre hollow and the stalks up. Surround the corn with a layer of old stalks as a protection from the cold, throw dirt against the roots, packing it tightly, and draw the tops together and tie with twine. The air space in the centre keeps the corn from moulding, and the unfilled ears will continue to ripen. You can pull the stalks apart and reach in for the corn. We tried this plan one summer and were able to serve sweet corn for two weeks after our neighbor's gardens were hopelessly frosted.—B. V. Bell, *Santa Cruz, Cal.*

Latham or "No. 4" Raspberry

In a recent article in the Garden Magazine mention was made of the new Raspberry known as Minnesota No. 4. This Raspberry, which was originated at the Minnesota Fruit Breeding Farm and has made a splendid reputation as a hardy variety for the northern states, has just been given a permanent name which will take the place of the number by which it has so far been known. Henceforth it will be called Latham, in honor of A. W. Latham, who for many years has been secretary of the Minnesota State Horticultural Society. It is probable that this Raspberry will soon become as widely known as any variety. The writer is having excellent success with it in New England, where it has not suffered at all during the past hard winter, and where it produces abundantly as well as suckering freely. Several other plants put out from the Minnesota Fruit Breeding Farm and which have been known by numbers heretofore, have also been given names. They include Minnesota for the No. 3 Strawberry, a kind which has proved very hardy in the North; Duluth for the No. 1017 Strawberry, an everbearing variety of good quality; Redwing for the No. 12 Plum; Monitor for the No. 70 Plum, and Minnehaha for the No. 300 Apple. Apparently the Duluth Strawberry is going to become a close rival of Progressive and Superb, at least in the North, particularly in home gardens. It has proved a heavy yielder of good sized berries, both in the spring and in the fall, although its color is not quite so desirable perhaps as that of the other two:—E. I. F.

Rare Irises and Their Growers

I was greatly interested in Mr. Julian Hinckley's note in the June Garden Magazine and agree fully as to the disastrous effects of Quarantine 37 on our gardens. This subject must be kept before the public so that we can keep a united public opinion behind the Committee of Six representing more than 50 horticultural organizations, which is to lead the fight against present regulations. If we on this committee have the gardeners of America united behind us we can accomplish anything; without such united support our time and efforts will be wasted. I am sorry that Mr. Hinckley prophesies failure for our new Iris Society. Many of us who started it would have been willing to prophesy failure six months ago; but now, although we are only five months' old we have a membership of 400, and all of us who are connected with it officially have been astounded at the enthusiasm with which our efforts have been met. We admit with sorrow that we have been unable to tell our members where Bulbous Iris may be secured; if we cannot succeed in raising the import ban against them then we must make efforts to induce some Westerner to grow them commercially. We admit, further, that few dealers offer many Iris species, but after all this is because our gardeners have not demanded them; our nurseries have not found a ready sale for the few species they do offer and have therefore been afraid to add further to their lists. The present demand is almost entirely for the tall bearded Irises, and this is reflected at once in nursery lists which offer hundreds of varieties. Surely it cannot be said that only the commoner kinds are offered when the additions of the last ten years both of European and American novelties are considered. Let the public take a similar interest in species and the nurseries will find it worth while to grow cristata, fulva, chrysographes and others which are now so hard to get. A certain number of amateurs and professionals are growing them now but only in small quantities. I have had fulva here for several years but have not got stock enough of it yet to offer any. Mrs. McKinney, of Madison, N. J., has cristata in quantity and probably other species, and Mr. Morrison, our Regional Vice-President of the East, has a large number of species in his garden; but as a rule it is hard to interest gardeners in them as many of them are not very showy. I entirely agree that it would be proper for The Garden Magazine to inform its readers where some of these rarer things may be had. I believe there are many specialists about whom we do not know who have these plants.—John C. Wister.

—These columns are ever open to legitimate interchange of information. Unfortunately the Editor does not know, any more than those who specialize, about sources of some rare plants; but he is always glad to have this column serve to bridge gaps.—Ed.

On Weed-Killing Sprays

During the summer of 1919 I carried on some experiments to determine the effect of certain sprays on killing the common weeds in the lawns. This work was done at the Ohio State University. The Colorado Experiment Station and the North Dakota Experiment Station seem to have gotten good results but the records of other experimenters do not show much promise. The results seem to be due to location geographically as much as anything else. The work as carried on was in brief this: plots were laid off in places where the weeds seemed to have the best of things and a definite quantity of spray of a known concentration was applied to these plots. Applications were made at about ten to twenty day periods depending on the weather and the effect of the spray on the plants. The sprays used were iron sulphate and copper sulphate and were applied at the rate of 250 cubic centimeters to an area of one square meter. The weeds were Dandelion, English and Broad-leaf Plantain. Summary of results:

1. Sprays applied strong enough to kill the weeds also killed the grass.
2. Sprays applied at such a strength so to not injure the grass would kill the leaves of the weeds but would not bring about permanent results even though it was kept up during the summer.
3. Grass continued to thrive under the moderate-strength sprays and even made some growth due to the fact that weed leaves were killed and thus giving more light to the grass.
4. Results this spring indicate that the spray in all concentrations was detrimental to grass, as it did not come out with the vigor of the unsprayed lawn.
5. Blooming period of the Dandelions was held back about one week on the plots that were sprayed.

These results while not conclusive seem to indicate that the use of sprays, in this part of the country, is not particularly desirable. The problem does not look hopeless, however, and will stand further investigation; those who are much troubled with these obnoxious weeds might do a little experimenting with iron sulphate at the rate of $1\frac{1}{4}$ pounds to a gallon of water, spray with a fine mist and thoroughly cover the weeds. The organic acids seem to offer a solution to this problem and it is hoped that more work can be done in effectually ridding the lawns of these pests.—Carl E. Gressle.

—Sulphate of iron has been recommended as a weed killer particularly by the American Steel and Wire Company which in its printed circular states, "destroys Wild-mustard, Kale, Wild-radish, and so on." In a recent letter from the company we read as follows: "We call particular attention to the fact that our product is not satisfactory for the destruction of all kinds of weeds, and is mainly used to eliminate Wild-mustard, Kale, Wild-radish, etc."—Ed.

La Marque Rose

You can't get this Rose by writing to one of the nurseries and enclosing a check. It's one of the things that you can't buy with mere money, for it is a Rose with a pedigree. When the French settlers first came to southeastern America they brought it with them and have handed it down to their families and their friends. The one in the picture on the next page is growing in Mrs. L. J. Stoddard's yard, in Columbia, S. C. It is fully fifteen feet high and during the early part of May is literally covered with the most exquisite white blooms; the same kind we have to pay from four to six dollars a dozen in our northern markets. (I'm talking about old prices now for I haven't been North for ten years.) To me, it was one of the most beautiful sights I had ever seen, a great tree of Roses!—Mrs. A. Louginbill.

Aster Beetles Again

I GET instantaneous and easy relief from Pennsylvania blister beetles, aphids, grasshoppers, etc., with either gasolene or kerosene oil thrown from a plumber's blow torch, under pressure. A few drops kills instantly.—L. A. SEEBERGER, *Brewster, Mass.*

An Injurious Pest of Evergreens

A GREAT many Spruce trees growing in gardens are infested by a gall-forming insect, which renders the tree unsightly. The work of this insect is not specially noticeable until it has disfigured each season's growth for three or more years. My attention was called to a sheared Spruce tree a few years ago. It had formerly been in a healthy condition, but suddenly appeared to be covered with little cones or burrs at the base of each season's growth. Examination proved them to be the galls formed by the spruce-gall louse. This is by no means a new pest, but has seldom received attention. Whenever the opportunity presented itself, other evergreens were examined, and in many instances were found infested with the insect galls. The greatest infection seems to be among cultivated Spruces, and with an occasional Hemlock having a few galls on it. The greatest damage is inflicted on sheared specimens and hedges. It does not seem to kill large trees, but in many instances it ruins the shape of the tree by denuding it of the lower branches. The fully grown insects emerge from the galls about August first. After crawling up the new growth, the female settles on a Spruce leaf, and lays about fifty eggs. In about a week the larvae hatch and crawl about and find buds into which they burrow for the winter. In the following spring their presence in the bud causes it to develop into a burr or "gall" instead of the natural twig. When the galls are growing they are of a yellowish green color, but during late summer they assume a brownish color. About the time the Spruces are putting forth new growth, the eggs laid by the insects which survive the winter may be found at the base of a bud covered with a white woolly mass. In about one week the eggs hatch, and the young crawl to a gall to rest in the crevices, and are soon enclosed by the enlarging gall. Here they remain until the gall allows them to escape in August. As the insects in the feeding stage are within the water-tight gall, no poison spray can reach them, but they may be reached with a miscible oil spray, such as scalecide, in early May, while the small lice are crawling, and again after they have emerged from the galls in August. The spraying of evergreens with oil sprays can be safely performed during this period, using one part of miscible oil spray to thirty parts water; the aim in spraying should be to cover the entire tree with a film of oil to smother the bodies of the lice, and prevent them from burrowing into the buds to form the next year's gall.—G. M. SLACK, *Conn.*

THE OLD-TIME LA MARQUE ROSE IS STILL OCCASIONALLY SEEN IN GARDENS OF THE SOUTH

A Peony Record

SAY! I wish all you could see my Peonies! For the first time in ten years Umbellata Rosea has been "beaten to it!" Mme. Jules Elie opened up ten hours ahead! This is an unusual season: Irises, Poppies, and Peonies are all open and in good condition at once.—JOHN L. REA, *N. Y.*

The Hardiness of Certain Peas

SPEAKING of hardy Peas (in the April issue), while North last fall I sent some seeds down here that I had bought from a Georgia seedsman. They were called "John L." and their last name certainly must have been Sullivan from the fight they put up last winter. Owing to a sixty day drought and "dis hyar moon comin' into circulation" old Uncle Bill could not plant them until November. In December the rabbits got in and ate them down unmercifully. In January when they were in flower and too high to cover with pine straw, the mercury went below freezing four nights in succession (32°, 31°, 25°, 30°), and again in March, but Uncle Bill kept at 'em, and we had three or four pretty good messes by the end of April from the surviving vines, which bore heavily.—G. D. BEADEL, *Leon Co., Fla.*

Why Is a Weeping Tree?

WHO is there who will tell us something of the weeping principle or propensity shown by certain trees? I have never seen a word written about it. What does it mean and how does it come about? Would not Mr. Wilson oblige us? We have commonly the Weeping Elm, Weeping Willow, Weeping Mountain Ash and the Weeping Mulberry. In appearance the foliage merely is more or less identical with that of the ordinary upright tree it resembles, but not a single shoot in any of these can be made to run upward. They all droop in much the same way. I have about the finest Weeping Elm in my front yard that I know. The trunk of the upright part is about a foot through, the grafted part a little smaller, but perfectly joined. Is this peculiar style of growth natural or is it from a human device or sport? My Henderson mentions only the Weeping Willow as a separate species (Salix babylonica), but gives no explanation. It alone seems to have some idea of uprightness. There are of course here and there a Weeping Cherry or Beech, but they are not common and do not appear to present any new phase of the case.—JOHN W. CHAMBERLAIN, *Buffalo, N. Y.*

—Most weeping trees are natural bud variations or sports from the normal type, just as fastigiate forms are excessively upright sports. The variation is multiplied by grafting.—ED.

Ants in the Greenhouse

ANY ONE who has raised plants in the greenhouse has discovered what a pest ants are and how hard they are to eradicate once they obtain a foothold. Perhaps the following suggestions will help some poor mortal to combat the persistent insects. Ants have much the same community life as honey bees. The life of the colony depends upon the workers, which are the ones we see so industrially engaged in carrying food and excavating homes. So if you exterminate these workers the colony will perish. A small sponge immersed in some syrupy fluid will attract the workers in great numbers. When it is well covered with the insects, it should be thrown into scalding water. A greasy bone is a very effective lure and may be made use of in the same manner as a sponge. For seed flats or pots the best way of preventing the ants gaining entrance is to elevate the flats on flower pots and have the rim of the pots resting in a saucerful of water. The ants will not cross this barrier of water. There are also many poison preparations for ants on the market, but the methods I have suggested are simple and cheap and they have been tried and found very effective.—J. J. D., *Pa.*

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in *a normal season* is taken as standard; but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

AUGUST—THE MONTH OF RETROSPECT AND PROSPECT

BY THIS time the successes and the failures of this year's garden enterprises are apparent—or should be; therefore it is perhaps the best of all times to look forward to the garden's future—to plan to correct existing errors, and to avoid further ones. Flower garden and vegetable garden alike reveal now their weak spots. Take note of these, analyze them, and let them be your guide-posts.

General

The cultivation of the garden generally becomes an easier task from now on, though it must be kept on unremittingly. But as vegetables grow and spread and occupy the ground, weeds obviously have less chance; and the space to be cultivated grows less. Since it is not for the purpose of eliminating weeds alone however, that this is done, but to conserve the water that has sunk into the soil every time it has rained, the time never comes when it can be abandoned, however few the weeds. Let there be no doubt about this.

The planting of Evergreens begins this month; always water them well and mulch them also.

Greenhouse and Frames

All bulbs which are to be in flower for the holidays must be planted now.

Sow seeds of Primroses, Calceolarias, Cinerarias and Cyclamen for winter bloom, and of Pansies and English Daisies for spring bloom in the coldframe.

Of vegetables sow forcing Tomatoes, Melons, Cucumbers, and Cauliflower.

Lift Carnations that have been outdoors, and plant in benches.

Repot Callas and other plants that may need more root room.

Take cuttings of Heliotrope and Geranium for winter flowering.

Sow seeds of any rockplants desired, to be wintered in coldframe and planted in permanent positions in the spring.

Get the compost pile ready from which to draw potting soil later on.

Flower Garden

Pick the flowers constantly and never let anything get started at making seed, both for the sake of the plant and for the looks of the garden. Few things make for a generally run-down appearance in the degree that seed-heads everywhere do; rarely are they decorative, usually they are ugly.

Sow seeds of all kinds of perennials now, as soon as the seed can be gathered if you are saving your own, or as soon as you can get it from the grower, if you are starting new varieties. Use an old coldframe or hotbed, where protection can be given, as seedlings cannot endure the extremes of sun and storm which this season of the year brings.

Plant bulbs of Madonna Lilies as soon as they may be obtained as every day's delay means deterioration.

Watch for Aster beetles; there is no remedy save hand picking but this will do more than seems possible if vigorously prosecuted.

Vegetable Garden

Make the final sowing of Beets, sowing thinly since there is less taste for and need of "greens" late in the season than earlier.

Sow Pole and Lima Beans for late bearing.

Sow an early variety of Corn, such as Mammoth White Cob Cory; sow also Carrots, Endive, Lettuce, and Spinach.

Set out late Celery plants immediately, if possible.

Harvest early Cabbage; cultivate the main crop assiduously to keep it growing well and in good condition for winter storage.

Harvest Onions as soon as they are fully developed.

Continue to prune Tomatoes and pick the fruit regularly. Watch out especially for any diseased fruits and pick these at the first sign of spot or decay.

Sow extra early, wrinkled Peas for a final crop.

Sow both Turnips and Rutabagas now.

Cucumbers for pickling may be sown now; sow also Globe Artichokes in a protected place, as you would sow perennials, for transplanting in the spring; sow Salsify for spring use and Welsh Onions also, for seasoning.

Fruits

This is the month of the Strawberry bed; either pot-grown plants or layers from an old bed will furnish the new—and there are always new varieties worth trying out to the extent of twenty-five or fifty plants. Only by trying oneself can the merits of any variety be proven, for the Strawberry differs more according to location and cultivation than any other fruit.

Cut out old canes from Raspberries and Blackberries and thin the new growths to three or four; cut these back to three feet in length and head in the laterals rising therefrom when these are of reasonable length; grub up all suckers between the rows.

Layer Gooseberries and Currants, or take cuttings now, making them six to eight inches long and planting them up to the terminal bud.

FETES AND SHOWS

American Dahlia Society's Show. Once again the annual fall gathering of Dahlia fanciers will be held in New York City, but in a new location. The Hotel Pennsylvania Roof has been selected and a scheme is developing to make the display truly representative of the interest in the Dahlia. Several Garden Clubs of the metropolitan district will move into town for the national society's event. This assures the local club of competent judging under the auspices of the national organization, and also serves as an opportunity for the clubs to meet each other. The American Dahlia Society will make awards to the club exhibits as a whole, but each club will hold its own exhibition and competition among its own members. This move was at the instance of the Park Garden Club of Flushing, N. Y. The exhibition will be open September 27th and two following days.

A New Dahlia. Shortly after the death of the late J. Harrison Dick, Secretary of the Dahlia Society, someone suggested that the best new Dahlia brought out and passed by the judges should be named for him. This Dahlia was produced by Mrs. Chas. L. Stout, of Short Hills, N. J. After receiving the premium and growing and exhibiting the flower again the second year, she very generously donated the entire stock to be propagated and sold for the benefit of the Dahlia Society.

The Westchester Floralia. The Westchester Floralia, which, with its wonderful flower display and sculpture exhibit was held so successfully at Hartsdale, N. Y., last September, will be repeated in 1921. The Executive Committee of the Floralia have decided that it should be held alternately in the autumn and the spring, thereby obtaining the garden results of both seasons. The date of the next Floralia has been set for some time in June, 1921.

Through an oversight the article entitled "A City Roof as a Summer Resort," which appeared in the June issue of the GARDEN MAGAZINE, failed to credit Carol Hurd with joint authorship with Marion Hurd McNeely of the story, and Alda Wilson with the photographs accompanying it.

Peterson's Perfect Peonies

THERE are, of course, others but there are none so good.

Peterson Peonies are the triumphant result of a quarter of a century of enthusiastic—yes, loving devotion—and which has grown with the years.

A trial order will convince you beyond question that my roots *are* the cleanest, strongest and, last but not least, truest that money can buy.

Can you afford to "experiment" when buying a flower that will last as long as you do—and longer?

Special 1920 Peony Catalogue

Beautifully illustrated from my own fields and flowers—sent free on request.

George H. Peterson

Rose and Peony Specialist

Box 50
Fair Lawn, N. J.

Burlington, Vt., June 30, 1920
I wish to let you know that the Peonies, planted last Fall, are a joy to behold. There were over one hundred buds on the six plants before disbudding. They are much superior to other plants which have been in the border for four or five years, and I can heartily recommend your roots.—**George W. Marks.**

May we help you to get started RIGHT?

For the assistance of those who may not be familiar with the large number of varieties of the Peony, we have brought together the following collection comprising a wide range of color, form of flower and season of blooming.

Twelve Good Peonies for $10.00

Festiva Maxima.	White, early	$ 1.00
Couronne d'Or.	White, late	1.00
Mme. Calot.	Pale pink, early	1.00
Mme. Ducel.	Light rose, early	1.00
Philomele.	Amber yellow, midseason	1.00
Souvenir de L'Exposition Universelle.	Cerise pink, late midseason	1.00
Delicatissima.	Pale lilac rose, midseason	$ 1.00
Alexander Dumas.	Rose, early midseason	1.00
Edulis Superba.	Dark pink, early	1.00
Modeste Guerin.	Solferino red, midseason	1.00
Dr. Caillot.	Tyrian rose, midseason	1.00
Felix Crousse.	Brilliant red, midseason	1.00
		$12.00

Above collection complete, two-year roots, $10.00

Cottage Gardens Co., Inc., Nurseries, Queens, L. I., N. Y.

Part of our Peony fields taken June 18, 1920

Of course there is a free catalogue—sent gladly upon request

Plant This "Succession" Ten-Set This Fall And Have Iris Ten Weeks Next Spring

Of course you know Iris—every flower lover does!

But do you realize that you can have *ten weeks* of their bloom next Spring, instead of having them "go by" in two or three weeks, as they usually do?

You merely have to plant the different types, from the earliest sorts, blooming in April to the wonderful broad-flowered Japanese sorts, that last into July.

And the Iris, as you know, is one of the *easiest* of all plants to grow. No pruning, and spraying, and mulching and fussing. Once planted, they just take care of themselves. And they increase, so you can get as many new plants as you want, from your old ones.

Best of all, you can set these plants out *this Fall*, and have an abundance of blooms *next* Spring.

The "Succession" Ten-Set of Iris

This is no mixture, or "special offer." It is our regular "Succession" Iris set, at our regular price. The Japanese and German varieties are some of the very choicest.

The "Set" contains the following:

Intermediate Gerda, Sheeny yellow, with falls of darker yellow; Intermediate Inglebord, Pure white; Florintina, white, faintly flushed lavender; German Spectabilis, purple; German Maori King, with yellow, crimson, and gold; German Madam Chereau, White, fringed azure blue; Siberian Blue, Blue; Siberian Snow Queen, Snow white; Japanese Cornelia, Pansy violet (double); Japanese Tortoise, Violet blue (single).

Any one of above, 30c each, $2.50 per 10. Succession Ten-Set, 1 each of above, $2.75. Ten-Ten Set, 10 each of above (100 plants), $22.50.

(If wanted by parcel post, add 10%. Any balance over, cost of postage, will be returned).

Advance Tip—Confidential

Don't tell your garden friends, but we're getting ready another of the helpful little "Ten-Ten" books.

This one is all about Fall planting. How to do it, and what to plant.

Keep it dark—but send for *your* copy to-day, so you can be the first to have one in your neighborhood!

These advance requests go on a special list, that will get the first copies off the press.

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Julius Roehrs Co
At The Sign of The Tree
Box 32, Rutherford N.J.

New Wonder Strawberry
De Lue's Judith

Awarded silver medal and three first prizes by the Massachusetts Horticultural Society. Was the first native berry to arrive in Boston market in the season of 1919, bringing

One Dollar per Quart Wholesale

while the best New York and New Jersey berries were selling for forty cents per quart retail. **Stands up well and endures long shipment.**

De Lue's Judith is a long season, very productive, wonderfully flavored, sweet and juicy strawberry of beautiful form and so firm as to allow of being dropped four feet from the hand to the floor without injury. The plants are vigorous and healthy, having *perfect blossoms* and making an abundance of strong runners so they can be rapidly multiplied.

Just as *De Lue's Golden Giant Sweet Corn* excels among other varieties of sweet corn, so does *De Lue's Judith Strawberry* surpass in excellence other varieties of strawberries—both for the home and the market garden.

Prices: One doz plants, $2.50; 50 plants, $9.00; 100 plants, $15.00.

Potted plants set out in August or September will fruit next summer.

Prices: One doz. pots, $3.00; 50 pots, $11.00; 100 pots, $20.00.

Send check or money order—no stamps.

Send for Literature on Strawberry and Sweet Corn

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Offers a wide choice of objects, from simple fern dishes and bud vases to impressive jardinieres and plant stands. Its predominating characteristic is refined elegance in designs and colors. A post card request will bring you the "Moss Aztec" catalogue and name of nearest dealer.

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Harrisons' Norway Maples, Oriental Planes, Oaks and other deciduous shade trees will be ready for shipment October 15th.

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By giving to soil, in abundance, nutritive elements essential to plant life

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promotes the growth and yield of flowers, vegetable plants, grass, shrubs and trees.

It is rich in nitrogen. It is sweet and odorless. It gives results that are extraordinary.

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RARE AND CHOICE
Peonies, Iris and Phlox
All the newest European and American Introductions
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This Wealth of Flowers May be Yours!

For a solid month you may enjoy their companionship and the display will recur year after year, in steadily increasing splendor. Such will be your reward if you take my advice and take kindly to that magnificent group of Hardy Asters known as

Michaelmas Daisies

Hardy as oaks. They revel in partial shade. The following are among the rarer novelties, of distinct type and unique colors:

Mons. Orchid-lavender with bright yellow center.
King of the Belgians. Bluish gray. Profuse bloomer.
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Price for all sorts, 50 cts. each, $5.00 per dozen

Special Offer:—To foster the interest in these hardy favorites of mine, I will send one plant of each of above six kinds for $2.50. When writing, please refer to G. M.

Learn to think of Totty's as Headquarters for the Unusual among Hardy Plants

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Extra-fine healthy vigorous plants. Will produce a full crop of luscious strawberries next June if you plant in August—the sooner the better. Why wait two years? 100 plants will yield 30 qts. of berries the first year in a space 4x50 ft. Nothing else will yield so much in so little space. All standard varieties, $6 per 100. Our new *Hybrid Strawberry, Buckbee*, the latest and finest evolution in Strawberries, is without a rival for size, color, flavor, and productiveness. $5 per dozen. $35 per 100. (Customers pay transit). Early orders assure strongest plants.

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A Veritable Hedge of

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LILIUM CANDIDUM (Choice Northern Grown)

The favorite lilies of the old-fashioned garden; produce strong stiff stems, studded with a mass of pure, glistening, white flowers, that enliven the perennial flower garden or, for effects of contrasts with the beautiful green shrubs of the June garden, are unequalled.

Plant some bulbs during September and October and enjoy a big crop of flowers next June or pot up, store in cold frame, and force for early Winter in the greenhouse or conservatory.

	Each	Doz.	100
Extra Large Bulbs	25c	$2.00	$15.00
Jumbo Bulbs	30c	2.50	20.00

Giant Freesia Purity

A charming little bulbous plant for window-garden, greenhouse or conservatory. Has tall, stiff stem, bearing six to eight beautiful, snowy white flowers.

Plant a dozen bulbs in a 5-inch pot and enjoy a feast of blooms for Christmas. Where a continuous display during winter is desired, plant a dozen or more pots and set in cold frames bringing in at intervals of two weeks from October. Excellent for cutting, remaining in good condition a week or more in water. Much superior to the popular Refracta Alba Freesia, in size of flower, strength of stem (often measuring 20 inches), and purity of color.

Large fine plump bulbs	50c doz., $3.50 per 100, $30. per 1000
Jumbo bulbs	60c doz., $4.50 per 100, $40. per 1000

Our catalogue of Best Bulbs for Fall Planting will be sent to all customers in August. A postal will bring you one.

Stumpp & Walter Co

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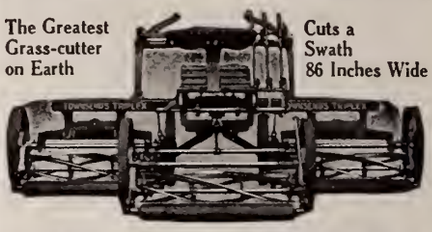
The Greatest Grass-cutter on Earth

Cuts a Swath 86 Inches Wide



Floats Over the Uneven Ground as a Ship Rides the Waves

One mower may be climbing a knoll, the second skimming a level, and the third paring a hollow. Drawn by one horse and operated by one man, the TRIPLEX will mow more lawn in a day than the best motor mower ever made; cut it better and at a fraction of the cost.

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Write for catalogue illustrating all types of Lawn Mowers.

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Including all the New and Rare Varieties

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SEND for your free copy of our book *"On Beautifying the Home Grounds,"*—beautifully illustrated, a practical, fascinating book, showing just how to enhance the charm and comfort (and value) of your country or suburban home. *Write for your copy to-day!*

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for Plumbing, Heating, Lighting, Automatic Fire Sprinklers, Water Supply Systems

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"Here Ends the Quest for the Rainbow's End"

and since the Iris was stained by it once in the long ago, for all time Iris will bring its magic to any garden now. Years ago, its charms "got" me and they never abated. Now I would want you to know and enjoy the Iris as I do, because the lure of the flower caused me to grow Irises as a business venture.

Nevertheless, the business end has never overshadowed the joy and pleasure I get out of growing them, so you will find my prices quite modest.

Irises and Peonies my Hobby

The two go together. Every garden enthusiast *has* to have *some* object upon which to *continue* his bursts of admiration. As the Irises go out, the Peonies come in and the two present a continuous joy of sights, the like of which has never been captured by painter or poet.

Try one or more of these selections

12 Iris worth $3.00, for $2.00
Arnols, Dr. Bernice, Exquisite, Florentina, Her Majesty, Mrs. Allan Gray, Mrs. H. Darwin, Pallida Dalmatica, Princess Victoria Louise, Wyomissing, Mme. Chereau, Queen of May. If you have any of the above we will substitute others.
12 Iris Mixed for $1.00, 100 for $5.00, 1000 for $45.00.

12 Peonies worth $7.25, for $5.00
Augustin d'Hour, Couronne d'Or, Berlioz, Duc de Wellington, Duchesse de Nemours, La Sublime, Mme. Boulanger, Marie Stuart, Umbellata Rosea, Virginie, Philomele, Edulis Superba. Substitutes as with Iris.
12 Peonies Mixed for $2.25, 100 for $15.00.

I will endeavor to use you so that you will tell your friends. Then they will tell their friends and our business will grow.

Let me send you my concise and clear-cut little catalogue that will acquaint you with my business principles. I believe in doing business for the pleasure, the satisfaction, and the happiness you get out of it, in performing a service, to help make this a more beautiful America. Shall we work together?

Yours for more and better gardens

Geo. N. Smith Wellesley Hills, Mass.

New Firs and Spruces from China, Introduced by the Arnold Arboretum

Delivery in August, September and October.

FIRS

Abies Delavayi. This is one of the handsomest of the Silver Fir family. It is also one of the hardiest known in China. Mr. E. H. Wilson tells us it is known in China by the name Liensha, meaning Cold Fir, in allusion to the fact that the tree grows in cold regions.
Its upright growth and rich deep green foliage make it rival in appearance the Yew trees of Europe, and we predict that for landscape purposes this Fir will be used to produce the Yew effects here. $5.00 each.

Abies recurvata. This Fir is of pyramidal habit. The rich deep green foliage resembles that of Abies Delavayi, but is strongly recurved, which gives the tree a distinct and pleasing appearance. Mr. Wilson writes: "In all respects this species is one of the most desirable of the family; and it was well worth a long journey to introduce it into cultivation." It has proved perfectly hardy and like A. Delavayi will be a valuable addition to our trees for landscape planting. $5.00 each.

SPRUCES

Picea asperata. A quadrangular-leaved Spruce from northwestern China. Some of the trees are very glaucous in appearance, hence the colloquial name Yun Sha (Cloudy Fir). Old trees are very spire-like in outline. All the varieties of P. asperata are of dense growth, and the purplish coloring of the young foliage makes them strikingly beautiful in the early Summer.

Picea asperata var. notabillis. This variety differs from the preceding, chiefly in the cones, the scales of which are rhombic-ovate in outline.

Picea asperata var. ponderosa. This handsome variety is remarkable for its large cones.

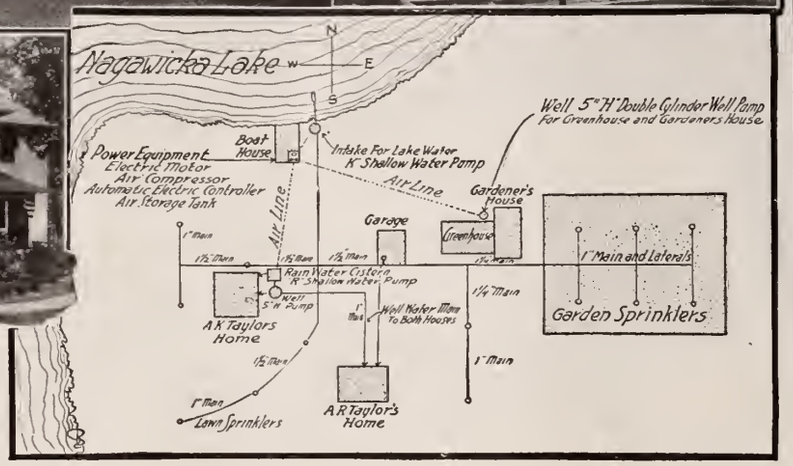
Picea Balfouriana. One of the tallest of the Chinese Spruces.

Picea montigena. The short, stout bristly leaves are of shining green and more or less glaucescent.

Picea retroflexa. Glaucous foliage in somewhat spiral arrangement. Very interesting.

Strong Plants of the above varieties of Spruces, $3.00 each. *Collection of 6 varieties*, $15.00. **Larger Plants,** $5.00 each. *Collection of 6 varieties*, $25.00.

R. & J. FARQUHAR COMPANY **6 South Market Street** **Boston, Mass.**



Mr. Taylor's place shows what can be done for you—with an EXPERT on the job. There is one in your locality—write us for his name.

Mr. A. K. TAYLOR writes

"In July, 1912, I had the Milwaukee Air Power Pump Company change the water storage tank at my country place at Nagawicka Lake, Waukesha County, Wisconsin, to an air reservoir, and put a large pump in an intake well near the lake.

"Today five pumps, operating automatically from that single air reservoir—as I use an electric motor—supply lake water to the entire grounds and greenhouses and lake, rain water, and spring water 'direct from the well' to my own, my son's, and the gardener's houses.

"The system has met every expectation. In my opinion it is a great improvement over the storage tank system—and one of its strongest features is that it may be added to from time to time."

(Signed) A. K. TAYLOR

Nothing need be added to Mr. Taylor's letter

THE MILWAUKEE AIR POWER PUMP COMPANY, 908 Third St., Milwaukee, Wis.

Milwaukee Air Power WATER SYSTEM "DIRECT FROM THE WELL" — EITHER OR BOTH — Milwaukee ELECTRIC LIGHT SYSTEM

I grow but few kinds of Plants *But Grow Them Well!*

Pachysandra terminalis, field-grown, $2.00 per dozen, $15.00 per hundred.

Euonymus radicans, three years, $2.50 per dozen, $15.00 per hundred.

Euonymus Vegetus, two years, $3.00 per dozen, $20.00 per hundred.

Euonymus Carrieri, two years, $3.00 per dozen, $20.00 per hundred.

James Wheeler, Plantsman
Worcester Street Natick, Mass.

Wild Strawberries

Crossed with garden varieties; part easily from the husk, then handle like cherries. Plants mailed $1 dozen.

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Offers to women attractive courses in Floriculture, Vegetable Gardening, Fruit Growing and Canning for the month of August.

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New dwarf hardy low border Box-Barberry
Originated and Introduced by
THE ELM CITY NURSERY COMPANY
Woodmont Nurseries, Inc., Box 191, New Haven, Conn.
Send for Box-Barberry Folder and Nursery Catalog

DELPHINIUM

I have been improving my delphiniums for a number of years, and all who have seen them say they are the finest they ever saw. In 100 plants there will be no two alike unless it is a large plant that has been divided.

From September 15th until late fall is the best time to plant them. If planted this season all will bloom freely next June.

Strong plants $2.50 per dozen, $15.00 per 100.

A descriptive list of my seedling Iris on request.

WILLIS E. FRYER, Mantorville, Minn., U. S. A.

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By LOUISE BEEBE WILDER

A practical colour manual, with exquisite paintings made from the author's own garden. *Net, $10.00*

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Ten Fine Named Peonies

For $2.50 or 20 for $5.00

All different and truly labeled. A chance to obtain a fine collection at half price, these are selected from varieties that I have in greater numbers. With the $5.00 collection I will include one plant of Baroness Schroeder free. I have a fine stock of Lady Alexandra Duff, Le Cygne, Soulange, Mons. Martin Cahuzac, Sarah Bernhardt, James Kelway and various other fine sorts. Send for catalogue.

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The Gilson Weeder kills weeds. A child can handle it perfectly.

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A Garden Full of them is none too many!

Although I have always grown *acres* of Peonies, I have often and keenly felt the limitations of space. At first, I only grew the popular sorts, in quantities. This whetted the appetite for prize winners until now I have a collection second to none, holding the rarest sorts of Europe's foremost specialists besides the greatest of our own great growers, principally Brand's

Singles, Japanese Doubles, blooming long seasons, in all colors

While I have confined myself in late years to the best among the choicer kinds, I have not limited my choice to any one class. If it is a distinctly worth while sort, you are reasonably sure of finding it here.

$5.00—Bargain Collection A—$5.00

8 Double Peonies, all different, fine large roots for....	$2.00
12 Iris—fine ones, all different, for	1.00
25 Narcissus, choice named varieties, mixed	1.00
25 Darwin Tulips, mixed, for.....	1.00
Total	$5.00

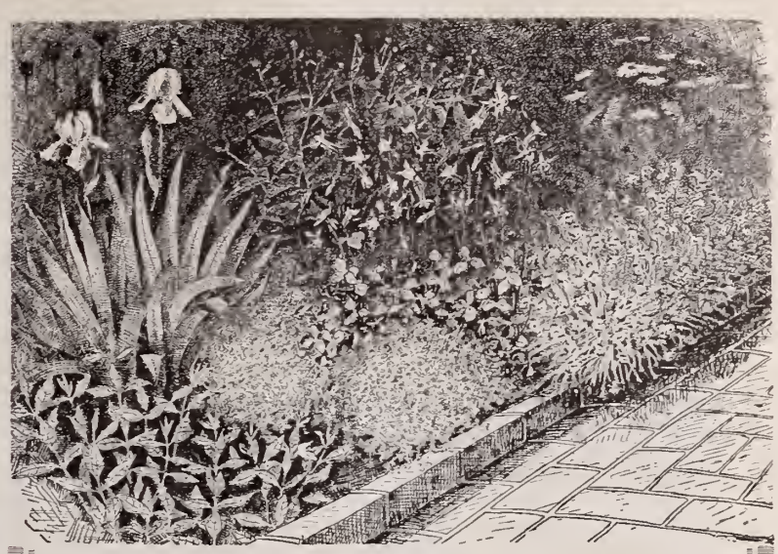
Special Premium:—Send $5.00 for the entire collection and get *12 bulbs of Lillium Superbum free.* This is a fine hardy Lily, sure to do well for you. We prefer shipping by express. If desired by parcels post, add postage to prepay 20 lbs.

My modest but truthful catalogue offering one of the most complete collections of Peonies, is yours free for the asking.

Babcock Peony Gardens

Hardy Plants, Bulbs, Shrubs

R. R. 79, Jamestown, N. Y.



We Are Prepared

to help those contemplating the planting of hardy gardens or borders of the kind dealt with in the article of Mr. John L. Rea on pages 299-302 of July G. M. All of the classes he mentions are growing thriftily in our 30-acre nursery which holds, perhaps, the largest stocks of hardy herbaceous plants in this country. Besides, many rare new plants find a happy home here, waiting for adoption to still happier home gardens.

For those who are at a loss how to start, we suggest *Selection A*, below, as an easy means to get acquainted with the charms of old-fashioned hardy plants. Selection B is compiled to suit the fancies of the connoisseur.

Palisades Popular Perennials

For Every Style of Hardy Garden

Selection A

contains four each of the following popular favorites in choice varieties:—

Aquilegias or Columbines; Boltonias or False Starwort; Coreopsis or Tickseed; Pyrethrums or Persian Daisies; Dianthus or Sweet Williams.

20 sturdy plants in all—enough for a three foot border, 20 feet long, delivered prepaid for

$5.00

Selection B

contains five each of the following more *unusual* hardy plants:—

Anchusa Picotee or Alkanett; Helianthemum, Double Rose or Sun Rose; Phlox Agillacea, Silvery Lavender Phlox; Spirea Queen Alexandra, Pink Meadowsweet Hemerocallis Queen of May, orange, sweet scented.

25 splendid plants, carefully packed and securely labeled, delivered prepaid for

$10.00

We Have an Unusual Catalogue for You

You will find it quite different from any other book you'll receive. It attempts to serve as a textbook to hardy plants, giving both Latin and English names, besides height, blooming season, etc., etc. Quite a valuable guide to those planning the building of Rock Gardens, since we specialize in such plants as well. Write for your copy to-day,—gladly sent free on request.

THE PALISADES NURSERIES, Inc.

SPARKILL NEW YORK

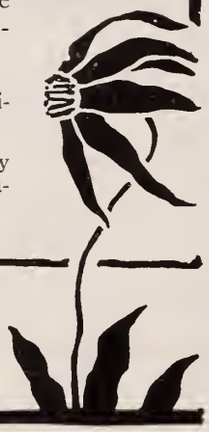
You—
or Your Friends?

Who will be first to boast of the native flowers of the Pacific Coast? Whose garden will be first to draw puzzled looks in the eyes of passers-by, when the Mariposa Lilies, Trilliums and Dogs' Tooth Violets send out unusual blooms?

Everyone who cares for flowers should be acquainted with the many novelties of the Pacific Coast. They grow as well in Portland, Maine, as they do in Portland, Oregon. Quite a few may be obtained in different colors; all are attractive because of their exotic flavor.

Catalogue A gives full particulars and cultural directions of these Pacific Coast blooms.

Catalogue B lists the finest collection of hardy plants west of the Atlantic seaboard. Either Catalogue A or B sent on request.



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The Terraces
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Let It Grow Dollars For You

Invested in a greenhouse one dollar soon produces another. Others are making big profits in their spare time by growing out-of-season vegetables. YOU can too. And in addition a greenhouse will reduce your table expenses a large per cent.

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Low Factory-to-You Prices
Erect it yourself, only wrench and screw driver needed. Permanent houses made of indestructible Red Cypress, yet portable and easily enlarged. NOW IS THE TIME TO ORDER.

Free Booklet
Tells about the pleasure and profit of gardening under glass and illustrates beautiful houses for home or estate. A card will bring it to you with full information about our service.

Also Cut-to-Fit Greenhouse material and Duo-Glazed Sash for Hotbeds

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Guaranteed Peonies and Iris
OUR SPECIALTY

OUR GUARANTEE

We will replace with three every plant blooming untrue to description.

Send for descriptive price list just issued

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Peonies Peonies

WE HAVE BEEN GROWING THESE WONDERFUL FLOWERS FOR OVER FIFTY YEARS and now HAVE THE BEST EUROPEAN AND AMERICAN VARIETIES OBTAINABLE.

THE AMERICAN PEONY SOCIETY have awarded us their GOLD MEDAL TWICE AT NATIONAL SHOWS FOR LARGEST AND BEST COLLECTION; THEIR SILVER MEDAL FOUR TIMES FOR LARGEST AND BEST COLLECTION AT REGIONAL SHOWS.

THE MASSACHUSETTS HORTICULTURAL SOCIETY have awarded us their SILVER MEDAL EIGHT TIMES FOR LARGEST AND BEST COLLECTION. Their GOLD MEDAL FOR POPULARIZING PEONIES. The APPLETON GOLD MEDAL FOR COMPREHENSIVE and EXQUISITE DISPLAY of PEONIES.

The above should convince you that OUR STOCK HAS THE NECESSARY QUALITY AND VIGOR.

T. C. Thurlow's Sons, Inc.
(Cherry Hill Nurseries)

Catalogue West Newbury, Mass.

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For August and September Planting

The sooner you plant the bulbs, the better the results. Order to-day.

LILIUM CANDIDUM

"Lily of France" or Madonna Lily

The lily par excellence for *Hardiness*, fragrance and beauty. Bearing on tall stems 8 to 15 snowy white deliciously fragrant flowers (see picture). Our Lilium Candidum are grown in THE NORTH OF FRANCE and we pride ourselves on their SUPERIOR quality. *Small bulbs give no satisfaction.*

Selected Bulbs	(3) $ .85	(12) $3.25
Monster Bulbs	(3) 1.15	(12) 4.50

In original hampers of 100 bulbs $30.00

Your Home Gay with Jacinths and Narcissii

for Thanksgiving and Christmas

JACINTHS *(Hyacinths)*

We offer SPECIALLY PREPARED Hyacinths which bloom sooner than any others. Nothing lovelier than a bowl, pan, or Jardiniere filled with these bright fragrant flowers.

L'Innocence. Pure white **PerleBrilliante.** Azure blue
La Victoire. Brilliant Scarlet **Lady Derby.** Rich rose
Yellow Hammer. Golden yellow

Your choice any color:

6 bulbs $.75 12 bulbs $1.25
100 bulbs $9.00 25 and 50 bulbs at the 100 rate

Paper White Narcissii

NARCISSII

Ideal for growing in water and pebbles

6 Paper white	.25
6 Soleil d'Or or Golden Sun	.50
6 Double Roman Sacred Lilies	.50

Prices given INCLUDE DELIVERY and full planting directions. Send for our UNIQUE Fall Bulb Book and learn How to Grow bulbs in OUR PREPARED MOSS FIBRE.

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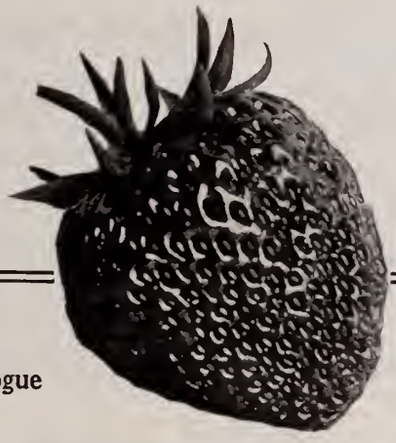

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Only the Best Varieties

Lovett's Strawberries

Pot-Grown Plants for Summer Planting

Our plants give a crop of finest berries in two to ten months from planting—the Everbearing varieties in two months; the others the following June.

Our Catalogue No. 2 tells all about them. *It is Free.* If you would have bigger and better berries than you have ever had before, plant Lovett's Pot-Grown Strawberry Plants.

J. T. Lovett—Monmouth Nursery

Box 125 Little Silver, New Jersey

Strawberry Specialist for 42 Years

WING'S IRIS

"A sword for its leaf and a lily for its heart."—Ruskin.

The Iris, taken as a single plant or massed in the border, is of surpassing beauty. Graceful in flower and leaf, of noble, stately habit, with coloring of pearl-like delicacy, intense brilliancy, or deep velvety richness, the plant is without a fault. It is of easiest culture and perfectly hardy.

Our collection is one of the largest in the world, and includes the rarest and loveliest American and European hybrids.

The following collections we recommend; they furnish an infinite variety of type and color.

Collection D. Tall Bearded Iris

Price $10.00 **Actual Value $12.45**

Caprice.....Deep Violet Rose
Cherubim.....Pinkish Heliotrope
Candelabrae.....Violet Tigered Brown
Chester Hunt.....Pale and Deep Blue
Ctsse De Courcy..... White and Lilac
Dalmarius..... Pale Blue and Amber
Eldorado..... Bronze and Violet
Her Majesty.....Glowing Rose
Hiawatha..... Lavender and Purple
Iris King.....Old Gold and Crimson
Innocenza.....Pure White
Jeanne D'Arc.....White Frilled Lilac
Juniata.....Bright Blue
Lohengrin.....Cattelya Mauve
Loreley.....Sulphur and Purple
Mary Garden..Cream Stippled Maroon
Mme. Guerville....White Sanded Violet
Monsignor.....Pale and Deep Violet
Mrs. Neubroner..... Golden Yellow
Nokomis.....White and Velvety Blue
Nuee d' Orage..... Stormcloud shades
Pallida Dalmatica.... Silvery Lavender
Parc De Neuilly..... Deep Blue Violet
Prince d' Orange Golden Yellow and Brown
Princess Victoria Louise Primrose and Plum
Quaker Lady.. Lavender, Blue and Gold

Collection E. Tall Bearded Iris

Price $5.00 **Actual Value $6.25**

Canary Bird.....Pale Yellow
Chester Hunt.....Pale and Deep Blue
Chelles...Golden Yellow and Red-Purple
Darius.....Red, Violet and Gold
Fairy.....White and Soft Blue
Honorabilis.....Mahogany and Gold
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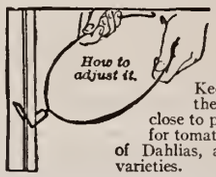

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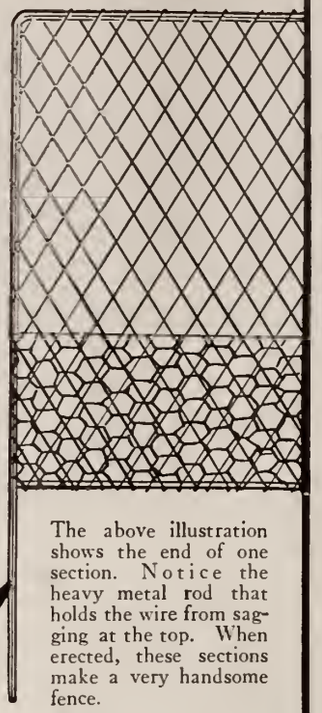

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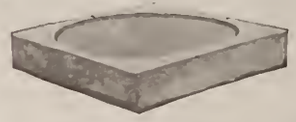

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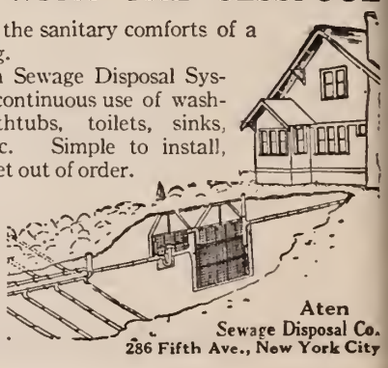

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Volume XXXII

September, 1920, to February, 1921

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The New Idea—Late Summer Planting

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Thorburn's LAWN GRASS

used for all the finest Lawns—also, for *Under Trees* and *Shady Spots* and Lawn Restoring Grass Seed.

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The 800 acres of stock grown in the American Nurseries comprise one of the greatest collections of hardy plants, shrubs, and trees found anywhere, not only in this country, but in the entire world. They represent the combined efforts of three generations of plantsmen, who have made a special study of the needs and requirements in plant material for American gardens.

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Back of every plant, shrub, or tree we send out, stands our reputation for fair dealing, based on conscientious service. With many years experience, we combine modern methods of growing, digging, and packing a product, such as only the fertile soils of Long Island's and New Jersey's best adapted sections can produce.

We are ready to serve you this Fall with all stocks suitable for Fall planting. Please afford us the chance to mail you our catalogue.

"Successful for Over a Century"

American Nurseries
Singer Building, New York

Now then, altogether—

Let's Plant PEONIES

At last, we are face to face with *the* opportunity of the year! And we can truthfully say that never before in the history of our business have we been better prepared to properly care for your orders, than this season.

We recall the glories of our acres, last June. We remember the avalanches of beauty that nearly swept us off our feet. And we are ready now to share *Peonies* with you. If we have what you want, among our 500 varieties, you are welcome to it at reasonable prices.

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Let "Peonies for Pleasure" Help

This beautiful booklet "De Luxe" holds a great treat for every Peony admirer. It will properly introduce you into the land of Peonies, give you lots of facts, some fancies and helpful cultural notes, together with unbiased opinions of our Mr. John Good who has made a life study of Peonies. Since the supply of this treatise (*not* a catalogue) is running low, we would appreciate your referring to Garden Magazine when asking for it.

Good & Reese Co., Largest Rose Growers in the World **Springfield, Ohio**

THE GARDEN MAGAZINE

AUGUST 1920

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Burpee's Bulbs

BURPEE'S FALL BULB CATALOGUE is ready for distribution. The edition is limited. If you are interested in Dutch Bulbs write for a copy to-day, and kindly mention Garden Magazine.

W. Atlee Burpee Co.

Seed Growers Philadelphia, Pa.

Fall Planting Proved!

Perhaps you are skeptical as to the wisdom of Fall Planting, especially of evergreens. If so, idle claims will not convince you, but the presentation of actual results may help.

A planting of Framingham Evergreens—on the estate of E. C. Riley, Esq., Newton, Mass.—made just previous to the severe winter of 1917-1918. This is only a representative sample of what has been done by our many clients—a sample of what you can do with ***your*** *home grounds with careful planting and Framingham Products.*

Last Call For Evergreens

There is still one more month for the planting of Evergreens—possibly more than one, but at least one month that we can surely count on. Top-growth is at a standstill. Root-growth, so necessary to the successful transplanting of Evergreens, is now taking place and will continue while warm weather lasts.

Our wide range of stock enables us to offer all habits of growth, all textures of foliage and all degrees of color to be found among *hardy* Evergreens. Also all practical sizes — small trees, medium-size trees, and big trees for immediate effect.

Our Book—"Beautiful Home Surroundings"

is replete with practical, understandable, comprehensive suggestions for designing your planting and for selecting suitable varieties. May we send it to you?

Framingham Nurseries
FRAMINGHAM – MASSACHUSETTS

Vases for Flowers

Portfolio of Designs Upon Request

Silver Vase

Mark G.M 9-20
Chinese Chippendale
Engraved Decoration
Sizes 8 to 18 inches in height

Vases Designed—any degree of importance. Sketches Submitted

J. E. Caldwell & Co.

Jewelers Silversmiths Stationers
Philadelphia

Weeber & Don

Christmas Flowers

Yes, a vase like that shown here may grace your Christmas table, at one-half the florist's price, if you start NOW. This is the month to start Paper White Narcissi, and other bulbous plants, in either soil, fibre or water. To acquaint G. M. readers with superlative quality in Bulbs and W. & D. Service, we will mail

One dozen Jumbo Bulbs

Giant Paper White Narcissi

and 4 lbs. Fibre all for

$2.00 postpaid

The Imported Holland Fibre takes the place of soil. Simply put it in pots or vases, plant the bulbs barely covering the crowns, and water. Put away in a dark, cool place for five or six weeks and bring to light and moderate warmth about middle of November. Four weeks later should see you rewarded with a bouquet of fragrance and beauty. Other flowers that may be grown this way are fully described in our

Fall Catalogue—Upon Request

Let our modest messenger suggesting Fall activity around the garden home, acquaint you further with flower growing possibilities during Fall, Winter and very early Spring.

TRADE MARK WEEBER & DON REG. U.S. PAT. OFF.

Weeber & Don, *"Sturdy Seeds"* 114 Chambers Street New York City

Why worry about Weedy Lawns

when Scott's *guaranteed—free—from—weeds* Lawn Seed will insure you the kind of a smooth, velvety, permanent Lawn you'll be proud of? We are Grass Seed Specialists and so confident are we in the quality of our Lawn Seed that we will guarantee

A 100% Perfect Lawn for $1.00

A three lb. sample, postpaid for $1.00 will sow a space about 25 x 25 feet. With each sample will come explicit directions how to prepare ground, sow seeds and cultivate the new lawn. This seed must do as we say or we want to hear from you.

This is the Month to sow Seeds

"Weedless Lawns" is the title of a valuable booklet giving a lot of useful facts about lawn lore. Answers all questions in concise and practical fashion. Sent free on request, and of course a copy comes with every three pound sample order.

O. M. Scott & Sons Co., Marysville, Ohio

FEW EVERGREENS ARE AS LOVELY AND NONE ARE HARDIER
The Douglas Fir (Pseudotsuga Douglasii) exhausts superlatives since it is one of the tallest, most important, and most rapid growing of Conifers as well as one of the most strikingly beautiful.

DID YOU READ—

How the Evergreens Wintered

in J. H. McFarland's story in August Garden Magazine?

Also, did you read his tribute:

"I have, and highly prize, two Douglas Firs, one of the refined bluish form that makes the Colorado Blue Spruce seem like a tree bounder! Neither lost a leaf nor a twig, and both are in splendid vigor, with branches sweeping the ground."

We have always been great admirers of and firm believers in the virtues and qualities of Douglas Firs. We have both forms in all sizes and here is

A Fact Not to be Overlooked!

We have the greatest stock of finished specimen trees of this particular Evergreen in the country. Beautiful trees, ten to twenty feet high, the equal of those shown in illustration, ready to give immediate effect. Not in pairs or dozen lots, but by the hundred! We can supply carloads of them and not injure our supply. Let's get together!

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By selecting Rosedale Peonies in early, mid-season and late varieties, you can enjoy a month of magnificent bloom every year. Every known peony shade from pure white to deepest maroon. Special Catalogue of Peonies and other Perennials now ready. Write to-day.

"Prices as Low as Consistent with Highest Quality"

ROSEDALE NURSERIES
Home of Well-Grown Evergreens
Box A Tarrytown, N. Y.

Scheepers' Quality

Bulbs are not available in any Quantity

Every year confronts us with the distasteful necessity of reporting "sold out" to some of our most esteemed clients. Facts are, there *are* limitations to the Bulb Supply of such standards of Quality as we demand. The enthusiastic reception accorded our "Book of Gardens" causes us to anticipate extraordinary demands of Scheepers' Bulbs. So, *please* order at once—we dislike to disappoint.

Last Call to Plant MADONNA LILIES

Great, as was my stock of these choice NORTHERN France Bulbs, exceptional demands have made great inroads. However, I can still offer a limited supply, extra-heavy bulbs in original hampers, at $30.00 per 100, $17.00 for 50. Kindly refer again to my full page advertisement, page 1, August Garden Magazine.

Madonna Lilies are at their best planted in combination with the true blue Delphinium Belladonna. To facilitate matters for my customers, I am prepared to supply extra-heavy clumps of this at $9.00 per dozen by express.

"A Catalogue De Luxe"

awaits every customers' call. The one condition to get it is that you must be able to use at least $25.00 worth of Bulbs. A descriptive circular about Madonna Lilies, giving explicit culture directions, sent free on request.

John Scheepers, Inc.
Flower Bulb Specialists
522 Fifth Avenue New York

The Brand Peonies

Originated by O. F. Brand & Son, America's foremost hybridizers of the Peony

500,000 Peony Roots

We now have an immense stock of 500,000 roots of the very choicest Peonies grown.

This immense stock allows our customers the selection of almost any variety they may want in any size desired whether a division or a one, two, three or four year clump as they may wish.

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We have made it a practice ever since the growing of Peonies became a specialty with us, never to grow Peonies twice on the same location without a long period of years intervening. In this way we have avoided many of the difficulties and disappointments encountered by other growers who have grown their roots year after year on the same ground, and by doing so, we have kept the roots of our stock free from disease and have been enabled to send to our customers roots such as they write us "they have never received before."

We own at Faribault 200 acres of the very choicest nursery land. Land which in pioneer days was covered with some of the choicest hard wood timber in America. Land which when cleared grew wonderful crops of that wheat which has long since made the name "Minnesota" famous. Such soil is ideal nursery soil.

It is the possession of these *200 acres* of land which enables us to constantly shift our Peony beds, and this wonderful soil that permits us to send our customers roots of such unusual size.

Our Guarantee

We guarantee our Peonies absolutely true to name. That our stock is free from disease, except in the case of those varieties which are always diseased and which we advise our customers not to buy. And that the stock which we send out for size and constitutional vigor is unsurpassed.

Our Stock is Handled by Experts

We are enabled to make this guarantee because our business is handled at every stage by experts.

In the first place, the roots which you purchase from us are grown in *Ideal Peony Soil.* They are planted, cultivated, dug, and after being dug, handled by experienced help. From the instant a root leaves the ground until it is boxed and ready for shipment, it is in the hands of experienced labor.

Many of our men have been with us for over twenty years. The father of my head Peony man in the field, worked for my father handling Peonies in the sixties.

All of these things taken together, with the fact that your Peonies from us are handled from the time they leave the ground, up to the time they leave for the transportation company *under cover, away from the air* in our Immense Insulated Storage Building.

The Largest Storage Building in the World

devoted to the handling of Peonies, permits us to supply you with an article that cannot be surpassed.

Personal Inspection

And finally we are able to make this guarantee because Mr. Brand personally inspects every Peony order after it has been collected, and before it passes on to the boxers for boxing.

Such Peonies and Peonies so handled, are bound to please you.

We issue a beautiful catalogue covering the entire stock of Peonies we have for sale. This catalogue is yours for the asking if you are really interested in Peonies.

But there are many to whom the Peony is new and to whom the catalogue with its multitude of descriptions would be of little value.

For the benefit of such, we suggest the following collections of very choice sorts.

COLLECTION A

12 Best Standard Varieties

Albert Crousse, Pink	$1.50
Alice de Julvecourt, Pink	.50
Avalanche, White	1.00
Baroness Schroeder, White	1.50
Courrone d'Orr, White	.75
Felix Crousse, Red	1.00
Matilde de Roseneck, Pink	1.00
Messonier, Red	.50
Monsieur Dupont, White	1.00
Octavie Demay, Pink	.75
Pierre Dessert, Red	1.50
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	$12.50

The entire twelve roots delivered boxed to the express company for you for $10.00.

COLLECTION B

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Ben Franklin, Red	$2.00
Amanda Yale, White	5.00
Aunt Ellen, Red	.75
Ella W. Wilcox, Pink	3.00
Fanny Crosby, Yellow	3.00
Little Sweetheart, Pink	.75
Midnight, Black	3.00
Mrs. Carew, Pink	3.00
Ruth Brand, Pink	2.50
Wm. Penn, Rose	1.00
	$24.00

This entire collection Brand Superb Peonies ten varieties boxed ready for shipment for $20.00.

COLLECTION C

Brand's Masterpiece Collection

Brand's Magnificent, Red	$25.00
Elizabeth Barrett Browning, White	25.00
Frances Willard, White	10.00
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Luetta Pfeiffer, Pinkish White	25.00
Judge Berry, Pink	10.00
Longfellow, Red	10.00
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Mary Brand, Red	7.50
Mrs. A. G. Ruggles, Pink	10.00
Phoebe Carey, Pink	10.00
Richard Carvel, Red	5.00
	$172.50

This entire collection twelve varieties. Every one a Brand Masterpiece. Our large regular size retail roots. All for $135.00.

Send at once for our Beautiful New Catalogue now ready

A. M. BRAND, Faribault, Minnesota

(41 years a professional Peony grower)

The Garden MAGAZINE

Vol. XXXII, No. 1 — September, 1920

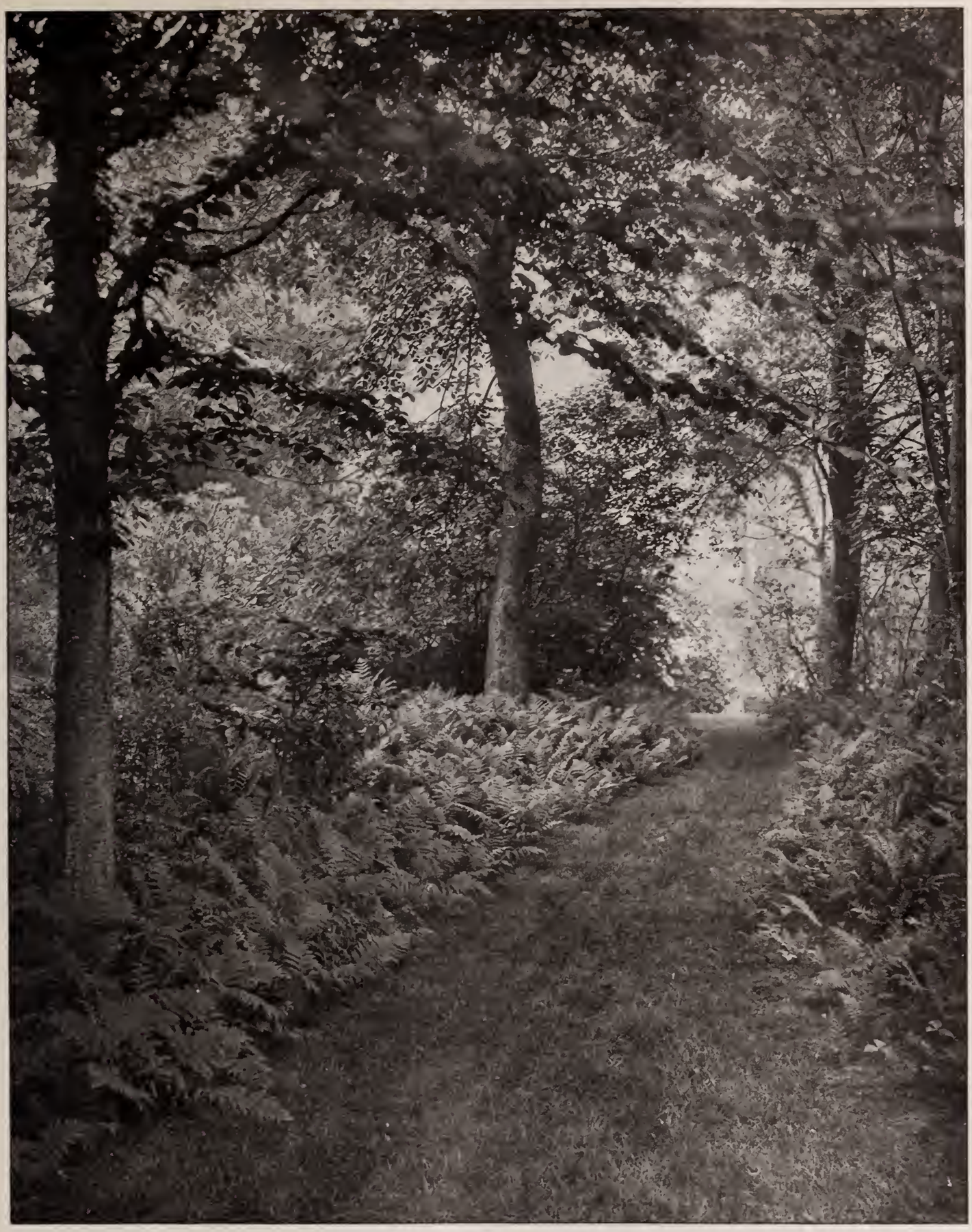
A FLOWERY PATH OF PLEASURE

Which is what all garden paths will always be if bordered with perennials as here

Mattie Edward Hewitt Photograph

A VERANDA THAT REMAINS TRUE TO ITSELF

The sacrifice of character to sash and furnishings which constantly menaces the glassed-in terrace or veranda is delightfully resisted in this positively outdoor feature at the residence of Mr. Dwight Baum, Riverdale, Conn., of which the owner is the architect



WHAT MORE APPROPRIATE FOR WOODLAND THAN FERNS?

And when used as generously as here along the walk to the old well on the Higginson estate, Manchester, Mass., the effect of their having been swept aside to make way for the rivulet of turf is irresistible

PLANT BRIEFS

A FEW ROCKERY ANNUALS RECOMMENDED

BY LOUISE BEEBE WILDER

EVEN more than the garden beds and borders the rock garden is subject to periods of uninterest and dullness when it is the part of wisdom to fall back upon annuals to keep up a display. Not just any dwarf annual will serve, however—Sweet Alyssum, Verbenas, California Poppies, Petunias, Candytuft, are not appropriate company for the diminutive beings that inhabit the select area of the rock garden. They bear too unmistakably the stamp of the border, are too obviously "easy" and usual; search must be made for kinds that have the choice, aloof look common to rock plants and alpines generally, though they may be as easy to grow as weeds.

It is important to sow thinly and to thin out the young plants remorselessly. For sowing over the heads of departed bulbs or for filling any gaps I have found the following both useful and delightful. Many will self-sow, thus perpetuating themselves, but none are of a character to become obtrusive or a menace.

Abronia umbellata (Sand Verbena), a graceful trailer from California with rounded heads of rose-purple flowers, slightly fragrant, produces a fine effect planted in a warm, sunny situation where it may trail over a little precipice. For early flowering it may be started indoors or it may be sown directly where it is to bloom when danger from frost is past.

Anagallis coerulea (Blue Pimpernel) is a charming, half-hardy annual about six inches tall with sky blue flowers. It is best sown where it is to flower when frost is gone.

Asperula azurea setosa (Blue Woodruff) is one of the prettiest of dwarf annuals. It is less than a foot in height and bears a profusion of grey-blue flower heads above whorls of small dusty looking leaves. It thrives both in sun or shade, or in rich or poor soil, but for the best results should be shown as early in the year as possible. It self-sows freely.

Corydalis glauca (Pale Corydal) may be found growing wild in many parts of the east in rocky woods. It is a cheerful little annual with delicate grey foliage and gay pink and yellow blossoms that continue to develop all summer. It self-sows freely, and once given a place, preferably on the shady side of the rockery, it may thereafter be counted upon.

Gypsophila muralis has the appearance when in bloom of a tiny sunset cloud. It has the wiry, airy growth common to its family and bears myriads of tiny pink blossoms on thread-like stems throughout the summer and fall, often resisting several degrees of frost. Nothing prettier could be found for sowing above bulbs in sunny places, or for veiling the unsightly joints of steps or paths. Its self-sown colonies are a delight wherever they appear. Sow early.

Grammanthes dichotoma (or G. gentianoides), a very small South African succulent, deserves space in the rock garden by reason of its neat habit and great brilliance when in flower. It grows not more than three inches tall and bears many bright orange-yellow blossoms that increase in strength of color as they mature. It is best started indoors and set out in a dry, sunny place.

Ionopsidium acaule (Violet-cress), a dainty, two-inch plant from Portugal with pale lavender four-petalled flowers, is a delightful subject for crevices in cool sections of the rock garden, or for the joints of shaded steps or paths. It grows and self-sows with great freedom, but is too small to do any harm, and may be found in bloom for most months of the year that are not frost-bound. Sow early where it is to bloom.

Kaulfussia amelloides (Charieis heterophylla) is a South African growing nine inches tall and bearing freely pretty daisy-like flowers, bright lilac in color, with a dark disk. It is a hardy annual liking a position in full sun.

Gilia densiflora (Leptosiphon densiflorus hybridus of gardens) is entirely delightful when grown upon the rock garden. Seed sown on little sunny plains or gentle slopes in early April germinates quickly, forming small tufts of plumy greenery about four inches tall, from which spring the dainty, many-colored flowers in the greatest profusion. Its effect is indescribably gay and jewel-like, and it blooms all the season.

Limnanthes Douglasi (Meadow-foam) is one of the lovely Californians. It grows six inches tall, has fragrant yellow flowers white-edged and beloved of bees, and a lax, trailing habit. Sow very early in spring, or in mild climates in autumn.

Nemophila insignis (Baby Blue-eyes) is one of the gems of the rich California flora, and a most charming plant for cool, moist situations. Its habit is trailing, and given plenty of stretching space, a single plant will cover considerably more than a foot of ground. The round blossoms are sky-blue with a white eye and are produced with astonishing profusion. The seed is hardy and should be sown as early as possible or it may be sown indoors and the plants later set in place. Autumn sowing is frequently successful with this plant.

Omphalodes linifolia (Venus Navelwort) is a charming little plant for partially shaded locations on the rock garden that will self-sow when once established and is always welcome. It grows about a foot high and has pretty narrow grey leaves and a profusion of white flowers like large Forget-me-nots. Sow early where it is to grow.

Phacelia campanularia (California Blue-bell). Few flowers display a more perfect blue than do the spreading bells of this beautiful Californian. It makes a bushy plant about nine inches tall, the foliage greyish with dark markings, and it likes a light, warm soil in full sunshine. Seed may be sown indoors and the little plants set out in May about eight inches apart.

Platystemon californicus (Cream-cups), a lovely Poppywort with trailing grey stems and leaves and inch-wide pale yellow blossoms, that is to be found growing wild on the hillsides of California. Seed should be sown where the plants are to grow and the plants thinned to a foot or more apart. Once established it self-sows and these gypsy plants are commonly a good deal more vigorous than those come by in the ordinary way. It likes a sunny position.

Sanvitalia procumbens is a vigorous six-inch trailer bearing a profusion of black-eyed blossoms like little sunflowers. It is useful in an emergency but is not of the first order of beauty.

Saponaria calabrica (Annual Soapwort), a nice tufted little plant with white or bright pink flowers is a useful annual in time of need. It grows six inches tall, should be sown in a sunny situation and thinned to about eight inches apart.

Sedum coeruleum (Blue Stonecrop), is a delightful miniature succulent seldom exceeding three inches in height. Its compactly grown foliage shows both bronze and grey lights and the blossoms are a pretty soft grey-blue. It should be sown early where it is to flower, in some sunny raised position or outlining a warm crevice.

LIBRARY
NEW YORK
BOTANICAL
GARDEN

FORCING SHRUBS INTO WINTER BLOOM

HENRY GIBSON

Nothing Can Exceed the Satisfaction Which a Growing Plant In Full Bloom at Midwinter Yields, and As the Shrubs Which May Be Forced Are Many, It Is a Pleasure Which Many May Enjoy

AT THE outset I may say that, for the beginner, shrubs bought for the purpose are undoubtedly the best to start with. Yet for those who intend to force hardy shrubs year by year it is more convenient usually as well as more economical to set aside a piece of ground for their culture, and work up a supply at home. In this way healthy young plants may be kept on hand to replace those worn out and exhausted under the process of forcing, while these latter are rejuvenated by giving them a year or two of rest in the nursery. In addition to ground for planting purposes, a plunging ground must also be provided; for although some shrubs require planting out every other year there are others that must always be grown in pots.

To obtain good well-ripened wood, the ground selected for the nursery should be exposed to full sun. For the majority of plants a rich medium loam will be found most suitable, though peat and leaf mold is necessary for Ericaceous plants. Gardeners as a rule prefer to raise their plants from cuttings, seeds or grafts, and to grow them two years without flowering; but where this is not expedient, small plants may be purchased from nurserymen who make a specialty of plants for forcing and these planted out in the nursery.

However the start is made, the time they occupy the nursery should be spent in laying a good foundation for the future; consequently all weak, useless wood should be removed so that the whole strength of the plant may go to the permanent parts, and the maximum amount of light and air be admitted to all parts.

At the end of the third year most shrubs are in first class condition for forcing. Those that are planted out should be lifted in October, potted, and plunged in ashes or light soil, in a deep coldframe, until required for use. If one has ample facilities such shrubs as Lilacs, Staphyleas, and Rhododendrons may be had in flower for Christmas, if given good care during the previous summer and during the forcing period. Rhododendrons have been very popular evergreen shrubs for flowering at Christmas; but owing to the action of the Federal Horticultural Board none of these beautiful plants are likely to be imported in future, at least until the ban is lifted. And as present stock in the country is at a very low ebb, it is doubtful if they may be obtained.

WISTERIA AND LILAC ARE HIGHLY FAVORED

Properly cared for between seasons and allowed sufficient time in which to recuperate most shrubs may be used almost indefinitely for forcing

February, March, and April are the three months in which forced shrubs are at their best; and for this they do not require excessive heat. It is much better to place shrubs in a temperature not exceeeding 50 degrees F. for the first two weeks, afterward raising it gradually to 69 degrees or more, with sun heat as the buds begin to swell. Much greater heat than this can, of course, be used, but it is better to take a week or two longer than to use great heat, which is a detriment to many plants. When plants are grown in cool temperature they are not so much exhausted; further, they develop healthy foliage with the flowers, which is better than when the leaves are absent.

A moist atmosphere should be maintained in the forcing house, and the plants should be well syringed several times daily. Remove them to a cool house as the flowers begin to open. To get plants into flower for the earlier dates requires from four to six weeks; for March and April from two to four weeks. After the flowers are over the plants must be pruned, cutting out all old flowering and weak wood to encourage new growth. Throughout the summer weak, useless shoots should be taken out also. Plants that have been forced should be placed in a cool house until all danger of frost is past and kept growing, with an abundance of air always. Toward the middle or end of May those that require a year's rest should be planted in the nursery, while the others that may be used another year are plunged and well fed and watered until growth is completed. Any that require special treatment are noted in the list given below.

Acer: the three most useful (when small) for decorative purposes are: Acer japonicum, A. palmatum, and A. negundo. The great variations in form and color of the dainty foliage of A. palmatum are rarely, if ever, equalled in any other species. A. japonicum has also a number of fine leaved forms showing great diversity of character. A. negundo variegata is bright green and milk white when forced. All may be grown in pots and successfully forced for a number of years in succession.

Amelanchier canadensis oblongifolia: A dwarf shrubby plant

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with white flowers in great profusion. It may be flowered in February and forced two successive years. Then it should have one year in the nursery. Very little pruning is necessary.

Ceanothus: Several are valuable for their bright blue flowers. They require to be grown in pots, in rich soil and pruned hard after flowering. The protection of a cold house or frame should be given on the approach of winter. C. divaricatus, of thick bushy growth, and C. papilosus, pale blue, are two of the best.

Chionanthus virginica: The Fringe Tree will have loose panicles of flowers by Easter if not forced too hard.

Choisya ternata: This may be had in flower with ordinary treatment at Christmas.

Corylopsis: The catkin-like inflorescence of C. parviflora (primrose yellow) and C. spicata (yellow with conspicuous red anthers) may be had in February. Both are twiggy bushes, and require no other pruning than an occasional thinning.

Crataegus: Red and white Hawthorn, both double and single, are easily forced, and make charming plants for decorative purposes. While it is possible to force specimens of considerable dimensions, the neatest and most suitable are those grown as bushes from 3 to 4 feet high. During summer the shoots should be pinched back to form spurs from which the flowers are produced. They may be flowered in the same pots for several years, but require an occasional rest in the nursery.

LIKE A LITTLE BLOOMING EVERGREEN!

The compact, sturdy beauty of the Heather (Erica) is an asset rivalled only by the fact that its flowers continue for two to three months

Cytisus: Favorites with all gardeners. Standards are usually worked on Laburnum stocks, but require frequent renewal. When bush plants are used they are best when on their own roots. After flowering they require to be hard cut back to prevent their becoming leggy.

Daphne: The fragrant flowers of several species may be had from December on through January and February with very little heat. Alternate years in the nursery is a necessity. Daphne Cneorum has heads of small red flowers on every shoot. D. Dauphini has fragrant white flowers shaded purple. D. Mezereum is red, pink, or white flowered and sweetly scented.

Deutzia: When subjected to excessive heat these require to be rested alternate years. Moderately forced they will last three successive years. D. crenata flowers in racemes 6 inches long. D. gracilis is most floriferous and useful either as a plant for decorative purposes, or for cutting. D. Lemoinei, a cross between gracilis and parviflora is as free as the former with the upright panicles of the latter. It is most desirable for forcing.

Diervilla (Weigela): Worth a place among plants that are lifted from the open ground annually and given a little heat under glass for spring flowering. The varieties floridus (syn. rosea) and hortensis are the most commonly used.

Ericas: These should be potted in September placed in a cold house or frame until December, and then removed to a greenhouse. Gentle forcing is the watchword with them, as they resent too much heat. The flowers will last two or three months. The best of the early flowering types are E. gracilis, E. hyemalis, E. melanthera and E. cinerea.

Forsythia: Forsythia suspensa is a free grower and flowers well in a greenhouse temperature. It should be pruned hard after flowering.

Hydrangeas: The old H. hortensis, and its varieties otaksa and Dr. Hogg are still in demand and fill a useful place. Propagation is by soft wood cuttings in spring rooted in sand, and grown on either in pots or planted outside and lifted as danger from frost approaches. During the winter they need to be kept somewhat dry in a cool, airy house until needed for forcing, when plenty of water should be given. As the flower trusses develop, weak solutions of liquid manure may be given, but should be discontinued when the flowers show color. Though not forced to the extent of the other types Hydrangea paniculata makes a desirable subject for forcing. It requires however, different treatment. Strong plants in pots should be pruned to within three eyes of the base and placed in an intermediate house. The eyes will soon break into growths which will bear the trusses of bloom. As the growths increase the plants may be given more heat, yet results are best obtained with moderate forcing.

Itea virginica: When forced slowly so that the leaves develop with the flowers this is a very pretty plant. The flowers are white in upright racemes three inches long, will open in March, and will last for several weeks.

Jasminum nudiflorum: Place in the greenhouse in December.

Kerria japonica: Started in January, this will produce its orange-yellow flowers in February. The double variety lasts longer than the single one. They may be grown and forced in the same pots three years in succession with liberal feeding. All flowering wood should be removed as soon as the flowers are over. After the third year throw away the old plants.

Laburnum: A useful and beautiful plant when forced for conservatory decoration. They should be potted a year ahead of the time needed for forcing.

Lonicera: These require no special forcing. The well known species fragrantissima and Standishii are both good. They have small and very fragrant flowers.

Magnolia: Plants lifted from the open ground with care and planted into pots may be had in flower very early. The best forcers are M. conspicua and the several hybrids between it and M. obovata, particularly M. Soulangeana and M. Alexandrina. The purple-flowered M. obovata and the pure white M. stellata are also excellent when forced. The flowers of the latter are glistening white, star-like and so abundantly produced that they completely hide the plant.

Olearia stellata: If kept in pots and not subjected to excessive heat this may be used several years in succession.

Paeonia Moutan: Grow in pots and have well established before placing in the heat. There are many varieties with flowers from 4 to 9 inches across, varying in color from pink, white, and crimson to deep purple. They will stand hard forcing and may be had in flower in February.

Philadelphus: The fragrance of the flowers of the various Mock-oranges make them most acceptable as forcers. They will not stand very hard forcing, however. The pretty little Lemoine varieties should have all the old flowering wood removed as soon as the flowers are over. The others require thinning rather than severe cutting back.

Prunus: Double forms are the most popular though the single forms are very desirable. They may be had in flower from January until they bloom outside. The plants may be potted from the open border into pots or tubs and grown on the same as fruit trees for forcing. They may be used a number of years, provided they are not abused with too much heat. After flowering they should be pruned hard and fed liberally to induce strong growth. Place them in full sun to ripen the wood thoroughly. Some of the best are P. Pissardii, with purple leaves and white flowers, P. Rhexii with double white flowers (this is free and forces well in an intermediate house), P. japonica, another double white, 4 feet high, which may be forced into bloom soon after Christmas, P. nana, dwarf with almond-like flowers, P. persica with double flowers ranging from white to deep red, and P. triloba, double rose-colored flowers.

Pyrus: Both floribunda and spectabilis when grown on dwarfing stock are useful for forcing.

Ribes: The most serviceable are R. aureum, with fragrant yellow flowers, and R. sanguineum, (var. atro-sanguineum), with red. Both are easily forced.

Robinia hispida: Drooping racemes of rose colored flowers, which can be readily forced into bloom if established in pots and not subjected to too much heat, make this highly desirable.

Rhododendrons: For forcing purposes we have had to look to Europe for our early flowering Hybrid Rhododendrons, and as they are affected by the recent ruling of the Federal Horticultural Board, in its Quarantine 37, there is some doubt whether or not these plants will be available in the immediate future. Among the best varieties for early use are R. Pink Pearl, considered the best and easiest to handle, R. Nobleanum, bright red, though it comes white when forced hard, R. flavum (Azalea pontica) yellow and sweetly scented, and R. praccox, rosy purple. For use during February and onwards R. caucasicum album, R. Everestianum, Grand Arab, John Waterer, Lord John Russell, Boule de Neige, Cynthia, and John Walter are best.

Spiraea: Some species force readily in an intermediate temperature, to flower in February. By attention to pruning and feeding they may be used three successive years. The best are S. arguta, which has small star-shaped flowers in great profusion, S. prunifolium flore-pleno with long wand-like shoots, S. Thunbergii, another small-flowered variety and S. Van Houttei with white flowers in Hawthorn-like bunches.

Staphylea colchica: Useful for forcing and producing large panicles of pure white flowers which may be had at Christmas.

THE BOUGAINVILLEA HAS COME INTO ITS OWN

Possessing the general exuberance of its tropical nativity in combination with ethereal delicacy in the flower itself, this is now established as the Easter substitute for the outlawed (by quarantine) Azalea

Syringa (Lilac): Large quantities of Lilac blooms are to be seen in our florists' stores during the winter which are obtained from plants specially prepared and grown for forcing. The best varieties for this purpose are grown on stocks of the common Lilac, the scion being inserted six inches above the ground. They are then allowed to grow on for two seasons, strong shoots only being allowed to remain. At the end of the second year they have eight to twelve strong growths each. At the beginning of August each plant is root-pruned where it stands, so that it will go into a seven-or eight-inch pot. This root pruning aids greatly in ripening the wood, for the holes made by the spade in the operation of root-pruning not being filled in allow both sun and air to get at the roots. In September the plants are potted and plunged until needed for use. When required for Christmas it is usual to put them in a dark place in a house with a temperature of from 75 to 80 degrees F. and keep them well syringed. The heat and darkness blanch the colored varieties. When wanted for spring flowering less heat is required, though a high temperature is essential to get flowers quickly. After flowering the plants are cut back to two or three eyes and stood in a cool house to "break." When all danger of frost is over they are planted out and rested for a year, although those that have been hard forced should be left for two years. While in the nursery all weak wood and suckers should be pruned away, only the strong shoots being allowed to remain. By growing them on, large plants may be obtained carrying from twenty-five to thirty heads of flowers. The most commonly used varieties are Charles X, Marie Legraye, President Grévy, Madame Lemoine, Alphonse Lavallé, and Rubra De Marley. Syringa persica requires an intermediate temperature and may be used two years in succession.

Viburnum: The Snowball tree is easily forced, though if given too much heat the flower stems come weak and are easily broken. V. tomentosum plicatum has dense heads of pure white flowers and is one of the best for forcing purposes. They should be rested alternate years.

It is always to be borne in mind that special feeding of all plants is necessary when growth is active—and of course the process of forcing is really a stimulation into not only early but abnormally active growth. All useless shoots should be removed as soon as they are observed—and they must be watched for carefully—for not a particle of energy should waste itself in the development of parts that are not necessary. The whole enterprise fails if the material is unfit through weakness or any constitutional fault.

REMAKE THE PERENNIAL BORDER NOW

GRACE TABOR

At this Season the Plants Reveal All Errors in Arrangement As Well As Individual Peculiarities Which Detract from the Effectiveness of Their Ensemble

THE CURVING PATH IS AN INVITATION

With its persistent elusiveness it expresses more adequately than any other simple feature the mystery and the "come-hither" with which the clever designer aims to permeate his garden creation, and affords at the same time opportunity for the greatest diversity and interest in its perennial borders

WITHOUT a doubt there is no gardener who has not shifted material at all sorts of odd seasons and had it live and thrive notwithstanding. We do not commonly confess it; but at one time or another we go against all the books—and nothing happens. So we all know that all seasons are planting seasons to the good operator, within his own garden at all events. Hence we know, or ought to reason, that the ideal time to arrange plants in a border is when we can group the plants themselves and see the effect instead of grouping their roots only and guessing at it. Moreover, this work done early enough gives them full opportunity to make roots and lay active hold upon the ground before cold weather; therefore it obviates the danger of winter loss by freezing out or heaving. And it also insures activity in the spring at the earliest possible moment. So the border planted now, or rearranged, will have taken on all the grace and finish of maturity by next midsummer if not earlier, instead of being, through half the summer at least, only a promise—and as often as not a dubious looking promise to all but the optimistic eyes of its sponsor.

While Poppies, Peonies, and Dictamnus require to be left alone from generation to generation, practically everything else in the perennial world needs taking up, dividing, and replanting every few years; or if the plants are not taken altogether out of the ground, the roots should be uncovered on one side, a portion cut off—half or a third or two-thirds, as the case may be—and the earth restored after the reduction is made. The clump thus subtracted may furnish one, two or three new specimens, if desired—in the same garden or another, if someone else wants them and you do not.

It is highly desirable of course that all plants have sufficient root room to insure their best growth; but no border should, on this account, be sparsely planted. Better crowd some things a good deal even rather than have openings. Roots do not spread quite as widely as tops usually; so where tops simply mass in well together the roots are not likely to be crowded, as far as their neighbors are concerned. They are much more likely to crowd themselves—which is the reason for dividing occasionally.

As to the task of "unplanting" and replanting, the earth-ball is the secret of greatest success with perennials just as it is the whole reason for success in handling evergreens. Perennials can be moved without it, of course; but they cannot be moved without serious setback during any part of their growing period unless their roots are undisturbed as far as possible—and of course only by digging them with the lump of earth in which they grow is this accomplished. It means heavier work in handling them, but this is a detail that need not modify action to any appreciable extent.

Choose the day after a rain, when the earth will not shake loose easily from the roots, or else water the plants copiously the evening before the work is to be done. A damp soil is really essential. Starting at the plant's circumference set spade down its full depth straight into the earth all the way around; then gradually work it under the root mass, which will gradually loosen if you work the implement back and forth patiently. Patience indeed goes a long way in this sort of thing—and in inducing plants to grow generally. Grasp the entire top of the plant near the ground and lift gently but firmly and continuously as the spade works its way underneath; and when the mass at last yields, tilt it over upon the spade and either carry it thus to its new place or deposit it on a barrow to be moved there. Replace it in a hole dug a little larger than the earth-ball, in the bottom of which the earth has been made soft and fine. Sift earth in at the circumference and tamp it down firmly, pour on water when it is practically filled everywhere and when this has settled out of sight, fill in to a level with the surface of the ground—and go after the next plant. If root clumps are to be divided, simply cut the mass of earth and roots with a sharp spade or an axe into as many parts as you desire or can make; and plant in just the same way, it being the assumption that each subdivision is a complete plant.

THE ASSETS OF THE FRUIT GARDEN

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Since the Finest Fruits Are Positively Unavailable Anywhere Outside the Home Fruit Garden, Why Do We Neglect the Culture of This Easily Created and Easily Maintained Feature?

FRUITS of the best quality cannot be bought. The finer varieties of fruit are not grown commercially except to so limited an extent that they are seldom to be had in the market. The commercial fruit grower naturally grows fruit to sell (not to eat) and so considerations of profit determine his selection of varieties. And varieties that are most profitable are, curiously enough, in most cases those of inferior quality. Hence it is that Baldwin, Ben Davis, Gano, Winesap, Rome and apples of this character, all lacking in high quality, are often the only kinds offered for sale. The same holds true with regard to other fruits, so much so indeed that few of us know how delicious a strawberry or peach, for instance, can be merely because we have had to take what the market offered and so have never become acquainted with the best, with the aristocrats of fruitdom.

The home fruit garden is of little interest and usually of no profit unless the fruits grown therein are exceptional either in their quality or their rarity. For the ordinary kinds and varieties of fruit, produced commercially, may be purchased for less than the cost of producing them in the home garden would be; therefore quality and rarity should be the all-important considerations in the selection of varieties for home culture. It needs but a casual survey of the situation however to convince that these considerations have not prevailed, excepting in a few cases. The result is that our home fruit gardens are in a majority of cases producing varieties of fruit not only inferior in themselves but actually not as well grown nor as desirable as the commercially grown fruit of the same varieties that can be had on the market.

The obvious conclusion is that many of our home fruit gardens need replanting; and we further see that there should be many more of them, selection of the varieties being based on an understanding of the true purpose of the private fruit garden—namely, the production of fruit of only the highest quality, fruit that is superlative in its excellence. Until this rigid standard is set up, *and followed*, the full possibilities of the fruit garden as a source of pleasure can never be realized; for with the growing of fruit as with other lines of agricultural or horticultural work undertaken non-commercially, the reward is found in the satisfaction of producing something superior and in the pride of accomplishment.

This is better appreciated abroad than here, hence the extraordinary lengths to which the estate owner in Europe will go whether with fruits or flowers, in order to achieve rarity or excellence. His pride in his successes is truly creative—a pride that can be likened only to that of the artist in his masterpiece.

IN THE adaptation of our soil and climate to the growing of fruit nature has been extremely generous with us, much more so than with most parts of Europe. This is evidenced not only by our relatively greater commercial production and the superiority of our commercially grown fruits, but also by the greater number of indigenous species. It is not necessary here to resort to the expedients that characterize, for instance, the growing of high quality fruits in England; but if we were to give to the fruit garden a good measure of the thought and care that it is necessary to give it in England in order to attain even fair results, we would produce fruit of a quality heretofore undreamed of.

Furthermore, the possibilities of useful fruits as embellishment to estate or suburban home is almost limitless. Few plants grown purely as ornamentals can compete with our fruit trees when they are well grown, in the succession of beauty and interest from blossom to fruition; and almost no other planting is so susceptible to arrangement indicative of permanence and the feeling of home, or connotative of a particular mood as is the fruit garden.

ALL of which brings us to the question of just when fruit trees may be planted most successfully. Probably any plant may be transplanted at any time, and transplanted successfully, providing the proper care is exercised in performing the operation. However, unless there is some special need, it is just as well to wait until the tree *matures its terminal buds*, after which it may be said to be dormant. For the dormant condition of a tree is arrived at considerably in advance of the dropping of its foliage. Recognizing this, it will be seen that considerable time may perfectly well be gained over the usual practice of waiting until the tree has shed its leaves before transplanting it.

Early fall planting generally is recognized as superior to spring planting, excepting for some of the more tender thin-barked stone fruits that are especially subject to winter killing. The great advantage of fall planting is that, during the fall, trees naturally develop new roots; consequently the setback a tree receives at that time as a result of transplanting is much less severe. And the earlier in the fall a tree is planted the more time it has in which to develop new roots before the severe cold of winter. Moreover the ground being warm stimulates greater root development.

PLANTING may therefore be begun at once—and may continue through the rest of the season until freezing of the ground—beginning with the small fruits such as Strawberries, Raspberries, Blackberries, then Currants and Gooseberries. After the last of August, transplant or set out Apples and Pears, and some of the hardier varieties of stone fruits. The less hardy stone fruits and Grapes wait until spring.

But let it be very clearly understood that nothing which has been said here is meant to convey the impression that there is actually any set time when fruits should be planted; rather the opposite view is taken. It is desired to emphasize that the fruit grower is not as narrowly limited in the time of planting as has been generally supposed; and that fruit trees may be planted successfully much earlier in the fall than is now the practice.

As a bit of warning, however, to conclude I may say that recently there has been a great boom in commercial fruit growing throughout the United States, with a corresponding demand on nurseries supplying stock. This coupled with the labor conditions so familiar to all industries has greatly depleted the supply of first-class, well-grown stock. Further, shortage of nursery trees is not a condition that can be remedied in a single season simply by more extensive planting on the part of the nurseryman, for it takes some years to produce a tree especially of the type desired for the fruit garden. It might be well therefore to plant now, if planting is contemplated, and as early in the season as possible. This should secure the pick of the stock on hand, rather than the culls—and insure against the disappointment of being unable to obtain the selected varieties desired for the home garden.

FERNS FOR THE GARDEN

LEWIS AND MARY THEISS

One of the Most Luxuriant Forms of Vegetation in the World, This Group Has Possibilities In the Way of Immediate Effects As Well As Permanent Beauty of Which Too Few Gardens Take Advantage

THE secret of success in growing Ferns is to observe closely their environment in their native habitat and to reproduce, as nearly as possible, those native conditions. Some, such as the Slender Cliff-brake, prefer rocks on which to dwell; but commonly most are found growing in pure leafmold. In its nature this is very different from the soil in our gardens, the constant decay of the leaves rendering the resulting soil acid. And there seems to be no doubt about its being more important to reproduce this acid condition than it is to reproduce the moisture conditions in which they grow.

A MIXED PLANTING IS RICH IN INTEREST

The largest here is Goldie's Shield Fern on the left, next is Clayton's Flowering Fern on the right, while underneath these high and mighty dignitaries grows the Oak Fern (Phegopteris Dryopteris)

The simplest way to do this is to secure soil in which Ferns are growing in a natural state. In collecting we invariably take duplicate receptacles half of which are filled with Ferns and half with soil from their habitat. By digging a considerable hole and lining it with this soil, a Fern can be replanted in a soil that is locally exactly similar to that from which it came. Acid soils can also be manufactured by mixing sand with decaying leaves, perhaps one-third of the mixture being leaves. Some of the ranker growing varieties do well in ordinary garden soil to which has been added well rotted horse manure.

But observation must not end with the variety of soil. The way in which the plant grows in that soil must be studied also. Practically all the Ferns mentioned in this article have their crowns nearly level with the surface of the ground. A few however, like the Silver Spleenwort, the Rattlesnake Fern (Botrychium virginianum), Goldie's Woodfern, the Sensitive Fern (Onoclea sensibilis), the Common Brake, and the Maidenhair Fern have their crowns from one to three or four inches *below* the surface. A Fern that normally has its crown level with the earth cannot stand being buried under several inches of soil, nor can one that normally requires deep soil-cover, endure exposure. In planting therefore, one must be careful to plant not only in congenial soil but also in the way they grow.

EXPERIMENTS have shown that Ferns can be transplanted at any time though it is better to move them in early spring or in the fall. When moved in summer, their fronds should be cut off. New ones will come up, though the second growth will not be so vigorous that year as that removed. Whenever they are planted they should be set firmly in their new locations and be well watered for some time, so that they will become strongly rooted. If they are shifted in the fall they should have a mulch of leaves to protect them from the winter and to help retain the moisture in the soil; but care must be taken not to make the mulch too heavy lest the plants be smothered. According to Mr. Edward Gillett, the noted Fern grower, the season of planting does not seem to make much difference: either spring or fall is favorable. But fall planting has this advantage. The gardener sees the plant growing and knows what he is getting. In early spring, before growth starts, he may make a mistake.

It is to be noted that most Ferns grow on sloping ground, where drainage is good. That is a hint Fern growers cannot afford to overlook. Good drainage is essential with most varieties though lowland Ferns, of course, thrive where it is wet. Many persons whose ground is very dry may be puzzled to know how to succeed with Ferns that require considerable moisture. Dense planting is the solution. The earth is never dry under a board. Plant small Ferns under taller ones, densely, so as to cut off both light and air, and the low Ferns will act as a mulch and prevent evaporation. An occasional good soaking with the hose will keep such a spot moist even in the warmest weather. The desert alone is really dry. And it is dry (and ugly) because it is devoid of vegetation.

HOW Ferns shall be used depends entirely upon circumstances. The immediate environment and the general conditions of a place determine whether there shall be a distinct Fern garden or merely clumps of Ferns here and there. And the varieties to be employed depend, of course, upon the uses to which they are put. But no matter what the needs may be, Nature has provided a suitable form. Furthermore, there are hardly to be found in the whole vegetable realm plants that are easier to grow than Ferns. As before observed all that is necessary to command success with them is ability to note closely and to imitate well.

For the new house, Ferns are indeed a boon (and one very great advantage of them is the fact that so many varieties are evergreen. Twenty useful kinds that can be easily cultivated remain green all winter). Next to a barren yard, bare foundation walls are painfully conspicuous, and the average new house stands out as noticeably as a tied-up sore thumb—and for the same reason. It is a sort of excrescence. It needs trees and shrubs and vines and other green things about it to form a proper setting and conceal its newness. But these require time for their development.

The Fern however will grow, if not with the speed of Jack's bean-stalk, at least with surprising and pleasing rapidity. And as those varieties that die down through the winter put forth their fronds early in spring, renewing quickly and without effort on the part of the gardener the picture he has created

by their use, they are peculiarly valuable. So for banking about the bare foundations of houses, particularly on the shaded sides; as backgrounds for smaller growths of flowers; as ground covers for barren spots under heavy shrubs or trees; as edgings for flower-beds; as transformers of rocky areas; and for planting either in masses or as single specimens, do not overlook Ferns.

In size these plants are as nicely graduated as those famous fleas Dean Swift tells about which had smaller fleas to bite 'em, and so on ad infinitum. When tall growths are desired, the gardener can secure Ferns three, four, or even five feet in height—though the latter are not so common as lower growths to be sure. From that size they slowly descend the scale until tiny little varieties are reached with fronds but two or three inches long. Thus Nature has provided a suitable size for every sort of space—and whether they are wanted for mass plantings or as solitary specimens, or to fill in a dark corner or occupy a spot in the full sun, one has but to seek and he shall find the suitable variety.

Among the taller varieties suitable for backgrounds, for banking about the house, or as screens to hide unsightly areas, are the Silver Spleenwort (Asplenium acrostichoides) and Goldie's Wood-fern (Aspidium Goldianum). Each attains a height of thirty-six inches, and under favorable conditions may grow taller. Each prefers the shade. Goldie's Wood-fern is very showy and an excellent variety to plant where a single specimen large Fern is desired. Unfortunately neither of these is evergreen. But Clinton's Wood-fern (Aspidium cristatum var. Clintonianum) possesses both size and continuous verdancy. It attains a height of thirty inches or more, and like the two others mentioned, it loves shaded and moist situations.

The Cinnamon-fern (Osmunda cinnamomea) is still another variety suitable for tall backgrounds. It grows as high as Clinton's Wood-fern, and also loves moist, shady places. And it furnishes color too; for when young it is clothed with a rusty wool that gives it a warmth of tone highly desirable in the springtime. The fertile fronds, shorter than the sterile, appear first and are covered with cinnamon-colored sporangia. These are succeeded by the taller, sterile green fronds.

Of Ferns of medium height that are suitable for planting in front of higher backgrounds, or as backgrounds themselves for low growths, there are a number that reach a height of approximately two feet. It must be borne in mind however that they will grow taller or shorter than the figures given according as their cultural conditions hinder or stimulate growth. Among Ferns of this sort that can be successfully cultivated are the Lady-fern (Asplenium filix-foemina)—the Spinulose Wood-fern (Aspidium spinulosum), the Male-fern (Aspidium filix-mas) the Ostrich-fern (Onoclea Struthiopteris), Clayton's Flowering Fern (Osmunda Claytoniana), and the Royal Fern (Osmunda regalis), which is another of the flowering ferns. Of these both the Male-fern and the Spinulose Wood-fern are evergreen. All are shade lovers, and all but one like moist situations. Clayton's Flowering Fern alone prefers a dry location. Both the Lady-fern and the Ostrich-fern are excellent as single specimens.

Among Ferns of more moderate height—say eighteen inches—may be mentioned the Hay-scented Fern (Dicksonia punctilobula), the drying fronds of which have a pleasing aroma, the common Brake (Pteris aquilina) and the Marsh Shield-fern (Aspidium Thelypteris). The first will grow where it is either moist or dry, the two latter require moist situations.

NATURE has provided numerous little Ferns for low masses, as edgings or wherever they are wanted. These include the Ebony Spleenwort (Asplenium platyneuron), the Maidenhair Spleenwort (Asplenium Trichomanes), the Walking-leaf (Camptosorus rhizophyllus), the Brittle Fern (Cystopteris fragilis), the slender Cliff-brake (Cryptogramma Stelleri), and a number of others. The list that can be brought under cultivation is indeed large.

HERE IS THE HOME THE MAIDENHAIR CHOOSES FOR ITSELF

Beneath the shade of tall woodland trees yet half in the open this, perhaps the loveliest and certainly one of the most satisfactory to grow of all Ferns, is not particular about soil—nor will it be greatly disturbed by more than its own choice of sun

Commonly we think of Ferns as growing only where it is dark and moist. Most Ferns do grow in such situation, yet there are many varieties that will thrive in the sun, or even where it is dry. The number that will grow in the sun is considerable, but the list depends somewhat upon moisture conditions, for there are few Ferns that will grow where it is both sunny and dry. The Marsh Shield-fern for example will grow in the sun, but needs moisture. This Fern is light green in color and should be planted in masses to make much of an effect. The Ostrich-fern will also grow in the sun where there is an ordinary amount of moisture. It is a rank growing plant of large size, and the best effect is secured by planting it in col-

ONE OF THE SPLENDID EVERGREEN FERNS—POLYSTICHUM ACROSTICHOIDES

Which it should be to support its name, though when we call it the Christmas Fern it is itself as familiar as are its long fronds, lavishly used by florists to accompany cut flowers

MOST VARIABLE OF ALL FERNS IS THE LADY FERN

It hardly seems gallant to add that though beautiful in some forms this is an aggressive type not meriting the highest praise

THE CINNAMON FERN IS REGAL IN CHARACTER

Growing as tall as Clinton's Wood-fern this loves the moist and shady places which we commonly associate with ferny growth

onies, the individual roots being spaced eight or nine inches apart. Ferns of this size are likely to have their fronds broken by storms unless they are planted closely enough together to support one another, or are placed where a fence or wall will hold them up.

For massed effects in sunny locations, the Hay-scented Fern is one of the very best. By means of underground rootstocks it spreads rapidly and in a few years will make a dense mass of green. While this Fern will grow well in dry places, it does best where there is the average amount of moisture in the soil. The Bladder-fern (Cystopteris bulbifera) can be planted under a wide range of conditions. It grows beautifully in the sun in moist places. It is especially effective when planted on moist banks in masses, or along the edges of shady walks or by small streams, where a low, light-green covering is desired. The graceful Maidenhair Fern, so effective in masses, grows well in rich, moist, shady situations. When once established in a well-drained location, this Fern increases from year to year. The Virginia Chain-fern (Woodwardia virginica) naturally grows in very wet places, yet it can be successfully raised in gardens where the moisture content is but moderate. For use beside ponds or fountains, where a height of two feet or more is desired, the Royal Fern is of great merit. This is extremely beautiful when it is making new growth in the spring.

VEILED AND RELUCTANT

Thus the great Cinnamon Fern awakes in the spring, coming forth in a rusty brown woolliness that, as one observer sees it, "fairly drips from their uncanny heads like water after a bath"

In addition to the Ebony and the Maidenhair Spleenworts, the Walking-leaf, the Spinulose and Clinton's Wood-fern already mentioned, evergreen Ferns include the Ternate Rape-fern (Botrychium obliquum), the Crested (Aspidium cristatum) and the Evergreem (Aspidium marginale) Wood-ferns, the common Polypody (Polypodium vulgare), the Christmas Fern (Polystichum acrostichoides), and the rather rare Holly-fern (Polystichum Lonchitis).

A number of the Ferns already mentioned thrive well on cliffs. These include the Walking-leaf, Slender Cliff-brake, the Polypody, and the Rusty Woodsia (Woodsia ilvensis). Persons desiring to make rockeries or to plant Ferns in stony areas or in stony borders, can find something suitable in this list for their purposes. Especially adapted to rock work are the Ebony and the Maidenhair Spleenworts, the Bladder-fern, the Brittle Fern, the Male-fern, the Christmas Fern, and the Holly-fern.

Finally, let me say that while many of these Ferns grow wild and abundantly in many places, the collecting of them is not approved. Now and then it may be permissible to appropriate a single specimen; but generally speaking we should acquire them without robbing the woods.

FULL OF DELICACY, DEEP SHADOWS, AND LUSH COLOR IS THIS CALIFORNIA FERN BORDER

But not the least of their fascination is the haunting suggestion Ferns embody of that strange long ago when our unknown ancestors and the great creatures that kept them company dwelt in dim forests made up of giants like themselves and the landscape was practically identical with what we see here to-day in miniature

GARDENESQUE TREATMENT OF THE VERANDA

MARGERY WICKWARE
Consulting Decorator

Aids to Preserving the Outdoor Atmosphere of This Essentially American Feature When It Is Glass Enclosed Are to Be Found In Especially Designed and Unconventional Fabrics

BECAUSE it has evolved from the staid and onetime formal entrance porch until it is now the meeting place of the garden and the house, the well-placed veranda is the garden's legitimate successor during the winter months; and consequently the place where fancy—especially fancy stimulated by garden feeling—may very well have free rein. It is indeed the place where one's most daring—and darling!—schemes may legitimately be put into execution; for they need not be permanent if they fail to please, or they may be as permanent as desired if they please greatly.

Whatever the scheme, however, this intimate rendezvous of the home's two essentials—the garden and the house—should preserve the outdoor sense; yet the indoor sense will claim it in spite of everything, once it is enclosed within its walls of glass, if this is not resolutely combatted. To this end let it never be overlooked that space is valuable beyond words. Use the greatest care to avoid cluttering either with furniture or ornaments, regulating both to the same degree that you would regulate them in the garden and confining them to things that are surely useful as well as amusing or beautiful. Observe the rule of the garden too with regard to placing things, keeping "open centres" and thereby assuring space in which to move about freely.

For the confirmed individualist anything he—or she—fancies in the way of fabrics for cushions or hangings is possible, through the use of stencils conforming design to individual conception or taste. Or there is, on the other hand, a wealth of material ready—cretonnes, chintz, prints and such—in patterns which are quite worthy to furnish inspiration for an entire decorative scheme. One may therefore approach the pleasant task of transforming the veranda into a "garden room" (may I suggest that there be no effort to make it an "indoor garden"?) from either of two ways.

With a given plant in hand as a beginning—such as the Bay-tree, or Palms, or Ferns—the stencil motif establishes itself automatically; and it is a matter only of selecting the background upon which in its simplified form, Fern or Bay or Palm shall be applied, and determining upon the colors in which it shall be developed. Whether it shall be naturalistic or bizarre—perhaps "futuristic"—depends of course entirely upon the individual temperament; the same motif may be treated in either way. And while it should not be over emphasized and

Mattie Edwards Hewitt Photograph

AN UNUSUALLY SUCCESSFUL ADAPTATION OF A PLANT FORM TO A TEXTILE DESIGN

With its trim and positive lines and rich depth of color the Bay-tree dominates wherever it appears, and the repetition of its note in a chintz supplies very distinguished harmony. Residence of Mr. Edward Sinclair, Pelham Manor, N. Y.

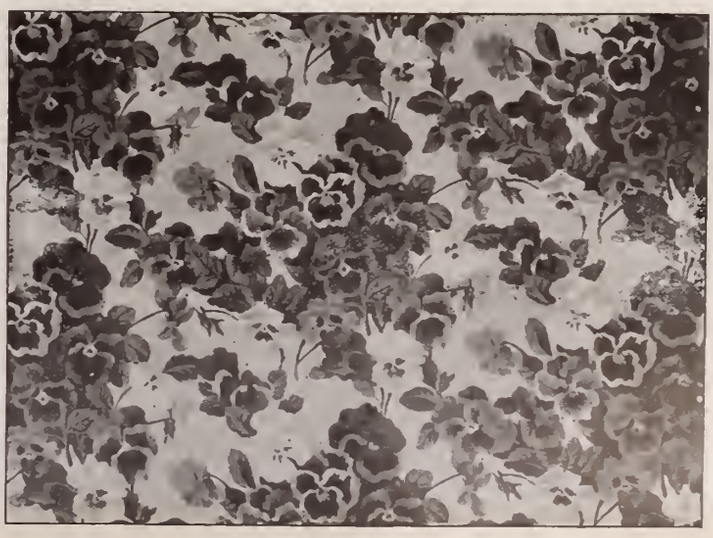
The first of the two above (a cretonne) comes in blue on white or natural colors on tan or gray while the second (a chintz) shows its engaging red, tan or black animals on a field of green

The Morning Glories, Pinks and Roses of the cretonne below are in their true colors on a neutral ground; the kingfisher design combines blues, tans and black with naturalistic flowers

rendered monotonous by repetition, it should be used freely enough to dominate and be impressive, and to bring out the harmony between the plants themselves and the general decorative scheme of the room.

Where a definite plant already provides the vegetative part of the decorations, the use of the stencil may be the only means of carrying the idea out satisfactorily; for a fabric utilizing a particular plant in its design is seldom easy to find, even if it exists—and likely as not it does not exist at all. So, although this sort of thing may mean more trouble in one way—the stencilling itself—it will mean less in another, for there is no uncertainty about it. But in the many lovely things offered it would seem that there is abundant material ready at hand, requiring only a fair degree of imagination to achieve delightful and most unusual effects. One would aim of course in choosing these to avoid the conventional flowery patterns chosen for ordinary indoor purposes, where greater or less formality prevails, and would seek the unusual, the sprightly and the suggestive.

Against a rose, tan, gray, or brown background these Pansies run the gamut of their own vivid coloring with rich blues and warm purples dominating



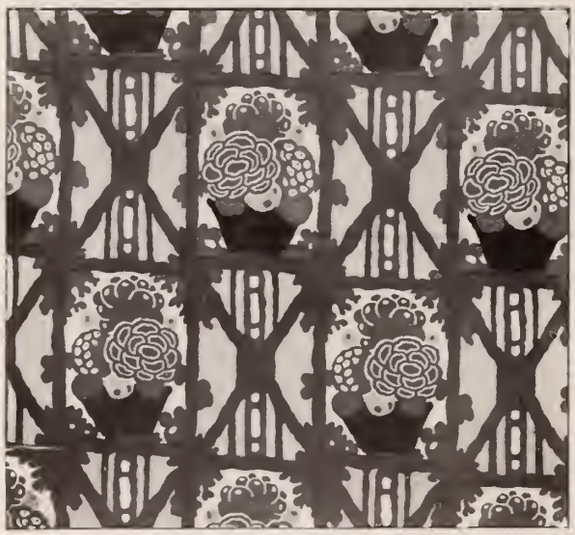
With the Pansy motif, for example, there would naturally follow flower boxes filled with the plants themselves in bloom, and a color scheme pitched high, with yellows and wine-purples and mauve and white in gay profusion. Or the Japanese design would invite the use of dwarfed trees in their stone pots and goldfish in a great crystal—never in the small necked torture-pens in which the misguided keep them!—or the introduction of a complete Japanese toy garden perhaps, with lake and water plants in addition to dwarfed trees, all growing in lilliputian imitation of an outdoor landscape.

The blue and white print depicting rural activities and agricultural enterprises afoot inspires immediately a facetiously bold yet demure rusticity, if one is so inclined—with the introduction of such little touches as a painted rooster perhaps for a doorstop, the ever adorable Wedgewood china-cow cream pitcher for the tea table, and such other realistic (sic) attributes as are sure to turn up in novelty shops here and there, when one's

Mattie Edwards Hewitt Photograph

eyes are open for that particular kind of thing.

There is really no limit, once the plunge is taken and the inhibitions of indoor ideas are thrown overboard. This indeed is really the first step. And approach from the garden is I think, the surest way of escaping these inhibitions. Instead therefore of regarding the veranda as a room of the house projected a little farther toward the garden, consider it as the garden's advance outpost at the frontier of man's intrusion, the border-land where the garden spirit is to be conciliated and wooed and entertained with profound consideration and sincere deference. Plants alone will not accomplish this. It is indeed conceivable they are not needed at all. Certainly many indoor plants have little or nothing in themselves to contribute to the carrying out of this conception; but the plant motif throughout, harmoniously executed, will achieve it. Finally, let me suggust that if the wide difference between garden and pot plants is recognized in selecting the subject of this motif, it will be possible to create practically any atmosphere desired.



THE FREEDOM OF ALL OUTDOORS!

The elliptical design on the ceiling utilizing the outside lattice motif at the home of Mr. Tyler Morse, Westbury, L. I., is an exceedingly clever and successful device for creating the illusion of openness and space

TWO MORE CRETONNES

In various fanciful colorings the first will adapt itself to almost any color preference while the second may be had with its Wisteria natural in shade or astonishingly tan

DELIGHTFUL IN ALL WEATHERS

The opportunity to sit fairly in the open and observe the roughest elements in close intimacy while still protected from them, as at the Delafield residence, Riverdale, Conn. (below) is what the ideal veranda affords

SOME TALES OF THE TULIP

REV. JOSEPH JACOB

Author of "Tulips," the only book in English devoted to this family

The Extravagant Regard in which Tulips Were Long Held by the Dutch Is Well Known but There Is a Further Tulip Lore Rich in Human Interest Waiting to Beguile

THREE DISTINCT TYPES

A Darwin or self-colored Tulip before it breaks, on the left, a broken or rectified Darwin (which then becomes a Rembrandt) on the right, and a late-flowering Cottage of delicate canary yellow—Ellen Willmott by name—below. The Darwins never show any trace of yellow

THERE is so much to be said when writing about Tulips that the difficulty always is to know where to make a start, and when it is time to leave off! The April number of THE GARDEN MAGAZINE contained an account of the romance of the Kurume Azaleas; and a capital book on the Peony by Mrs. Edward Harding, published by Lippincott's in March, 1917, introduces its readers to the mythical and the matter of fact history of what may well be called the most ancient of cultivated flowers. And did I grow Azaleas or Peonies in any quantity, I would feel I ought to be familiar with the contents of that article, or that book—for it just makes all the difference in the world, when one is doing the honors of one's garden, if he is able to do also a little talkee-talkee! How dull is the cicerone who has never anything to tell in the way of an anecdote, or who can't bring in some little joke, or draw on his imagination—as I do when, on coming to Avis Kennicott, one of our very best tall yellows, I tell people it may have been taken over in the *Mayflower* by a Pilgrim Father who was a bit of a Tulip fancier.

I have no doubt but there is plenty to be said too about their favorite flower for a Rose man or a Gladiolus man; but, with the possible exception of the former, I very much doubt if there is any flower which has made its mark in general literature in the same way that the Tulip has done. How much was written in the way of caustic skits for instance on the time of the Tulip mania in Holland (1635-1637) will probably never be known. But a goodly number of little books and pamphlets and a few pictures still survive; and from one of the former, which describes, in the form of a dialogue between two weavers, all that went on, we get the best account we have of that strange and marvellous time in Holland when a Tulip bulb was far more valuable than its weight in gold. "T' Samenspraecken tusschen Waermondt ende Gaergoedt" is the Dutch title, and it was published at Haarlem in 1637 by Adriaen Roman.

The first edition is excessively rare, but the third, which appeared in 1734 has a most interesting history. About this date—say about 1730 to 1735—there were symptoms of a Hyacinth mania brewing, and the Government got frightened! And so, as an awful example of what actually had happened in the past and warning of what might happen again with Hyacinths, they brought out a reprint of the above

work, together with a good many old skits and smaller pamphlets concerning those disastrous years. The Hyacinth mania died out and the inference is that this republication did what it was intended to do.

As instances of how this flower has entered into ordinary literature Joseph Addison's letter in the *Tatler* for August 31, 1710, Edward Young's poem, "The Universal Passion," published in 1725, and earlier still Jean de la Bruyère's Characters, originally published in 1688 and frequently translated into English, may be mentioned. The last reference is not very widely known, so I am going to quote the reference in full from the sumptuous English translation of Henri van Laun, of which three hundred copies were printed for English and two hundred for American use in 1885.

"The lover of flowers has a garden in the suburbs, where he spends all his time from sunrise till sunset. You see him standing there, and you would think he had taken root in the midst of his Tulips before his 'Solitare'; he opens his eyes wide, rubs his hands, stoops down and looks closer at it; it never before seemed to him so handsome; he is in an ecstasy of joy, and leaves it to go to the 'Orient,' then to the 'Veuve', from thence to the 'Cloth of Gold', on to the 'Agatha,' and at last returns to the 'Solitare,' where he remains, is tired out, sits down, and forgets his dinner; he looks at the Tulip and admires its shade, shape, color, sheen, and edges, its beautiful form and calix; but God and nature are not in his thoughts, for they do not go beyond the bulb of his Tulip, which he would not sell for a thousand crowns, though he will give it to you for nothing when Tulips are no longer in fashion, and Carnations are all the rage. This rational being, who has a soul and professes some religion, comes home tired and half-starved, but very pleased with his day's work; he has seen some Tulips."

A VAST (TULIP) CONGREGATION IN THE SHADE OF SCROOBY CHURCH

A onetime Vicar of Scrooby was the father of William Brewster, distinguished as leader of that Pilgrim band which sailed for these shores in May, 1620, in a risky little craft they called The Mayflower

IT MAY be news to some that the Tulips so much admired by La Bruyère's connoisseur would every one of them be striped—or to use the term of Tulipdom, "broken." In those ancient days the plain or one colored flowers were of no account, and it was the aim and object of every one who grew Tulips from seed to get them broken as soon as ever they could. Now it is the reverse. Often have I heard wailing and gnashing of teeth when a third or the half of a valuable stock has suddenly "broken." Few people at the present day "go" for these particolored flowers. Mr. John Scheepers in the May number of this magazine offers Breeders, Darwins, Cottage and Lily-flowered Tulips. Mr. Chester Jay Hunt has a picture in his advertisement in the same issue of a border of Breeder and Darwin Tulips. The Rembrandts and Bizarres are conspicuously absent.

Facts are more eloquent than words, thus these omissions speak volumes. What are these "Breeder" Tulips that are coming so much into fashion? Strictly speaking they are Tulips with yellow or yellowish bases, which are still in their first or unbroken stage of life. All Tulips, except some pure yellow and some red ones, at some period take on the "broken" state, but it is altogether uncertain when that will be. It may be in two or three, or possibly not for twenty or thirty years. Dutch Breeders for the most part are dark in color in their unbroken state and it strikes me as strange why they should now be coming into fashion.

I can well remember the days when no one would look at the brown Dom Pedro; whereas at present it is very popular and commands a high figure. Herr Grullemans, the head of the Dutch Exporters Association in Holland, told me this last spring of the prices received in 1919 for his Breeders. For 300 beds, three feet wide by twenty-four long he got £3,000! The ups and downs in value in the world of Tulips are indeed strange and unaccountable. Before Hobbema (synonyms: American Lac and Le Rêve) caught on in the States it might be had for about half a dollar or a trifle more per 100; afterward, and in the same year, it rose to about eight dollars for the same quantity.

BUT to go back to the striped or rectified Tulips;—the most popular strain at the present time is that known as Rembrandt. These are all broken Darwins and very beautiful some of them are. And perhaps the pendulum will swing some day in the opposite direction and fashion will say to them, "Friends, go up higher." In England we think we have the most perfect and beautiful strain of broken Tulips in the world. They have rounded petals, pure white or pure yellow bases, refined and even markings, no running of colors, and a shape which for the most part is neither too long nor too short. Sir Joseph Paxton, Mabel, Annie Macgregor are some of those to be found in all good collections.

Time was when in certain parts of England every small town had its show. Competition was keen and journals like the *Midland Florist* were full of their doings. It would interest visitors to be shown the sort of flowers that have been "top dogs" at different periods. I fancy the oldest type of all are to be found in the earlies, and Admiral Reinier would be a good example. Then taller varieties came into vogue and for these perhaps the very beautiful Zomerschoon might be cited.

Then for a still later period we might take flowers with rounder petals like that beauty, Pren's Hendrik, or possibly Cherbourg, or Miss Doris Diggle; and last of all such English Tulips as Sir Joseph Paxton—this, by-the-bye, one of the

happiest instances of naming on record, for an exceptionally famous gardener has had an exceptionally fine Tulip called after him.

How much too could be written and told about the battle of the Tulips, when northern and southern England differed over the particular points that went to make a fine bloom. Purity of base, said one side, is even more necessary than even and correct markings. The correct shape for the flower as a whole caused much strong language, no small quota of which may be read in such periodicals as *Gossip of the Garden* or the above mentioned *Midland Florist.*

ALL this surely interests the man or woman whose interest in the race is more than eye deep. The eye is all very well but it is not the whole of us; and I feel a more lasting pleasure may be derived from Tulips if we try to master their history and to take an interest in the way they have appeared in literature —in their monographs like Le Floriste François (1654); in the old, old representations of flowers like those exquisite pre-mania copper plates in the Hortus Floridus of Crispin de Pas (1614); in that novel of the early sixties of world-wide fame, La Tulipe Noire by Alexander Dumas; in the skits that they have suggested to La Bruyère and later still to the incomparable Alphonse Karr; in the writings of a strictly historical and scientific kind that they have inspired, such as J. G. Baker's Revision of the Genera and Species of Tulipeae in the Linnean Society's *Journal of Botany*, or the many writings of Emile Levier on the origin of the so called Neotulips; and lastly, in that veritable storehouse of information, Solms-Laubach's "Weizen und Tulipe," published at Leipsic in 1899.

FROM THE FIRST TULIP MONOGRAPH

This old rarity seems to have been printed at Caen in 1654, the frontispiece (reproduced above) being printed at Rouen and added in 1658

I HOPE I may have said, in this exceedingly sketchy enumeration of some of the main points of literary and historical interest which are centred round the Tulip, enough to show what a mine of pleasure lies beneath the flaming beds of Darwins or the quieter and more subdued tones of Breeders—for these, to an unthinking or uninformed enthusiast, might so easily seem to be all that it is necessary to consider. Let me end by quoting Rudyard Kipling to emphasize that it is by no means so—just changing "Garden" to "Tulip"—"But the glory of the Tulip lies in more than meets the eye."

FOUR FALL-FEEDING CATERPILLARS

HAROLD CLARKE

Certain Late Comers Make Their Appearance After the Spraying of Spring and Early Summer Has Been Done and Therefore Escape Its Action

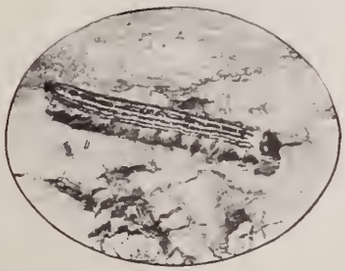
Hickory Tiger-moth and pupae

THE THREE INVARIABLE FORMS OF CATERPILLAR EVOLUTION

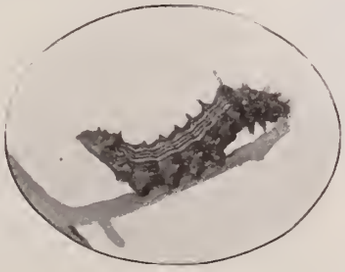
From the mummy-like pupal shell the matured form or moth emerges and from the eggs laid by this winged creature hatch the tiny larvæ or "worms" that do the eating, and consequently the damage, as they grow

THERE are four late summer- and early fall-feeding insects which I have observed very frequently in recent seasons —the fall web-worm, the yellow-necked and the red-humped caterpillars, and the Hickory tussock moth. The most prominent of these is the fall web-worm. In the north there is but one brood of these, making its appearance early in August. It resembles the tent-caterpillar of spring very closely in appearance and work, but there is a difference which even the casual observer can hardly fail to notice.

The tent-caterpillar most always builds its nest in a crotch of a small branch, stretching it on the twigs so as to give it the form of an inverted tent. But the fall web-worm usually starts near the end of a branch and encloses all the leaves on which it is feeding within the web. When the leaves on one branch have been eaten they move to another, enclosing it as they go; so that a badly infested tree soon has its branches enclosed in webs.



Yellow-necked caterpillar



Red-humped caterpillar

The Fall Web-worm

THE ADULTS of the fall web-worm are white moths one to one and one-quarter inches across, sometimes spotted with black. The young which do the damage, are pale yellow with brownish markings. In a month to six weeks from hatching about mid-July the caterpillars become full grown (about an inch long), and the bodies are covered with long black and white hairs which project from the numerous black tubercles

covering them. Having reached their full size as caterpillars, the next step is to hunt a winter abiding place, which may be in the crotch of a tree; under loose bark, or in a hollow, rotten place in the trunk; in fence corners; or even just under the soil. Here each spins its cocoon, a flimsy thing which includes the hairs from its own body. The crysalis or pupa is dark brown and about a half-inch long. Fortunately, there is a small parasitic insect which holds the fall web-worm fairly in check, but still it does considerable damage in some orchards.

Like the fall web-worm the red-humped caterpillar and the yellow-necked caterpillar pass the winter in cocoons in the soil and from there emerge in the summer as adults, mating and egg-laying commencing almost at once. Eggs are laid in masses of seventy-five to a hundred, near the ends of the branches; and the young which soon emerge commence feeding on the under side of the leaves. Later, as they grow larger, the whole leaf except the midrib is consumed; this seems to be too tough for them.

The Yellow-necked Caterpillar

WHEN the yellow-necked caterpillar attains its full size, it is about two inches long and has a jet body, and a peculiarity of this insect is that when the branch he is on is disturbed, he holds on by the middle four pairs of legs and throws his head and tail up into the air with a jerk, in which position he remains until he thinks it safe to resume his normal position and feed.

The Red-humped Caterpillar

THE RED-HUMPED caterpillar when full grown is about one and one-half inches long, hairless, with a coral red hump on the fourth segment of the body, which is a sort of combination reddish with yellowish-white lines alternating with black or brownish ones. I have found these two caterpillars most frequently upon the Apple, but they also feed upon Pear, Plum, Cherry, Quince, Linden, Walnut, Hickory, Oak, Chestnut, Beech and other forest trees. The red-humped caterpillar is a more general feeder than the yellow-necked.

Moth and egg mass

THE FALL WEB-WORM

Distinguished from the tent caterpillar of spring by the fact that it spins its web near the ends of branches, this will fairly enclose a whole tree if not checked

Tips and whole branches "webbed"

The Hickory Tussock Moth

IN MY vicinity—Allegheny County, Penna.—the Hickory trees are fast disappearing. Whether that fact has any bearing on the abundance of the Hickory tussock moth on the Apple trees of the region I am not prepared to say. But about the middle of July I find the small dirty-white caterpillars on Apple foliage.

All these insects can be easily held in check by spraying with arsenate of lead paste, using three pounds to fifty gallons of water (one ounce to one gallon). This spraying will be most effective if made about eight weeks after the falling of the blossoms.

HICKORY TIGER-MOTH EGG MASS, SWARMING LARVAE AND COCOON

The eggs, deposited on the underside of leaves, are shining turquoise blue at first turning to olive-brown and lastly leaden blue, and the larvae, which are about one-sixteenth of an inch long, hatch in 15 to 16 days; growing to an inch and a half in length they then spin their cocoon (at the right) in which transformation to pupae occurs in 7 to 8 days

MUST WE REVISE OUR PRUNING PRACTICES?

E. L. D. SEYMOUR

Curious and Interesting Experiments in This Country as Well as Abroad Are Forcing the Belief That We Are Perhaps Altogether Wrong in Our Assumptions With Regard to the Use of Knife and Shears

HOW about this business of pruning? Have we been overdoing it all these years, at needless cost to ourselves and with unnecessary sacrifice of our trees and plants? Have we succumbed to a sort of pruning hysteria, comparable to the craze for surgical operations that seemed to hit the medical world some years ago, when the first and favorite prescription for almost any ailment was the knife? Upon my soul, it looks like it! And I believe you will agree with me when I tell you about the discoveries that Professor W. H. Chandler has made up at Cornell University, in his pruning experiments with fruit trees. As a matter of fact, he isn't the only horticulturist that has been working at the problem; faint echoes of new, surprising truths have been coming to us from overseas for some time. But his results are so striking and so rich in food for thought and conjecture that they are mighty worth consideration, right now when we are thinking about the fall planting programme.

Boiled down, concentrated and (with the permission of the Internal Revenue Department) double-distilled, the conclusions of the Cornell experiments are these:

Pruning a young tree definitely reduces the amount of its growth and, for some years at least, its yield.

The stimulating, invigorating effect of pruning—about which we have heard so much—is actually only local and temporary; the larger, lasting effects are depressing and retarding.

Pruning, like operating, should be regarded as a severe measure, to be resorted to only when necessary, and to be avoided whenever possible.

These are rather revolutionary conclusions, are they not, especially when we think of the ruthless annual trimming that most Peach orchards receive? Of course, the argument can still be advanced that pruning does stimulate early fruiting, and that that is sometimes what we want most of all. But there is no more real logic in the statement than in the equally true one that by constant coaching and continually repressing the play spirit, we can induce almost any child to become more or less of a prodigy of learning at a tender age. Who wants an infant Diogenes at the cost of a stunted body, a shortened lifetime, a warped, unbalanced development?—which, in greater or less degree, is the cost of precocious wisdom or fruitfulness in human young, or young plants, as the case may be.

What Practical Experiments Tell About Pruning

HERE, as a starter, are some of the things Professor Chandler has done and learned during the ten or more years he has been investigating the responses of different kinds of fruit trees to different kinds of pruning:—He took a block of thirty Apple trees, one year old from the graft, and pruned sixteen, leaving the other fourteen untouched. In June, the sixteen before pruning, averaged 173 leaves apiece; in pruning he reduced these to an average of 44. The unpruned trees averaged 145 leaves each. In October he carefully counted the leaves on all the trees, then dug them up and weighed first the top growth and then the roots of each tree. The average figures per tree after these four months growth were—

Pruned trees average	149 leaves;	their tops weighed 168 grams;	roots 24 grams
Unpruned trees "	272 "	" " " 236 "	" 33 "

Again, he submitted a block of two year old Delicious Apple trees to three degrees of pruning, forty-one being left unpruned, thirty-three being pruned lightly and thirty-nine being pruned severely, the pruning being done in May. In this case he carefully measured the leaf surface of each tree before and after pruning and at the end of the growing season, and then dug up the plants and weighed their tops and roots separately. The results, which can best be compared in table form, were these—

THREE YEAR OLD APPLE TREES

On the left an unpruned specimen, on the right a tree pruned on single leader system; otherwise treatment has been identical

TREATMENT	AVERAGE LEAF SURFACE PER TREE			AVERAGE WEIGHT END OF SEASON	
	BEFORE PRUNING	AFTER PRUNING	END OF SEASON	ROOTS	TOPS
41 unpruned	756 sq. in.	756 sq. in.	1737 sq. in.	208 grams	684 grams
33 lightly pr.	819 " "	470 " "	1219 " "	166 "	558 "
39 heavily "	775 " "	291 " "	895 " "	125 "	494 "

Not much doubt left as to the effect of pruning there, is there? Moreover, as he began to take note of the performances of older trees as they came into bearing, after having been subjected to different pruning systems, Professor Chandler found the same results, though they were expressed in different terms. For instance, the average yield for the first two or three years in an Apple orchard in which each alternate tree in each variety row was pruned differently, has been *fifty per cent. greater in the case of the trees that have received practically no pruning.* Furthermore, in walking through the orchard, the unpruned trees can invariably be picked out because of their larger size, except where winter injury or some other recognized factor other than the

CONTRAST THESE TEN YEAR OLD UNPRUNED AND PRUNED PEARS

The tree on the left is large, vigorous and bears abundantly, while the pruned tree on the right is much smaller and shows a profuse growth of suckers

pruning treatment has entered in and destroyed the equality of the conditions. In the same way the unpruned trees have borne many more blossoms each spring, and are in every way better specimens.

Finally, since these are strictly scientific as well as practical experiments, Professor Chandler does not rely on appearances, but accurately weighs the prunings from every tree touched, and carefully ascertains the leaf surface of every tree, every season. "Some job" you may well remark; but it is providing convincing data in behalf of the new doctrine of "Don't prune unless you have to."

The Why of It

NOW, as to the explanation. It is not at all difficult; in fact it is the most logical thing in the world, when you think of it. Pruning, says Professor Chandler, not only reduces the actual leaf surface of the plant at the time but also, by removing buds, reduces the leaf surface that would otherwise develop throughout the rest of the season. This, of course, lessens the capacity of the tree to transpire, or give off moisture from its leaf surface. Consequently the amount of water that the root system is called upon to supply is lessened. Similarly a smaller leafage calls for a smaller supply of the mineral nutrients that it is the business of the roots to send up in the sap.

The result is that, throughout the season following the pruning, we have a plant with a root system considerably larger than its reduced top growth has need of. It is just as if we planned a lawn sprinkling system with say, twenty sprinklers and installed a tank and pump big enough to handle them comfortably only to have someone come along and disconnect perhaps a dozen of the sprays and plug up their hose connections. Obviously the economical thing to do would be to install and operate a smaller pump.

That is just what the pruned tree does—namely, install a smaller pump; or, less figuratively, check the development of its root system as the figures given above indicate. Naturally at the beginning of the next growing season we have a tree smaller in both root and branch area than it would have been if left alone; and in which note this—if now left unpruned, the roots will really be smaller than the new top will need for its fullest feeding and development. And if we keep up this pruning annually, the tree, when it begins to bear, will be to a certain extent dwarfed and unable to produce a normally large crop. Even though we may try to stimulate it by means of fertilizers, the repressed root system will have no reserve capacity with which to furnish extra food to the developing fruit. Be there ever so much available nutrient material in the surrounding soil, the "smaller pump" cannot draw it in and distribute it.

Now it is a significant thing that what Professor Chandler calls his most severe pruning system is considerably less heroic than the treatment given by the average commercial or amateur fruit grower. His unpruned trees, on the other hand, are practically untouched, except where a broken shoot or one that is clearly going to interfere with another more important branch, has to be removed. It is not surprising, therefore, to hear him say that in his opinion all fruit trees, even Peaches, are, as a rule, pruned too much in their early years. Of course Peaches come into bearing earlier than Apples and Pears and therefore can sooner be pruned without injury.

In the same way, certain Apple and Pear varieties bear earlier than others, so that no hard and fast rule can be established as to when pruning becomes justifiable. Being a scientist engaged in scientific work—and being also a Missourian—Professor Chandler refuses to draw many deductions from his experiments until he has an opportunity to prove them experimentally. So he grants that as far as he knows renewal pruning—even a severe cutting back—may be a very desirable practice in bringing old, mature trees to maximum bearing and keeping them there. For by reducing the leafage of such a tree you increase the available supply of moisture for the fruit. As to that, he is waiting to see. But he doesn't hesitate to say emphatically that "The more you prune *young* fruit trees, the less growth they will make and the less they will bear."

The Simple Rules for Modern Pruning

HIS actual advice is, therefore, "Prune your tree when you plant it, shaping the top and trimming back the roots to balance, as usually advised. From then on leave it alone, except for removing interfering branches, preventing the formation of undesirable crotches and doing any such *absolutely essential* pruning. Follow this system—or lack of system—until the tree comes into bearing; *then* begin to head back extra long shoots and thin out the center of the head gradually and carefully until the desired height and shape are obtained. But in this, too, prune only where there is clearly need for the operation."

There, after all, is the crux of the matter:—Use the pruning knife as a controlling influence, not as a stimulus, *unless* you have some unusual object in view such as extra large fruit, a peculiarly formed plant, etc.; and unless you are willing to pay for the result in lessened stature, reduced total yield or some such currency. That, of course, is what the Japanese plantsman does when he creates a tiny, distorted Pine after years and years of labor—he has what he set out for, but it has cost him no small sum. And what has it cost the tree?

Grow your plant first, then let it come into bearing. That is the second lesson that I want this article to drive home. Dairymen, horse breeders, dog fanciers—experts in all branches of animal husbandry—will tell you that to allow an animal to produce young while immature is inevitably to check its growth and dwarf its development. Exactly the same thing applies to plants; only, apparently, we have never realized it. Suppose, from now on, that we do give thought to this essentially natural principle and ponder carefully over both the pros and the cons of pruning before we start in on it.

WHAT AMERICA HAS DONE FOR THE PEONY

A. P. SAUNDERS
Secretary American Peony Society

A Glance Backward Inspires Enthusiasm and Further Insures the Ultimate Perfection of this Sumptuous Flower Which Owes So Much to American Development That We Feel It Peculiarly Our Own

THOUGH it can be grown in any climate where it does not suffer too much from drought in summer, the Peony is by preference a northern plant. The rigors of winter even in the Canadian Northwest have no terrors for it. No wonder then that it should be a popular plant in regions where the Rose is for the most part only a source of disappointment. On your skill as a gardener too the Peony makes less demand than almost any other hardy perennial. For though one of the most glorious of cultivated plants, it has the constitution of a weed, and can very nearly take care of itself in the struggle for existence which all things must make.

But it cannot effect the improvements in its own bloom that we still wish to see. For these the hand of man is needed; and it will require still many years of diligent work before its development has been carried even to those limits which we can now foresee. In this development American growers should and will bear a leading part. But before going on to consider this let us study a bit of history, making application of it as a parable. It has to do with another flower, but that is a detail.

JOHN RICHARDSON

Of Dorchester, Mass., who was our pioneer and who produced Grandiflora, Milton Hill, and Walter Faxon. Reproduced from a daguerreotype taken at Dorchester in 1851

In the first half of the seventeenth century there arose in Holland one of those contagious manias which provide food for thought to our specialists in mob psychology, and a lesson in, though not an example of, common sense, to all mankind. The craze of which I speak is usually called the Tulip Mania. Everyone has heard of it; yet its history is worth recalling. It began as a true horticultural enthusiasm for a fine flower, newly introduced to the gardening public; passed through that stage into one of an unbridled desire for possession of something that was rare; and from that into the final stage, in which it became a gambling mania pure and simple in which everything was risked.

IN THE earlier stages, bulbs of new varieties of Tulips were much sought after, and before long began to be sold at prices which appear to us almost incredible. A curious history which I have at my hand, states that by the year 1634 "the rage among the Dutch to possess them was so great that the ordinary industry of the country was neglected, and the population even to its lowest dregs, embarked in the Tulip trade." Within a short time after this fortunes were invested in bulbs, and we read of 100,000 florins being paid for forty bulbs. Of two bulbs of a certain variety—all that were known to exist in Holland — one was exchanged for twelve acres of building ground, the other for 4600 florins, a new carriage, two grey horses, and a complete set of harness. More extraordinary still, a single bulb of the variety called the Viceroy figured in what must be one of the strangest trades in history. It is recorded that it was exchanged for two lasts of wheat, four lasts of rye, four fat oxen, eight fat swine, twelve fat sheep, two hogsheads of wine, four tuns of beer, two tuns of butter, one thousand pounds of cheese, a complete bed, a suit of clothes and a silver drinking-cup!

GEORGE HOLLIS

Who, beginning about as Mr. Richardson left off, lived for his Peonies and gave us Loveliness, Maud L. Richardson and Standard Bearer

MRS. SARAH A. PLEAS

Waiting long for fame and honors she has been richly rewarded at last in the triumphs of her lovely Jubilee which sweeps everything before it

ONE OF THE RECENT VARIETIES

Rich light pink is Judge Berry, one of the western productions of Mr. Brand

By the year 1636 the craze had reached such a pitch that regular markets for the sale of Tulip bulbs were established on the stock exchange of Amsterdam as well as in other Dutch cities, and they became the material of a mania of speculation, with its own stock-jobbers who shortly found themselves in such an extensive and intricate business that a code of laws had to be drawn up for their guidance. Money poured in now from other countries. Everyone was getting rich, because the price of Tulips continued to rise.

"Notaries and clerks were also appointed who devoted themselves exclusively to the trade. The designation of notary public was hardly known in some towns, that of Tulip notary taking its place. In the smaller towns where there was no exchange, the principal tavern was usually selected as the 'show place' where high and low traded in Tulips, and confirmed their bargains over sumptuous entertainments. These dinners were sometimes attended by two or three hundred persons, and large vases of Tulips in full bloom were placed at intervals upon the tables and sideboards for their gratification during the repast." But, like the South Sea Bubble, and all other bubbles that man has blown, this one also came to its time of collapse, bringing on despair and poverty no less intense than the enthusiasm that had preceded them.

NOW the Peony in America has begun on a career which in its earlier stages—all we have yet traversed—shows somewhat the same character as that marking the development of the Tulip craze in Holland! From about the middle of the nineteenth century it was known and cultivated in this country as part of the stock in trade of the general nurseryman, and as an item in the list of perennials included along with a hundred other species in almost any garden.

But with the opening of the twentieth century a new kind of interest in the flower arose in our country. The Peony specialist appeared on the scene. He had already long since made his appearance in Europe; but there he had done his work and passed on without very noticeably influencing the history of gardening. Here it was another story. With the appearance of the professional specialist there came the amateur specialist as well, who, able to extract so much delight from his four to six weeks of Peony bloom in May and June, was content to go almost flowerless for the rest of the twelve months.

By about 1910 we mark the beginning of the accumulation of great collections of Peonies in the gardens of specialist amateurs; and at about the same time the catalogues of the specialist professionals begin to pile up on our tables. These were never "Peony men" exclusively; but Peony and Iris, or Peony and Rose, or Peony and Gladiolus were combined, the better to fill out the season. Thus the Peony began to separate itself off from the general nursery business: and the building up of an adequate collection to meet the demands of the increasing Peony public called for a specialist's enthusiasm—and further, involved a large expenditure of capital.

There was another reason too why the Peony needed the care of a specialist. During the period in which the plant had been only a general nursery plant, much carelessness in the reading and writing of labels had brought about an endless confusion of names. When a label was lost, a new name was invented, or when a foreign name was too hard to read, a simpler one was substituted; so in the early nineteen hundreds you might order half a dozen different varieties from as many nurseries, and receive the same sort from all of them, or you might order the same sort from as many dealers and receive six different ones.

In 1903 the American Peony Society was formed; and at the time of its foundation it was the only organization in existence

THE JUSTLY FAMOUS JUBILEE

To have achieved this gloriously crowns Mrs. Pleas' half a century of work

that was devoted expressly to the interests of the Peony. Its primary purpose was to gather together as complete a collection as possible of all the named varieties of Peonies, so as to compare them, eliminate synonyms, and get the good kinds started out on a better path, under the names that had been theirs originally. This work, which was a labor of love, but none the less arduous for that, was brought to completion in 1912, and the main results were then published.

With increasing knowledge as to the true names, there came an increasing impatience on the part of the purchaser toward any grower who sent him stock that did not tally with the standard description. So the Peony came to demand almost the exclusive attention of any one who wished to live up to the exacting standard his best customers would set for him. His

stock must be true to name, but not only that; in order to meet the calls for the rarer kinds, he must carry four or five hundred distinct kinds of named Peonies in his nursery.

This marks, I should say, the beginning of the second phase in our history.

UNUSUAL IN COLOR AND UNRIVALLED

The clear salmon pink of Walter Faxon is a triumph of Mr. Richardson's

WITH the development of the specialist, both professional and amateur, and with the dissemination of knowledge as to the character of the many varieties that were offered, there grew up a keen demand for those sorts that approached most nearly to the enthusiast's ideal. In some cases these most highly perfected blooms had been for a long time in culture, and of such there was ample stock to meet the demand. But naturally many of the most beautiful kinds were of more recent introduction, and since the Peony plant can be multiplied only very slowly, of these there was but a very limited stock.

In the older catalogues the prices of Peony roots ranged from twenty-five cents to about two dollars. But now prices began to advance. It was not unusual by about 1910 even or a little earlier, to find the scarcer Peonies listed at from four to five dollars a root. This was necessary—or thought to be so—from the nurseryman's point of view, in order to protect his stock from being depleted. But the rise in price apparently only whetted the appetite of the buyer—and his increased determination to buy brought only further increase in the price demanded!

The variety Le Cygne for example, by general consent the grandest Peony in existence, could be had from the originators, Messrs. Lemoine and Sons, in 1910, for a dollar or two. This variety has always been in strong demand, and though it has been multiplied as rapidly as possible since its introduction in 1907 there is still not nearly enough to go round. Lemoine has in recent years raised his price to $8 or $10, while the price from American growers is now $20 or $25 a root.

Such a price for a Peony would have been incredible a decade ago. To such a pass have we come! But we grew gradually accustomed to paying $5 for good and scarce sorts; then we stretched a point and were willing to pay $10 or $15, and when we had got our minds round that, $25 began to look possible. And where do we stand now? A recent American seedling of which there is only very little stock, sells, when it does sell, at $100 a root. Where will all this end?

We are now in the second stage of the mania. A Peony root at $50 is not fifty times better nor fifty times more beautiful than one for $1 a root; it may not be better at all. But it is scarce. And some of our Peony enthusiasts who are men of means accustomed to having things come their way, have standing orders with the best originators for a root of every new variety they put on the market; sometimes even for three roots of each new kind.

A PRIZE WINNING THOUGH YET UNNAMED "JAPANESE" SEEDLING

In company with nine others this example of the newest type of flower won three first prizes at the recent Peony show in Reading. Raised by Cottage Gardens Co.

Of course this looks like a bonanza for the grower of new kinds. But there are several flies in his ointment. In the first place, if he wishes to have anything to offer for sale next year, he must have begun to raise his seedlings nearly twenty years ago. For the Peony seed germinates only the second year it is in the ground, and the first blooms on a seedling are not likely to appear until four or five years after germination; and for really fine bloom one must wait still a year or two—say ten years from the planting of the seed before the seedling is mature enough to show what it is worth. And then perhaps it has only to be thrown away; for about 99 per cent. of the seedlings will be inferior to their parents.

But assuming that this is the one in a hundred, the next stage is entered on when the root is divided; and root division must be carried on for at least six or eight years before any considerable stock can be accumulated. And then the market will not absorb new kinds

A. M. BRAND

Who is bringing us some fine varieties out of the West, his success in the darker shades being especially notable (left)

E. J. SHAYLOR

Carrying on the fine traditions of Massachusetts he has recently won a special prize with Mrs. Edward Harding, a lovely double white (right)

very quickly. The buyer too becomes wary of any grower who puts out new kinds that are not of distinguished merit. I could cite a case in point from recent history if I wished—but suffice to say the Peony fraternity is now pretty closely organized; and any one who gets "stung" is likely to pass the word around for the benefit of his fellow members.

It is true however that America is now the central Peony market for the world. A keen and well-informed Peony specialist who visited flower shows in Paris and London recently, comments on the fact that the finest new varieties do not appear there upon the exhibition tables. Why not? "All the stock sent to America." In some cases practically the entire stock of new varieties originating in Europe has been bought up by American nurserymen, so as to have control of those varieties in this country. Thus we see what the Peony has been doing to America. What has America been doing to the Peony the while?

The Pioneers

THIS country has a very creditable record to show of fine new kinds raised by enthusiasts, undaunted by the prospect of a long wait before their hopes should be realized. The first of these was John Richardson (1798-1887), who lived at Dorchester, near Boston. His garden was a small one and we may be sure that the number of seedlings raised by him was small—very small in comparison with the acres of seedlings in some modern plantings. Richardson however possessed a mysterious art, or vision, which enabled him to choose the right parents from which to breed; for on his small plot of ground he produced a few varieties that rank very near the top of the list.

I name what I consider his three finest kinds: Grandiflora, Milton Hill, and Walter Faxon. The first of these is the finest of all late Peonies, and one of the most beautiful and fragrant varieties of the whole season. It comes when almost all the other Peonies have scattered their petals on the ground; when the Peony lover wanders about in his disconsolate looking garden, thinking of the glories that have departed. Then is the time when he comes on his plant of Grandiflora, bending over almost to the ground with the weight of its huge, flat, pale rose-pink flowers. It is Peony season still, and here is material for a glorious bouquet that will fill the house with fragrance for at least another week!

Milton Hill is of another shade of color, a very pale pink leaning toward heliotrope or mauve—a subtle shade, not permanent out of doors; but when the flowers are brought inside before they are fully expanded, and are allowed to develop their full beauty of color protected from the bleaching influence of sunlight, then Milton Hill shows itself the equal in beauty of any variety we possess. Color, form, size, fragrance—it has them all. And in Walter Faxon, Richardson scored a triumph where success is most difficult to achieve—for it is unfortunately true that most of the full pink Peonies are not so clear in color as we should wish. They tend too much toward a heavy opaque purplish-pink. But in Walter Faxon we have a pink that approaches salmon color; and while the tint is not very deep, its quality is of a most desirable character. If it were possible to carry the color of Walter Faxon into deeper shadings, we should indeed have the deep pinks that we are all waiting and longing for.

The fame of a raiser of flowers rests on the best sorts he produces—not on his failures and mistakes; the good he does lives after him, the evil is "oft interred with his bones". If some of the Richardson sorts therefore are not so high in quality as those I have mentioned, nevertheless by virtue of his best Richardson enjoys a fame as a creator of new Peonies that has not yet been attained by any other American. It should be added that he did not, in his lifetime, put any of his seedlings on the market; so the responsibility for their selection really falls on others.

Of a later generation and also working in the neighborhood of Boston—a region always sympathetic to horticulture—was George Hollis (1839-1911). His work began at about the time when Richardson's ceased. In his later years he put out a large number of seedlings, many of which have not very well withstood the test of time. Still, some fine ones did come from his hand, among which we may name Loveliness, Maud L. Richardson, and Standard Bearer. Hollis was the real enthusiast. He lived in and for his Peonies. They were his joy all through his later years, his consolation in his last years of illness. "My children" he called them. They were all he had.

Modern Workers

THE fine tradition handed on by Richardson and Hollis has been maintained in Massachusetts by later plant breeders. In our own time good things are coming from the hand of E. J. Shaylor at Auburndale, and from the Messrs. Thurlow at West Newbury; while the distinguished scientist Charles S. Minot of Harvard, was active in Peony culture as an amateur.

and at his death left some meritorious sorts of his own originating, one of which is now offered in commerce.

Mr. Shaylor has introduced several Peonies which have rapidly made a name for themselves, and which already make frequent appearance on the exhibition tables. Georgiana Shaylor and Mary Woodbury Shaylor in doubles, and Le Jour, a single white, may be named as among his most successful introductions; while his fine double white named Mrs. Edward Harding won a special prize of $100 recently offered for a new Peony of distinguished merit. From the Thurlow nursery an excellent dark red named Cherry Hill made its appearance a few years ago. At the national show in Detroit in 1919 other fine seedlings—Nymphaea, Pride of Essex, etc.—attracted a great deal of attention; and more recently still this firm has placed on the market a group of about half a dozen new sorts, among which we may expect to find desirable additions to our lists.

Western Contributions

WHILE in the East unsparing labor was being spent in developing new and finer types of bloom, in the West also enthusiasts appeared. The earliest of these in time was H. A. Terry of Crescent, Iowa, who raised seedlings in large numbers, a few of which may find a permanent place among the standard sorts. The Rev. C. S. Harrison, of York, Nebraska, who died only last year, was not alone a Peony grower; he was the prophet of the Peony, and did much to promote a knowledge of his favorite flower all through the middle west. As a raiser of seedlings he has not an important place, but in the history of Peony culture in this country his name will always be remembered, for his enthusiasm has kindled many to a like ardor. His little Peony manual was the first book devoted solely to this flower and his pen and his voice were unwearied in proclaiming the Peony as the ideal plant for western, and particularly for northwestern, gardens.

Mrs. Sarah A. Pleas, who grew Peonies in Indiana before moving to California where she now lives, has waited long to see fame come to any of her varieties. But it has come at last. Her Jubilee was awarded high honors at the national show in Philadelphia in 1917; and again this year, at Reading, a vase of six Jubilee carried off the palm though competing with some of the best of the European and American sorts. J. F. Rosenfield of Omaha has also made a name for himself through the introduction of a few fine things; and, in more recent years, A. M. Brand of Fairbault, Minnesota, has enriched our gardens by the addition of a number of new sorts.

Mr. Rosenfield's most successful Peony so far introduced is the variety Karl Rosenfield, now one of the good standard dark reds, widely grown, and highly esteemed. Mr. Brand's introductions cover all the shades from white to the darkest red. While he has brought us in whites Frances Willard, a flower of great beauty, Elizabeth Barrett Browning, extraordinary in size, and in pinks another mammoth bloom, Martha Bulloch, it is in the darker shades that Mr. Brand has been especially fortunate. In Mary Brand, Longfellow, and Lora Dexheimer he has produced three telling and effective reds which have quickly gained general recognition, and appear now every year among the extra good ones on the tables at our shows.

AT THE annual exhibitions of the American Peony Society there are classes provided for seedlings and this society now offers, through the generosity of two of its members, two prizes of $100 each, which may be competed for at any of the annual shows. One of these is for a new yellow Peony that shall be an improvement on anything that we now possess, and the other for a seedling in a lavender-pink shade.

In addition to this nation-wide association the growers in the Northwestern States have organized in recent years the Northwestern Peony and Iris Society, which stages an annual show in Minneapolis.

LET no one be discouraged by the thought that in order to compete either for these prizes or for less spectacular recognition he should have sowed his seeds ten or fifteen years ago! If not then, why not now—so as to be ready for the prizes that will be offered ten or fifteen years hence? Who can set a limit to the possible improvement in a flower attainable through patient and long continued effort? The development of the Peony is as yet nowhere near its end, and those who will begin their labors now with intelligence may have the satisfaction twenty years hence of feeling that they too have contributed something of permanent value to horticulture. We have undeniably a fine tradition to maintain in America, and everything that has so far been done by those whose names have been mentioned should therefore be but as a prelude to immensely greater activity in the future. There is no more entertaining and charming pursuit moreover than the growing of fine plants from seed.

To be sure it does take patience, good judgment, determination, and a little skill—patience to wait while your labors come to fruition; good judgment in the selection of seed and of seed parents, so that the years may not be spent in awaiting the maturing of plants doomed from the start to be worthless; determination, that when your own plants, your children of ten years care and watching, do prove themselves inferior, you may be able remorselessly to sacrifice them; and, finally, skill enough to keep plants alive in your garden. Not an exacting list of requirements, by any means; indeed the Peony is everyman's flower, if he chooses.

So if we are to have a Peony mania in America, let us make it toward the betterment of the flower and toward its wider dissemination among all lovers of fine plants, rather than a speculative, hectic scramble.

TO THE ENTHUSIAST HIS PEONY BEDS ARE ALL HE WANTS

On this garden plot only twenty by forty feet in size at Mr. Daniel Lowe's residence, Salem, Mass., over a thousand blooms were produced

Many ways of Planting Many kinds of Bulbs

1.
Tulips take kindly to naturalistic planting and are delightful thus

2.
Hyacinths and Tulips will share honors in trim Box-bordered beds

3.
In classic groves the Poets' Narcissus is most appropriate of all

4.
Unafraid of cold is the Crocus, demurest of the tribe

2

3

5.
Double borders of Tulips will always yield graciously to later flowers

6.
Altogether lovely is the Crocus in the rich midst of Pachysandra

7.
Another way of using the Tulip at the water's edge is in a mass

8.
Misty delicacy of spring is ever present with naturalized Narcissus

THE ROMANCE OF OUR TREES
XII. THE PIGMIES AND DWARFS

ERNEST H. WILSON
Assistant Director, Arnold Arboretum of Harvard University

Consequent upon Their Prolonged Struggle with Hostile Elements is the Diminutive Size, Well Established in Some Instances, Less Fixed in Others, which Distinguishes Certain Varieties

PREVIOUS articles have dealt with the patriarchs, the giants, and the eccentric types of tree-growth; also with trees of general utilitarian interest. In this, the final article of the series, it remains to treat of the pygmy forms which also have their niche in Nature's scheme. A number of these plants, the dwarf Conifers in particular, have considerable garden value. Most people are familiar with the dwarfed trees of Japan which in recent years have been much in demand in this country and in Europe. I shall have something to say about these later; but first let us consider the diminutive forms of tree-growth produced by Nature to suit the exactions of exposed situations and severity of climate.

In the rich valleys and on the lower, sheltered slopes of mountains grow the giants of the tree world. On the higher parts of mountain ranges the wind exercises a strong influence on vegetation, diminishing the height of trees, reducing them on the topmost regions to a low, scrubby growth. On seacoasts the wind has full play and the same effects are seen; also on broad plains and plateaux. In short, the effect of strong winds everywhere is to retard tree growth. And so it comes about that on the coasts, open plains, plateaux, and the summits of mountains, dwarf, stunted forms of tree-growth are common.

These adaptations to environment, or ecological forms, as they are technically called, are often very distinct from the parent types; but if seedlings are raised and cultivated under normal conditions they usually revert to their ancestral forms. For example, the upper slopes of Mt. Fuji, in Japan, are clothed almost exclusively with dwarf Larch, which is merely an ecological form of the type that, in the forests which cover the base and lower slopes of the mountain, grows full 80 feet tall. Near its altitudinal limits the gnarled stems of this dwarf fairly hug the lava and cinders.

Some twenty-eight years ago seeds from this prostrate form were sown in the Arnold Arboretum; but the plants raised from them have rapidly grown into tall trees, and to-day are quite indistinguishable from others raised at the same time from the typical Larch tree of the lower forest zone. Of course there are genuine dwarfs which cannot be persuaded to grow into anything else, no matter how they be propagated; but in general the stunted forms of tree types have to be increased by cuttings or by grafting, or they lose their diminutive character.

Besides the wild pigmies of tree-growth which are the product of the eternal war waged beween the Vegetable Kingdom and the elemental physical forces of Nature, represented by temperature, winds, and precipitation, there are others of similar appearance which from time to time have appeared among trees long associated with our gardens and pleasure grounds. In fact many of the dwarf trees best known are of this origin. The Japanese are passionately fond of pigmy trees and their skill in developing them by starvation, clipping, and grafting exceeds that of any other nation.

Among the familiar types of deciduous leaved trees of our northern forests—the Oaks, Beeches, Birches, Alders, Chestnuts, Elms and others—there are scrubby forms. Some of the dwarf evergreen Oaks of western North America, eastern Asia and the Mediterranean are worthy plants when climate admits

ONE OF THE MOST INTERESTING AS WELL AS ONE OF THE MOST WIDELY KNOWN OF THE GREAT PINE FAMILY

Spreading and rugged, the frequently planted Pinus montana var. Mughus (commonly called the Mugho Pine) occasionally astonishes by reaching the stature of a real tree though its usual habit is to stay fairly close to the ground

FOR BEAUTY OF FORM AND PLIANT GRACE OF HABIT THE PENDULOUS DWARF HEMLOCK IS UNIQUE

The peculiar softness and graciousness that distinguishes Tsuga canadensis is refined to its very essence in the variety pendula, the Sargent's Hemlock which Gen. Howland discovered and named for his friend Henry Winthrop Sargent

of their outdoor culture; so, too, are certain Maples. But in general the dwarfs of the broad-leaf trees of the north have very little garden value. Among the Conifers and Yews the story is different; and in passing it may be mentioned that these frequent alpine regions more generally than do their broad-leaf kin. And so it comes to pass that the Arborvitaes, Junipers, Pines, Spruces, Firs, Hemlocks and Yews supply nearly all the decorative dwarf forms of tree-growth that our gardens possess.

One of the best known and most widely used of these dwarf evergreens is the Mugho Pine (Pinus montana var. Mughus, better known as P. mughus or P. pumilio). This is a native of the mountains of central and southern Europe. On the Pyrenees it occurs both as a shrub and as a tree of moderate size; on the Tyrolese Alps it is everywhere a low, densely branched bush. In cultivation it is a broad shrub with many erect stems, occasionally reaching the height of 15 feet, and covered with dark green leaves.

On the higher mountains of eastern Asia and north Japan, and reaching sea-level in Saghalien, grows Pinus pumila, in many ways the counterpart of the Mugho but belonging to another section of the genus. This oriental dwarf Pine is creeping in habit and forms an impenetrable tangle from less than a yard to full 10 feet in height. Unfortunately it has not taken kindly to cultivation—yet why it should be intractible it is impossible to explain.

Of the noble White Pine of eastern North America (P. Strobus) there are several dwarf forms of pleasing appearance. The best is var. nana, a compact bushy shrub with short slender branches and numerous branchlets clothed with short leaves that are densely clustered at the extremities of the branchlets. Others are vars. compacta and pumila, sufficiently described by their names, and rare in cultivation.

The Scots Pine (P. sylvestris), widely distributed in northern Europe and northern Asia, has given rise to many varieties, among them two or three pigmies. The best are var. nana and var. Watereri which are pyramidal in outline and, with their gray-green, stiff foliage, quite attractive little shrubs. A stunted form of the Japanese White Pine (P. parviflora) is common in the gardens of this country and Europe often under the name of P. pentaphylla. This form is produced by grafting on the Black Pine (P. Thunbergii), which is an uncongenial stock that causes very slow growth and stunted development.

Of the Japanese Red Pine there are many forms and the Tanyo-sho (var. umbraculifera) and Bandai-sho (var. globosa) are among the most useful of all dwarf Pines. The Tanyo-sho or Table Pine grows from 5 to 12 feet tall and has a dense, rounded, umbrella-like crown and gray-green leaves. The Bandai-sho is more diminutive, being seldom 6 feet high and has grass-green foliage.

The Norway Spruce (Picea Abies) has been extraordinarily prolific in abnormal forms of many kinds and among them half-a-dozen dwarfs. The var. Clanbrassiliana is seldom seen taller than from 5 to 6 feet; it is globose or rounded in habit and has much shortened and close set branches, branchlets and leaves. It originated on the Moira estate near Belfast about the end of the eighteenth century, and was introduced to England by Lord Clanbrassil, hence its name. A diminutive variety is Gregoryana which seldom grows higher than 2 feet. The branches and branchlets of this are very numerous, short and spreading, and are thickly clothed with short, stiff leaves spreading obliquely from all sides. The var. pygmaea is equally small and its branches and branchlets are excessively shortened; the leaves are very small, prickly and close set. Of dense conical habit is var. pumila and its leaves, which spread from all sides of the branchlets, are dark green and glaucescent. Lastly, mention may be made of var. dumosa in which the branches are quite prostrate and furnished with many slender branchlets clothed with rather distant, short leaves. For general purpose the varieties Clanbrassiliana and Gregoryana are the best, and they rank among the most useful of dwarf conifers.

Of the native Black Spruce (P. mariana) there is a variety (Doumettii) which is compact and pyramidal in habit and seldom more than 10 feet high, and of bluish color. There is also an interesting dwarf form of the Blue Spruce (P. pungens). This originated several years ago in the nurseries of the Arnold Arboretum and promises to be of value as a decorative plant.

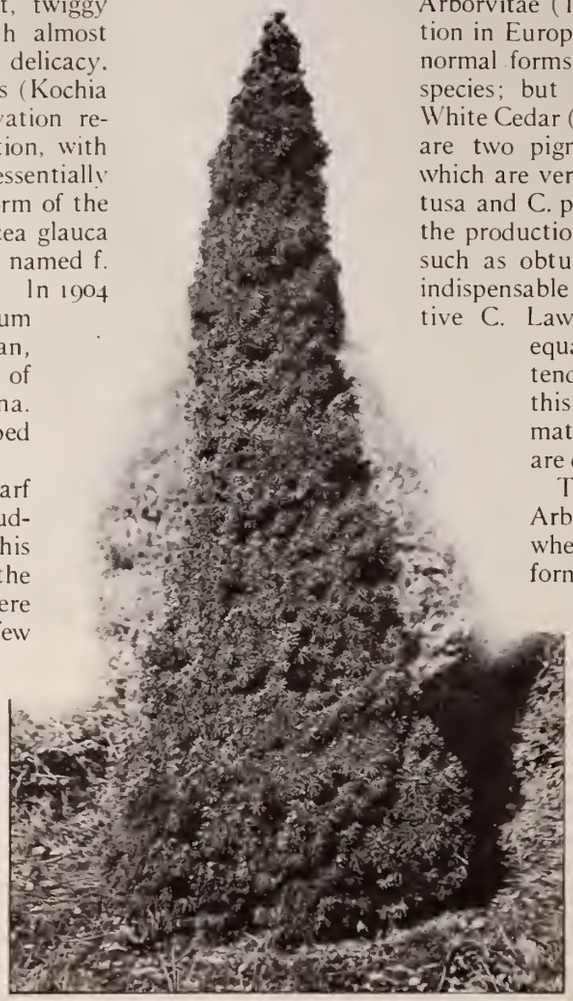
Also of the White Spruce (P. glauca) there is a diminutive form (nana) which has been known for nearly a hundred years.

The most delightful of dwarf Spruces and a most charmingly attractive plant is that being distributed under the erroneous name of "Picea Albertiana." It is of narrow pyramidal growth with short, close set, twiggy branches and is densely clothed with almost pellucid grass-green leaves of singular delicacy. It much resembles the Summer Cypress (Kochia scoparia), and for its successful cultivation requires a moist soil and a shady situation, with protection from strong winds. It is essentially an alpine plant and is really a dwarf form of the western variety of the White Spruce (Picea glauca var. albertiana) and has recently been named f. conica by Rheder. Its history is simple. In 1904 Mr. J. G. Jack of the Arnold Arboretum collected on the shores of Lake Laggan, British Columbia, some seedling plants of what he thought was the var. albertiana. These he sent home, where they developed into the lovely plant above described.

The Firs have produced but a few dwarf forms. The oldest known is the var. hudsonica of the common Balsam Fir, but this has very little horticultural value. Of the common European Fir (Abies Picea) there is a reputed dwarf form; but after a few years this is apt to lose its character and grow into a tall tree. The best pigmy Fir is A. lasiocarpa f. compacta, which originated in the Arnold Arboretum from seeds sent by Dr. C. C. Parry in 1873 from Colorado. It is a genuine dwarf of compact habit. Both interesting and useful are the diminutive forms of the Douglas Fir (Pseudotsuga taxifolia) f. compacta and f. globosa.

The common Hemlock (Tsuga canadensis) has given rise to several abnormal forms, the most distinct of which are vars. pendula and compacta. The first-named is a compact form with closely over-lapping, pendulous branches forming a broad, low round-topped mass. It was discovered many years ago on the mountains back of Fishkill Landing, on the Hudson River, by the late General Howland of Mattapan, New York, and by him named Sargent's Hemlock for his friend and neighbor, Henry Winthrop Sargent. General Howland found four or five of these Hemlocks, and one of his original discoveries is still living at Holm Lea, Brookline, Mass. the estate of Professor C. S. Sargent. This variety has been extensively propagated by grafting, but such plants grow more rapidly, are of more open, less compact habit and less beautiful than the original seedlings. The var. compacta is of upright, broadly pyramidal habit, very dense and of rather stiff appearance. Both these Hemlocks are exceptionally useful garden plants.

The White Cedars (Chamæcyparis) and Arborvitaes (Thuja) supply our gardens with a majority of the dwarf Conifers they enjoy. These and the Junipers seem extraordinarily unstable in character and when raised from seeds all sorts of abnormal forms develop. Some have round, compact heads only a foot or two high, others grow into large globular masses, and some into narrow pyramids. They are of much value for the rockery and lawn, and for making hedges. Many dozens of such forms have received names, and specialists are often at fault in determining their identity. Their number is legion and did I attempt to enumerate a tithe of them the rest of this article would be a catalogue.



LOVELIEST OF DWARF SPRUCES

A form of Picea glauca var. albertiana this is further christened f. conica; is really of alpine predilictions; likes moisture, shade and protection from winds, and deserves to have its preferences regarded

The Arborvitae of the eastern United States (Thuja occidentalis) has been amazingly prolific in these seminal variants, a number of which are valuable dwarfs. Among them the forms umbraculifera, recurva nana, Tom Thumb, Woodwardii, Reedii and Little Gem are of the best. The Chinese Arborvitae (T. orientalis), which has been in cultivation in Europe since 1752, has given rise to many abnormal forms paralleling in fact those of the native species; but they are less hardy. Of the common White Cedar (Chamæcyparis thujoides) however, there are two pigmy varieties (ericoides and leptoclada) which are very hardy. The Japanese species (C. obtusa and C. pisifera) have vied with the Arborvitae in the production of a multiplicity of curious forms and such as obtusa nana, pisifera, and filifera are now indispensable to our gardens. Their American relative C. Lawsoniana of the Pacific Slope, has been equally prolific though its progeny are more tender. But in England and the parts of this country favored with a moderate climate, the dwarf forms of the Lawson Cypress are delightful garden plants.

The inherent peculiarity of the above Arborvitae and White Cedars to produce, when raised from seeds, great variety in form, height and appearance, is likewise shared by some Junipers. The Red Cedar (Juniperus virginiana), its Chinese relative (J. chinensis), the Common Juniper (J. communis), the Savin (J. Sabina) and the scaly Juniper (J. squamata) are well known illustrations. In fact, the probability is that all tree Junipers develop dwarf forms; but the genus is difficult to classify and its nomenclature is in a sorry state.

Such dwarf Junipers as J. virginiana var. tripartita, J. chinensis var. Pfitzeriana, J. communis vars. montana and adpressa and J. Sabina vars. tamariscifolia and humilis are too well-known to need comment. The typical J. squamata is a favorite ground cover and its tree form is represented by the var. Fargesii. The low spreading J. virginiana var. reptans is a comparatively recent discovery in Maine where it grows on the sea coast at Bald Cliff, near York Harbor; the var. globosa, well described by its name, is a lovely plant worth a place in every garden. The prostrate J. chinensis var. Sargentii, common on the mountains of Korea and in Eastern Siberia, less so in north Japan, is perhaps the best of all prostrate Junipers that are ecological forms of arborescent species.

Dwarf Yews have been mentioned in a previous chapter and there is no need to discuss them here; but there are a few flowering trees that must not be forgotten. Foremost among these is the Fuji Cherry (Prunus incisa) native, as its name suggests, of the region round the famed Mt. Fuji. At its best this is a small tree occasionally 30 feet tall, but as usually seen it is less than 10 feet, with twiggy, ascending-spreading branches from near the ground up. The petals are pure white and the sepals are reddish and long persistent. It commences to blossom when young and not more than a yard high and is exceedingly floriferous.

I saw it first in the spring of 1914 when travelling in Japan, and then and there became its willing captive. It is a quite recent addition to gardens, having been introduced to Germany by seeds sent from Japan under the erroneous name of Prunus pseudocerasus. It is appreciated by the Japanese gardeners as the only Cherry they can dwarf and cause to flower in pots. Another dwarf Japanese Cherry is P. subhirtella var. autumnalis,

The Dwarf Blue Spruce (Picea pungens compacta)

The Dwarf Colorado Fir (Abies lasiocarpa p. compacta)

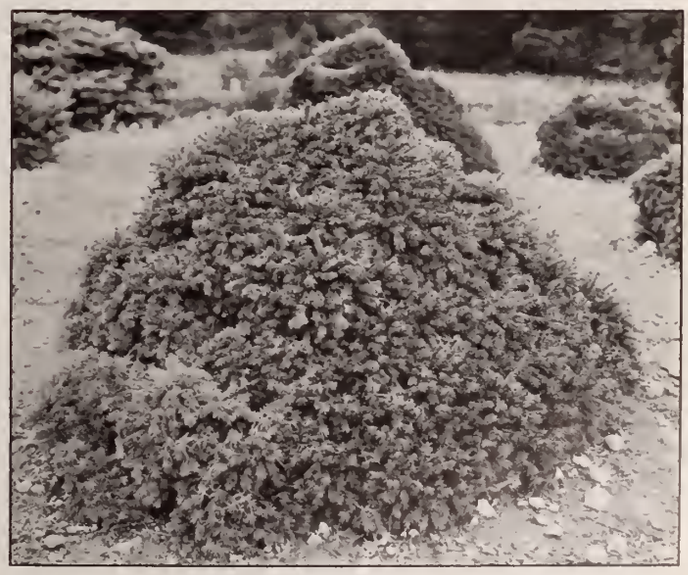
The Dwarf Oriental Spruce (Picea orientalis compacta)

REALLY DWARF EVERGREENS

Piquing interest and curiosity simultaneously these unusual forms of their respective kinds carry infinite suggestion to the imaginative thinker, who sees personified in them the all-prevailing struggle against adverse conditions (All Arnold Arboretum specimens)

The Dwarf White Pine (Pinus Strobus nana

Japanese Table Pine (Pinus densiflora var. umbraculifera)



Dwarf Norway Spruce (Picea Abies var. Gregoriana)

which has semi-double pink flowers and blossoms in spring as autumn, or both seasons. It is a twiggy, often vase-shaped tree from 6 to 12 feet tall and about as free-blooming as its most charming parent, the lovely Spring Cherry, Prunus subhirtella.

THE low-growing Malus Sieboldii is less beautiful in flower and fruit than other Japanese Crabapples but a close relative, P. Sargentii, is especially valuable. This species is native of the salt marshes round Muroran, Hokkaido, north Japan, where it was discovered in 1892 by Professor Sargent and introduced into the Arnold Arboretum. It has rigid, spreading branches, the lower ones flat on the ground, and is particularly well suited for covering slopes and banks. The flowers abundantly produced in umbel-like clusters, are saucer-shaped, round and of the purest white; they are followed by a wealth of wine-colored fruit, which is covered by a slight bloom and remains on the plants until the following spring.

One article of this series has been devoted to the Common Horse-chestnut, so it is fitting in closing to say a few words about the Dwarf Buckeyes, of which three are thriving in the Arnold Arboretum. They have long been over-looked or confounded with other species; yet they rank among the handsomest flowering plants of the southern states. The Aesculus georgiana has short, compact clusters of red and yellow flowers while those of A. discolor are yellow flushed with rose and have a red calyx. The variety mollis of the latter—known in books as A. austrina —has scarlet flowers.

This plant is widely distributed from Georgia to Texas and southeastern Missouri, and is the only red-flowered Buckeye found west of the Mississippi River. Another, A. Harbisonii, is probably of hybrid origin and is the latest of its class to blossom. The stem and branches of the flower-cluster and the calyx of the flowers are rose-colored; the petals are canary yellow, slightly streaked with red toward the margins. It is fortunate that these pigmy Buckeyes with their handsome flowers are so hardy, for they are among the most desirable plants that have been added to our gardens; and for them garden lovers have to thank the Arnold Arboretum.

FACTS FOR READY REFERENCE

—In a loam soil there is silt and a little clay, and about 30 to 50 per cent. of sand. In what is known as a sandy loam will be found from 50 to 75 per cent. of sand.

—Clay soils being too close and adhesive are unfavorable to vegetation for the reason that they will not permit the air to pass freely through them, and it is impossible for water to reach the roots of the plants. Besides, the expansion of the fibres of the roots is obstructed.

—For clayey soil that is too dense, well-sifted coal ashes are excellent as loosening material. They also are highly obnoxious to earth-inhabiting grubs.

—Black soils are highly esteemed. But a black soil is not necessarily a rich one, and may be devoid of nitrogen.

—For a rather thin or close soil, there is nothing more valuable than barnyard manure, as it adds both plant food and humus.

—Humus is decayed vegetable and animal matter, and is in itself a plant food consisting in part of nitrogen, phosphorus, and potash. Leaf mold is pure humus.

—Being dark, humus makes the average soil darker and warmer, and by its decomposition it produces humic and other acids which assist in liberating the plant food that is held in insoluble form in the soil.

—There must be sufficient humus in the garden soil to insure good mechanical condition, so that a large per cent. of moisture will be held and absorbed.

—There are times when it is just as important to retain moisture in the soil as it is at other times to get rid of it. The soil should be kept constantly loose with the cultivator. The fine soil on the surface acts as a mulch preventing rapid evaporation.

—All soils are made up of small atoms or soil particles. In a wet soil all space between these particles is filled with water, excluding the air. In a moist soil each particle is enveloped in a film of moisture, permitting the air to penetrate between the particles. A wet soil rots the seed; a moist one sprouts it and promotes growth.

—In an acre of soil (nine inches in depth) there are about 2,000 pounds of nitrogen, 3,000 pounds of phosphoric acid, and 6,000 pounds of potash.

—Posts will last longer in a constantly wet soil than they will in one that is alternately wet and dry. Seasoning has practically no effect on durability.

—Moles may be driven away by pouring tobacco tea in their runs.

—Avoid too many "dead furrows" in plowing, and endeavor to make the back furrow come where the dead furrow was last year.

—Deep plowing in fall is a great help in breaking up the compounds of the soil, in preparing plant food, in storing moisture, and in warming up the soil for early planting.

—It has not yet been recorded that evergreen trees have ever been struck by lightning.

—Lime is found in the ashes of all plants. It is most pronounced with Clover, Lucerne, Peas, Beans, and Vetches. It is least important with cereals.

—The wound made by cutting off a limb close to the trunk will quickly heal over, but a wound made by cutting off the limb several inches from the trunk leads to decay and often the loss of the tree itself.

—The main object in pruning a fruit tree is to cut out diseased or superfluous branches and make an open top to admit air and light to all fruit and foliage.

—All dead and diseased branches of fruit trees and bushes should be removed as soon as they are noticed. The prompt removal of a diseased branch frequently saves the whole tree and prevents other trees from becoming infected.

"SHE LOOKETH WELL TO THE WAYS OF HER HOUSEHOLD"

GRACE M. SMITH

To Save for Winter the Surplus Which the Garden Has Produced During the Long Days of Summer Is the Important Enterprise Afoot During These Day of Harvest

THE Wholly Efficient Housekeeper has one law with which she lets nothing interfere. It is: Always be a little ahead of the game. If the last date on which a given bulb should be put into the ground is October fifteenth, this lady has hers all safely deposited at least as early as the tenth. Then if there comes a rainy time, or guests, or illness the work is safely out of the way. So of course at this early autumn season, she is occupied with the very last of her pickling and preserving, at the same time seeing to the fruits and vegetables that are to be gathered, to the doors and windows that are to be made tight, and to putting everything in readiness for winter.

In gathering fruits and vegetables she always leaves two or three inches of the stalk or vine attached to each individual to preserve the flavor and insure keeping. Two or three Rhubarb roots are dug before the frost and put in the cellar for winter use. Planted in good soil a little later, kept warm, fairly moist, and dark they will furnish fresh Rhubarb all winter. Pears, Peaches Grapes, etc., are wrapped in paper for long keeping. Perfectly sound fruit is selected and gathered a few days before it is fully ripe.

Tomato vines are pulled with the green or half-ripe tomatoes still on them, piled in a loose heap, covered with leaves or straw, and left to ripen slowly. Melons are gathered and stored in the oat bins, where they will keep at least until Thanksgiving. Beets, Celery, and Sweet Potatoes she stores in boxes, covering them with light sandy soil; for thus they retain their freshness much longer than if kept in bins.

Potatoes, Apples, Turnips, Cabbages, etc., go into pits made thus: In the midst of a well drained space make a shallow excavation some six or eight inches deep and of suitable size. Line this with straw, leaves, or similar material, and place the vegetables thereon in a conical pile. Then cover them with straw or leaves, and on top of these with earth to a depth of several inches. This depth of earth covering is determined by the severity of the winters in any particular locality. It is well to cover still further with straw, corn fodder, or manure during very severe weather.

NO METHOD of storing is better than pits, according to our Wholly Efficient Housekeeper; but they have one objectionable feature. It is hard to get the material out in cold weather; and when the pit is once opened it is necessary to remove the entire contents. For this reason it is better to make several small pits rather than one large one; and instead of storing each crop in a pit by itself, it is better to place several vegetables of similar keeping quality and requirements in the same pit, so that it will only be necessary to open one pit to get a supply of all of them. In storing several crops in the same pit separate them with straw or leaves.

Such vegetables as are to be kept in the dry state are allowed to dry on the vines. Lima Beans are gathered as they mature and placed in a warm dry place until dry enough to shell. Navy Beans, Kidney Beans and Peas are gathered when a maximum number of pods are mature and before the ripest pods open. These vines are then cured like hay and shelled, and the Beans and Peas placed in bags and hung in some dry place, such as a closet or attic. Dried Corn, dried Apples, Peaches, Apricots, Raspberries, etc., are stored in the same manner; and all dried products are of course protected against insects, rodents, and dirt.

Onions are well matured before harvesting, and allowed to become thoroughly dry before being stored in a cool, dry, place. The W. E. H. says that the attic is better than the cold cellar for storing them, for the least hint of dampness is so detrimental. Temperatures slightly below the freezing point do not injure them, provided they are not moved or handled while frozen.

WITH the vegetables looked after our friend proceeds to take indoors a few Nasturtium vines and some Verbenas, giving them proper sunlight and not too much warmth; and these will continue blossoming for some weeks. Hyacinths and Chinese Lilies are on hand or coming very soon, to be potted next month for Christmas blooming; and Daffodils for February. Tulips, Crocuses, Daffodils, and Hyacinths for outdoor blooming will be put into the ground as soon as they arrive; and these, with the flowering shrubs that are also newly planted this fall possibly, will make a fine beginning for summer bloom.

Now is the time that she plans for next season; indeed, three-fourths of all gardening she claims should be done in the fall. If it were, none would wait until late April or early May for flowers and garden produce. For of course it doesn't do any good to plant seeds in cold, clammy, "cloddy" soil; yet there is seldom any other kind in the very early spring days. Everything that *can* be done now is now attended to therefore—seeds put in of Sweet Peas, a portion of the garden upturned to season during the winter, a heap of leaves gathered and packed close to decay and make warm, mellow leafmold, and fertilizer scattered over the ground so that by the time spring comes it is well distributed through the soil.

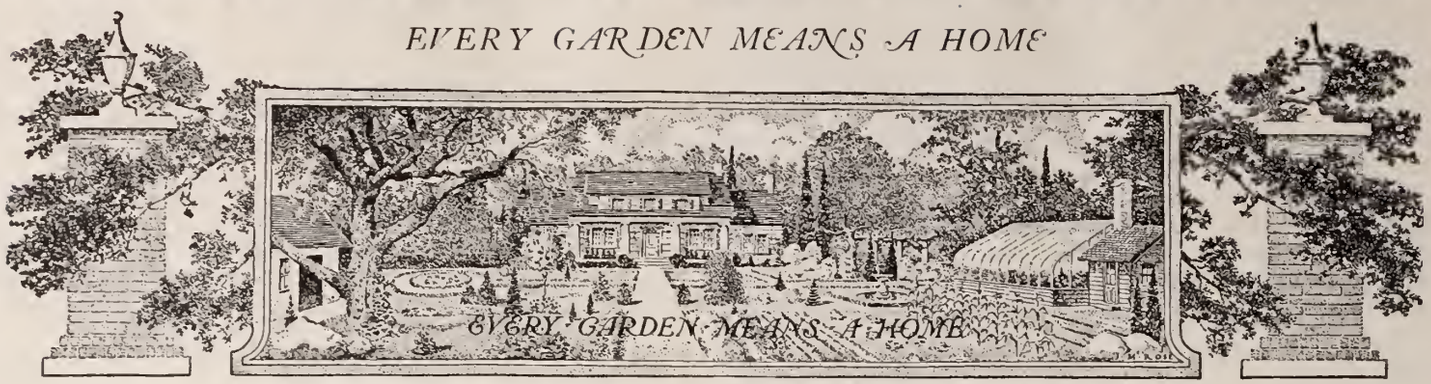
And she utilizes a hotbed, made now, for preserving green stuff which would otherwise be killed by frost; and this proves a valuable ally in the early spring days. This is the way she makes it: On a sunny spot protected from winds, a pit about 2½ feet deep by 6 feet wide, and long enough to give the space wanted, is first excavated. The sides and ends are lined with plank 2 inches thick which are nailed to stakes driven into the ground. On one end the frame rises three inches, on the other a foot above the ground, to give a proper slope to the sash and allow the water to drain off the glass. Old sash will do for the cover; but sash especially constructed for this purpose are better, for they can have the glass put in to overlap like shingles, making them water-tight.

Into this pit from 18 inches to 2 feet of straw, fresh manure and dry leaves are put, and covered with a fine mellow loam. Then the sash goes in place to allow the manure to heat for several days, exactly as when preparing in the spring for forcing.

A frame of this kind can be used for keeping up a supply of Lettuce, Radishes, etc., all through the winter, for the heat from the manure and warmth from the sun collected by the glass cover will be sufficient to protect the plants from freezing except in very severe weather, when the bed may be further protected by banking leaves or manure about the sides and covering the top with a mat. The sash is lifted on warm days for ventilation, and for evaporation of the moisture which collects, but always closed early enough in the afternoon so that the chill does not reach the young plants. And in the spring the bed is a splendid seedbed, ready for starting, Lettuce, Radishes, Celery, Cucumbers, and early hardy annuals.

AMONG OUR GARDEN NEIGHBORS

EVERY GARDEN MEANS A HOME



AWAY back in the days of our youth (some fifteen years ago), the GARDEN MAGAZINE began to talk about Fall Planting. This was not at that time the established custom that it has since become; and a great many people were not only critical of our stand, but decidedly intolerant. We like to remember this, because it helps us to remember something else—something we are likely to forget, since every day is a full one and every month brings so many things to our pages. This is the fact that we have been, and are, pathfinders.

Without talking about ourselves unduly, it does seem that once in a while at least we should enjoy the privilege of reminiscense, of living over old campaigns as it were, and of telling the tales of them to the new generation of gardeners. Otherwise how shall these know of them (since we so nearly forget them ourselves, owing to the pressure of affairs of to-day)? And if they do not know, how shall we continue to be the gardening guide, philosopher and friend that we have been? Or in other words, if we do not now and then dwell upon what we have done and thus prove our claim to be always a little bit ahead—leading the way wisely, and with what may perhaps be called discreet courage!—how shall they know that they may safely place their trust in us? So, though modesty may forbid our utterance, duty commands it—and we do not shrink from duty, whatever else our shortcomings!

Fall planting of everything, save a few especially tender or for some reason susceptible trees or shrubs, has long been preferred by many of the most advanced gardeners. Actually great numbers of these practice planting earlier than fall—what may be called late summer planting—and do this with notable success. Probably there is no gardener who has not, in some desperate moment, transplanted a shrub or perennial, if not a tree, at a time when he was almost sure the operation would kill it; and yet has found it to live and thrive and proceed with its blooming and growth, almost as if nothing had happened to it. Which brings us straight to the fact that we do not need to wait until fall in order to achieve successful results. If we do the work properly—this is, of course, absolutely essential—we may as a matter of fact, transplant pretty nearly when we please, certainly by the end of summer, when all top growth is completed and vegetation generally has reached the dormant stage even though it has not dropped its leaves.

The matter of doing the work properly is, of course, the prime essential. Take the handling of evergreens, for example. At whatever season this is done, they are dug with a ball of earth enclosing the roots; and this, in turn, is enclosed in burlap, which prevents its being disturbed. Actually the earth is transplanted as well as the tree, and the tree's processes are not interrupted. Be sure that if we do the work in this way with other material we may be as bold as we please about moving it, at any season.

Late summer planting, however, is especially advantageous, even without these precautions, as far as deciduous growth is concerned. This material generally is making root growth only, from the middle of August on. Obviously planting by the first of September insures that this root growth, going on until cold weather is sufficiently advanced to paralyze all activity, will establish the plants in their new positions before winter. Plants set out later in the fall do not have this opportunity, since root growth is sooner interrupted by winter. It is in early September, therefore, that we now advise planting or replanting the garden. Everything in it may be handled now—evergreen and deciduous trees, shrubs, fruit trees, perennials, and vegetable roots; and some vegetable and annual seeds may be sown at this time. The general exceptions requiring spring planting are the stone fruits, the broadleaf evergreens, and perhaps such thin-barked trees, as Birch, etc.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

Winter Storage of Bulbs in Washington

OUT here in the Puget Sound region of Western Washington, many home gardeners make a practice of allowing Dahlia roots, Gladiolus and Tulip bulbs to remain undisturbed in the ground for a period of many years. But even in this country of ordinarily mild winters this is a far from safe practice, for quite at the most unexpected time a season of heavy and prolonged rain is frequently followed by a penetrating frost, which plays havoc with these moist and tender bulbs. Aside from this one important consideration, long experience in securing choice blooms has convinced me that the better way to develop stocky, thrifty plants is to dig and dry the bulb clumps immediately after they have finished their season and store them away for the next year's planting, waiting until that time arrives to separate or break them up. They must be planted singly of course, not in clumps.

In the case of Tulips, the bulbs are taken up as soon as the petals have fallen, then they are "heeled in" in this way: a small trench is dug, the bulbs are laid on the soil, they are then drenched with water and lightly covered with a layer of dirt or light litter, and a box or board is placed over them so as to shield the bulbs from the sun or summer storms—for any additional moisture must be guarded against, as it would at once start a new growth. When the leaves and stems are thoroughly dried out the bulbs are cured sufficiently to be removed from the trench, shaken free from dirt and stored away until the normal planting time, which in this section is about the first or second week in January. Following this treatment we have a wonderful floral display in the latter part of April and on through May. Gladiolus may be cured in the same way, if garden space is at a premium; otherwise the stalks that have finished blooming should be cut back to within a few inches of the soil, and all watering should be stopped. Under this treatment the bulbs will be completely dried out and they may be dug and stored away before the fall rains set in and start another ineffectual and weakening period of growth. Dahlias that have remained in bloom until the beginning of the wet weather may be cut

down to within a foot or so of the ground, then labeled and the clumps carefully lifted from the soil and placed on shelves or racks where there is a circulation of air. The clumps should be shaken occasionally that they may be freed from surplus soil until they are perfectly clean and dry, when they should be stored away until planting time.—Mrs. Morgan Emery, *Wash.*

Parsley as a Side-Line

IT WAS when I was buying a "Palm Beach" suit that the story of Parsley as a side-line came out. The courteous and able salesman who looked after my desires in the way of sensible summer habiliments happened to know who I was and he spoke of having looked at my garden. In inviting him to get better acquainted with that garden, I became cognizant of his own fondness for things that grow on the land. He told me of his little home across the river, with its lively vegetable garden, and then quite casually invited me to see his Parsley plot, adding that he had good Parsley and a lot of it, and that he was then regularly supplying the largest hotel in the city with it. Continuing the inquiry, which had become much more interesting to me than the clothes transaction that originated it, I found that Mr. Hess grew Parsley intensively as well as extensively —for a city clothing salesman. His invitation to a visit was accepted gladly, and the picture shows what was disclosed, save that it gives no suggestion of the actual suburban surroundings—for the unit of land is only an ordinary village lot, to which a duplicate in size has been added on the Parsley account. But let Mr. Hess tell the story in his own words: "These eight rows of Parsley occupy a piece of ground 8 x 145 feet. For many weeks I have made an average cutting of 220 bunches per week. The size of the bunch is the ordinary commercial size which retails at five cents. I sell to two customers—a produce stand and a hotel. A continual growth is kept up by light applications of chicken manure between the rows, with frequent cultivation. The raising of Parsley is not only a pleasure, and a change from my everyday store life, but very profitable, as it is paying for the lot next to my house." What could fertile America become if many more men took their pleasure in a similar side-line! Literally tens—yes, hundreds—of thousands of back-yards and side-yards might produce food and flowers, to pleasure and to profit, and there would be a substantial slice cut off the "high cost of living!" Other ideals than those of the silk-shirt, jazz-dance, road-hog class would become popular. With our constantly shortening period of paid labor, we are forgetting, possibly, that Old Sol still shines long summer hours, that Mother Earth is yet anxious to feed us—both soul and body—from her willing breast! Mr. Hess's side-line of Parsley has not decreased his earning power as a salesman. He is simply a wholesome American who has found recreation and content in his garden opportunities.—J. Horace McFarland, *Pa.*

An average cutting of more than thirty bunches of Parsley daily is buying the real estate on which it is grown

THE CHINESE XANTHOCERAS SORBIFOLIA

A Chinese Shrub with Large Flowers

OF LATE I have heard more about the attractive Chinese shrub Xanthoceras sorbifolia (above) than for a long time. It is being catalogued to some extent, and evidently people are being attracted by its unusual charm. The plant has dull green leaves recalling those of the Mountain-ash—hence the name, sorbus-like—and erect spreading racemes of white flowers marked with red at the base of the petals. It flowers profusely, and the delicate flowers which come in May or June are followed by large, hard fruits, which look very much like those of the Buckeye. There is only one species of Xanthoceras, but the plant is related to Koelreuteria, the so called Varnish-tree of China. For that matter, it has a relative in this country in the Texas Buckeye or Ungnadia. As Xanthoceras sorbifolia blooms in the Arnold Arboretum it is extremely handsome but observation here has brought out the fact that while extremely hardy it has a way of occasionally dying out without any apparent cause. That is a point which is not to be overlooked, although garden makers to whom expense is not an item of importance will not object to renewing their specimens of this splendid shrub in order to keep it in their gardens. The name Xanthoceras, has reference to the yellow "horns" that project between the petals.—E. I. Farrington.

Poinsettia as a Lawn Plant

AS A lawn shrub and one that is not often seen, I would like to recommend the Poinsettia. It is of course tender and will need to be taken inside before frost, but for vigor of growth, beauty of foliage and general good behavior it is about all that can be desired. I have one that I have wintered several times, so that it is quite a sturdy little tree, entirely taking care of its top development and always shapely. Last fall it came into the house in good form and blossomed nicely just before winter, then after awhile dropped its leaves, and waited for the February revival, that being about the time when dormant plants will mostly resume growth if they are kept where it is fairly warm. How it is that they all have the instinct of the passing of time is one of the mysteries of creation. The leaves resemble Oak leaves, but are

much finer and more delicate and lively in appearance.—JOHN W. CHAMBERLAIN, *Buffalo, N. Y.*

Phlox Does Not Flower

I SHOULD be very grateful if some neighbor would give the answer to a horticultural puzzle which has been occupying me for a long time. Some years ago a friend who knew my liking for the Phlox Elizabeth Campbell sent me an enormous clump of it. This was planted in rich soil without breaking it up. For a few years it put out an occasional blossom. Thinking it was root bound, I cut it up into moderate sized clumps. It still put forth only an occasional bloom. Being curious, I proceeded to break it up into individual plants. Still the old habit. I have now a young plantation of very thrifty looking Phlox, known to be Elizabeth Campbell, in all respects normal except shyness of bloom. Being obstinate and interested, I have tried every device I could think of, such as heading back, propagating from cuttings, variety of ground and feeding, yet still this strange sterility, while other Elizabeth Campbells follow the normal course of their attractive lives all around the Garden. What has happened?—WILLIAM FENWICK, *Harris, Mass.*

Coat Squashes With Paraffin

IF THE shell of a squash or pumpkin can be made airtight, it will keep till spring. Coat with paraffin or varnish to seal effectually against the spores that start decay. Spread on with a brush, or dip in the melted paraffin if it is in a large vessel. The paraffin should not be hot but merely in a fluid state. —H. F. GRINSTEAD, *Mo.*

Gathering in the Fruit

IN MOST years there is a considerable wastage of fruit owing to the fact that it is gathered in an immature state. Sometimes, of course, this is done deliberately in order to secure an early crop. Wherever possible fruit should be allowed to remain on the tree until it is fully developed. In the case of the stone fruits, this will mean do not gather before they are practically ripe. The remark applies to some Apples and Pears but not by any means to all kinds. Color is not a very reliable indication for Plums, etc. and by far the best plan is to feel the fruit in this way: On no account should it be pinched between the thumb and finger but one should enclose the whole fruit in the hand and give a gentle squeeze. If the fruit is fit for gathering there will be a slight "give" all over. After a little practise it is possible to tell in a moment whether fruit is ripe or not. Damsons and Bullaces often hang well into the fall and if they are left to experience a touch of frost they will lose a great deal of their rough flavor. How can one tell when an Apple or Pear is fit for gathering? When the fruit begins to fall, providing this is not caused by grubs at the core or by wind. A very good test, if one is not sure, is as follows: Take the fruit and gently lift it up. If the Apple or Pear comes away easily from the branch this is a sign that the maturity of the fruit has been reached. Whether Apples or Pears are fit for eating on gathering depends upon the variety. Some of the best Pears, for instance, will not be sweet until Christmas and such as these must be carefully stored away. Others may be cooking varieties almost as hard as iron when raw, yet soft and wholesome after culinary treatment. Not a few Apples, which are quite nice to cut at once, will also keep well for several months. Everything depends upon the variety and here it is wise, if one does not know, to consult someone who really does.—S. LEONARD BASTIN, *Bournemouth, Eng.*

Ground Ivy as a Table Decoration

JUST after St. Patrick's Day this year there seemed to be no available flowers either in the woods or the garden, but a corner of the old Potato patch was lilacy-blue with Ground Ivy (Nepeta glechoma which your Northern dealers will let you have for twenty-five cents a plant). I uprooted a plant of it and put it in a bulb dish with plenty of water and it made a decorative centre piece for nearly a week, when I replaced it with another until other things were in bloom.—G. D. BEADEL, *Leon Co., Florida.*

Wants to get Yuccas

IN THE July issue is an article entitled "The Yucca Plant and Its Insect Ally," in the course of which it is stated "all are not hardy where frost is severe, to be sure, but (named in the order of their flowering) the glauca, filamentosa, flaccida, baccata, recurvifolia, and gloriosa are." I have grown Yucca filamentosa for a long time in large groups of from 50 to 100 in each, and found them highly effective. I desire to increase my experience of Yuccas. Where can I get those here named, other than filamentosa? ANDREW VAN DYCK, 2 *Rochester Savings Bank Building, Rochester, N.Y.*

Some Worthy Trees Near Bath, Pa.

I HAVE been greatly interested and instructed in the reading of Professor Wilson's articles on "The Romance of Our Trees." Having always been an ardent lover of nature, these excellent descriptions, with the fine illustrations, incited in me renewed affection for tree life. Consequently I take my 125 foot tape and wander over the hills to the General Brown homestead, near Bath, Pennsylvania, where are many of the trees of my childhood. Like the genial poet, Dr. Holmes, I raise my hat in their presence, for here are Locust trees fifteen feet in circumference, Sycamores and Ash of fourteen feet, Sassafras of ten feet, and others nearly as large. But the noblest of all is a Horsechestnut tree that General Washington took from his Mt. Vernon estate and presented to General Brown who planted it here in front of the ancestral home—so tradition has it. To-day (July 1, 1920), its base circumference is twenty feet and seven inches, and six feet from the ground its girth is seventeen feet. Its broadest expanse is eighty-five feet, and age approximately one hunded and forty years. It is as handsome in form as it is large in size and venerable in age, and it may be worth the remark that, notwithstanding all the buffeting it has received from storms, its original beauty and symmetry have not been impaired, although it has at times lost a few of its heavy branches.

To see it in full bloom, visited by thousands of bees, as I did on May 27th last, is a beautiful sight, "a pyramid of green supporting a thousand pyramids of white." Each blossom of the dense cluster has at its throat dashes of red and yellow, and the curving stamens are thrust far out of the ruffled border of the corolla. If they were rare flowers they would be admired as Orchids are now. Longfellow has beautifully immortalized another in song. But how would he have written if he could have seen this grand floral sight! These trees are the property of the Bath Portland Cement Company, and the Vice-President, Mr. F. B. Franks, is cautious for their protection. In my ramblings I thought of what some of our great American authors have written of trees. I remember that James Russell Lowell was near to nature's heart, and never lost the thrill of being out of doors. He was admirably a lover of trees, and they were the inspiration of some of his best prose and poetry. This love of trees led him to call his pleasant place of residence in Cambridge, "Elmwood." Better than any biography of Lowell are his letters, wherein are revealed his wide reading, lofty patriotism, keen wit, and gentle humor, and his fearless and unselfish devotion to what he believed to be right. Therefore, I am pleased to give you a copy of the following letter written to me many years ago, when the school children of Bath planted a Horsechestnut tree and named it in honor of the poet.

Elmwood, Cambridge
April 5, 1891.

Dear Sir:

I sympathize warmly with the gracious object for the furtherance of which Arbor Day was instituted. I have planted many trees, and every summer they repay me with an abundant gratitude. There is not a leaf on them but whispers benediction. I often think of the Scottish farmer's words quoted by Scott: "Be aye stickin' in a tree, Jock, 'twill be growin' while ye're sleepin'." In my childhood I put a nut into the earth, from which sprang a Horsechestnut tree, whose trunk has now a girth of eight feet, and sustains a vast dome of verdure, the haunt of birds and bees and of thoughts as cheery as they. In planting a tree we lay the foundation of a structure of which the seasons (without care of ours) shall be the builders, and which shall be a joy to others when we are gone.

I need not say how great a pleasure it is to me that my young friends should decorate my memory with a tree of their planting. I wish I could be with them to throw the first shovelful of earth upon its roots.

Faithfully yours,
(Signed) J. R. Lowell.

To Asa K. McIlhaney
Principal of Schools, Bath, Pa.

It is one of Lowell's last letters. Kipling calls it "delightful" and Van Dyke considers it one of the most charming bits of his correspondence.—ASA K. MC ILHANEY.

THE CASE AGAINST QUARANTINE NO. 37

FOLLOWING are two of the statements regarding Federal Horticultural Board Quarantine 37 made at the conference in New York, June 15, at which the permanent Committee on Revision was formed, as reported in last month's GARDEN MAGAZINE:

BY A. C. BURRAGE, Boston

THE government, people, horticulturists, and horticultural societies of Massachusetts recognize the fact that the United States Government, the United States Congress, the Department of Agriculture and the Federal Horticultural Board are seeking to foster and advance the horticulture and agriculture of the whole country, and that they are not trying to help any one interest at the expense of other interests. Massachusetts, which is suffering so much from the Gypsy Moth, the Brown-Tail Moth, the White Pine Rust, the Corn Borer, and other imported injurious plant diseases and insects, and is fearful of others yet to come, surely does not question the principles of Quarantine 37 or the wisdom of the Law of 1912 under which it was lawfully issued. We do not protest against the law or the quarantine. Still less do we question the motives or intentions of those who framed the law or the quarantine, or those who are enforcing them.

We do earnestly protest against what the Federal Horticultural Board itself calls its drastic provisions, some of which we maintain are wasteful, inefficient, unsound, and dangerous. We do ask that the regulations of the quarantine and their enforcement shall be reasonable, effective, and humane. We do ask that quarantine regulations of the Government, acting for the benefit of the whole people, shall be conducted in the right way. We ask that the United States Government, with all its power and wealth, shall handle the business part of this subject in a business way, the sanitary part in a scientific way, and the human part in a humane way.

Massachusetts, with limited area and a very large and dense population, has a negligible amount of agriculture, almost wholly confined to the tobacco of the plains of the Connecticut Valley, the cranberry bogs of the sandy Cape district, the apple orchards of the hillsides, and the scattered hay meadows. The wealth of Massachusetts lies in her people, in her institutions of learning, and in the manufacturing industries which she maintains in spite of her remoteness from coal fields and raw materials and the limited waterpower within her borders. She is enabled to keep her people and her industries here because of the unusually irregular topography of the State and its attractiveness for homes. The beauty of Massachusetts is in her tree-covered rocky and sandy hills. Massachusetts does want to protect her horticulture and she believes in quarantining against injurious diseases and insects; but she long ago found it necessary to act for the improvement of her horticulture, and particularly to obtain trees, shrubs, and other plants which would advance and extend her horticulture and beautify her ground, making still more attractive her cities and towns.

Ninety years ago she established the Massachusetts Horticultural Society, which consists of over a thousand members and which is believed to be truly representative of the horticultural interests of the State. Nearly 50 years ago, within her borders, was established the Arnold Arboretum, the botanical department of Harvard College; and here a vast amount has been done for the horticulture of the whole country. And Massachusetts, during a long period, has enacted many laws, seeking not only to improve agriculture but also to protect and carry forward the science of horticulture in the broadest way.

We want protection against future danger to our horticulture and agriculture and to that of the whole country, but we do not want to be prevented from safely importing those trees, shrubs, and plants which do not carry dangerous diseases or insects and which will give assistance, comfort, and pleasure to our people. In this state, if we find a person who may possibly have smallpox coming into the port of Boston from a foreign shore, we do not send him through the streets of Boston in a crowded street-car and then in a crowded railroad car to a contagious-disease building in the Berkshire Hills, a hundred miles away, in order to determine whether or not he has smallpox; and if he has, to keep him there until he is fumigated and recovered from the disease. We believe that the place to quarantine against dangerous disease is at the threshold, that is, at the port of entry, and we do it here and not in the Berkshire Hills.

We believe that the place to inspect, fumigate, and treat plants is at the port of entry; and we do not believe that it is economical, efficient, safe, or justifiable, for example, to send plants from San Francisco, through California, Arizona, Texas, Louisiana, and other states, to Washington, 3,000 miles away, for inspection and treatment, and then to send them back to San Francisco to be put into use. We believe that such a requirement is not only extravagant, wasteful, and unnecessary, but most ill-advised—and we do protest against such regulations. We also believe that the inspection and treatment and the acceptance or rejection of plants should be by high-grade, skilled, experienced inspectors of the Government—not students, but those who can determine what is well and what is ill, what is reasonable and what is unreasonable, in the treatment of plants.

In other words, we do not favor any evasions or violations of the law. We ask that unsound and diseased or infested plants shall be rejected at the port of entry. We also ask that sound, clean plants shall be allowed to come in at one of the large ports and there be inspected, treated and accepted or rejected, without unnecessary delay, transportation, expense or danger. We ask that the Government establish suitable inspection services at two ports on the west coast, such as San Francisco and Seattle, one on the south such as New Orleans, and two on the east, such as New York and Boston; and that the final decision upon plants be made at these ports and the plants there destroyed or released, as the case may be.

Finally, we ask that the regulations be revised in a business way and made safe and sound for all concerned. If it is a fact that the loss to this country from imported plant diseases and insects is more than a million dollars a day, then surely the Federal Government can afford to pay, and Congress can justly appropriate, the small amount necessary to establish and maintain the inspection services at these ports which may be required in addition to what the Government already has there.

BY CHARLES S. SARGENT, Arnold Arboretum

THE Arnold Arboretum is a museum of living plants in which Harvard University has agreed by contract to grow and display every tree and shrub able to support the New England climate. In order to carry out this contract the University has been importing plants and seeds from other scientific institutions and from commercial nurseries since 1874; and for forty years has been carrying on explorations in all parts of North America and in Japan, China, Korea, Manchuria, and Siberia. These explorations have been undertaken for the purpose of introducing into this country trees and other useful plants which had been unknown before the establishment of the Arboretum.

The aim of the Arboretum is to increase the knowledge of trees; its museum of living plants growing in Massachusetts is only one of its methods for accomplishing this purpose. It is interested in increasing the knowledge of plants in all parts of the United States and in all foreign countries. Much of its work of exploration has been undertaken for the purpose of bringing into this country and into Europe trees which can succeed only in the Pacific states, Louisiana, Florida, or the milder parts of Europe. For the Arboretum there is no foreign country.

The Arboretum is not charged with having introduced into this country any serious plant disease or dangerous insect on the many thousand plants which have been imported, often with soil at their roots, from every country of the northern hemisphere, or on any of the millions of seedlings which it has raised and distributed. During its entire existence plants have come to the Arboretum from foreign countries, except during the autumn and winter of 1919-20. The Arboretum desired to import from Europe a few plants in the autumn of 1919 and received permission from the Federal Horticultural Board to do so on condition that they were sent first to Washington for inspection and disinfection. It was impossible to arrange for the inspection of these plants at Boston; and the Arboretum, having had unfortunate experiences with early importations which had been sent to Washington for inspection by agents of the Federal Horticultural Board, has decided to give up entirely importing plants and seeds until some modification is made in the methods of the Horticultural Board. As the Arboretum has been active and successful, especially in the last twenty years, in the introduction of new plants into the United States, it is believed that its inability to continue this work will be a serious blow to horticultural progress in the United States.

The managers of the Arboretum, in common with every intelligent

and public-spirited citizen of the United States, believe in the exclusion of plant diseases and insects destructive to plants; they believe that the methods and rulings of the Horticultural Board can be modified and improved so that the desired results can be obtained without subjecting imported plants to the dangers and delays which it is impossible for them to escape under the existing regulations and methods of the Federal Horticultural Board. Officers of the Government realize that these methods and regulations cause serious delays, and the unnecessary destruction of plants, and agree with many importers that these delays and dangers can be reduced by the establishment of inspection stations at ports of entry, and by changes in the list of excluded plants. If such inspection stations could be established, more prompt and better service would certainly be obtained. Such changes can only be obtained by the active coöperation of every organization and of every individual in the United States interested in the cultivation of plants; and it should, I believe, be the duty of this Convention to urge the necessity of coöperation with the Department of Agriculture in an attempt to obtain change in its rulings and methods in regard to the importation of plants, on which the future of American horticulture depends.

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in *a normal season* is taken as standard; but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

SEPTEMBER—THE MONTH OF CLOSING UP THE WORK OF THE YEAR

DRAWING a parallel between the garden and a commercial business we find ourselves now at the inventory, stock-taking-closing-up-accounts season, when everything is gone over, checked up, audited, examined, and finished, and the door locked on it, as it were—and the future faced with clean slates and fresh enthusiasm and ideas. Every leak and waste and fault is unearthed and ways devised to obviate each; new undertakings are weighed, considered and decided upon; budgets are prepared; salaries are raised (perhaps!) and everybody is lectured or praised as the case may be, and exhorted in either event to Bigger and Better Things for the Future. For it is essential that future plans be made with past achievements as monitors, if advantage is to be taken of experience.

General

Do not cease from your labors altogether, but keep the borders tidy and free from seed heads and dead leaves and the general dejected look that comes of neglect. Especially destroy all rubbish of every kind as this is the stamping ground of many an insect. A certain amount of sowing is still possible and seeds for it should be on hand. Bulbs are to be ordered for planting in October and provision is to be made for storing the tender bulbs through the winter.

Greenhouse and Frames

Everything here should be in readiness to proceed with the sowing of seed, and all the activities that lead to a successful winter.

Bring Azaleas, Bougainvilleas, etc., inside once more preparatory to getting them under way for Christmas and Easter bloom.

Keep buds on Roses from developing as yet.

Sow Cineraria, Calceolaria, and Cyclamen at once.

Cuttings of bedding plants should be in the propagating bench by the middle of the month, but take only short top growth in order not to injure the appearance of the beds outside.

Pot bulbs for forcing and keep them in the coldframe to root at a temperature of 40 degrees.

Pinch all runners from the Violet plants.

Buy shrubs for forcing this month and get them under way.

Flower Garden

Divide clumps of Phlox, Peonies, Larkspur, Campanulas and all hardy plants that have done flowering, if division is necessary.

This is the month par excellence for planting Peonies—and for planting many other things as well; and the earlier the better.

Sow Poppies toward the end of the month.

Sow Sweet Peas toward the end of the month.

In the north lift Dahlias, Gladiolus, Cannas, and Elephant Ear (Caladiums) as soon as frost has killed off their tops, and store for the winter. In the south leave in the ground until October.

Early frost comes usually about the middle of the month—then an extended period of beautiful Indian summer, during which the garden ought to be still lovely. Slight protection at night when frost threatens will insure its being so. Cover plants with cheesecloth, tree branches or newspapers and place shallow pans of water about the garden if the cold promises to be excessive.

Vegetable Garden

Sow Lettuce once for use in October and later, Radishes twice, Turnips any time before the tenth, Corn Salad to winter outdoors, Endive and Spinach in frames to be used Christmas, and Cabbage and Cauliflower to winter the young plants for early use next spring.

Salsify may be sown now for use whenever spring thaws will allow the roots being dug from the ground.

Gather Tomatoes and Eggplant and bring into a dry cellar to ripen when it grows too cold for them to continue growth on the vines.

Pull up poles supporting Beans and lay them down, vines and all, along the rows, where they can be protected from frost and yet go on growing. Gather the last of them while still green.

Transplant some Lettuce to coldframes if you have more young plants than can mature before frost.

Earth up Celery slightly.

Leave an inch or two of top on Beets to prevent bleeding, and always handle them carefully to avoid bruising.

Cut off Asparagus tops when they begin to turn brown and burn them.

Burn Melon vines as soon as they turn brown or are killed by frost.

Scatter Rye over each section of the garden as fast as the final crop is harvested therefrom, to furnish cover during the winter and fertilizer when turned under early in the spring.

Do not allow Potatoes to lie in the sun after digging, but spread them out in the shade long enough to dry thoroughly on the surface before putting them away.

Fruits

Pick all late fall and winter fruits as late as possible, but always pick early ripening fruits before they are quite ripe.

Trim off all runners that form on Strawberries newly set out. It is not too late to set out new plants from pots.

Plant Currants and Gooseberries now rather than in spring, but do not plant other fruits if your soil is poorly drained. Late summer planting is perfectly all right however, on well prepared and well drained land.

Prune Raspberries and Blackberries at once, if this is not already done, removing all old wood which bore fruit this year.

Make cuttings of Grapes.

Early windfall Apples make excellent cider for vinegar.

Peterson's Perfect Peonies

The Flower Triumphant

THE Peony is a flower that can and does laugh at any Winter which nature may send us. It came out smiling last Spring, 100% there, after a Winter which wrought havoc to many so-called "hardy" plants of various kinds.

And this June it was more luxuriant in growth and bloom than I have ever known it to be.

Do YOU Know the Peony of To-Day?

Do you know that in addition to its unequalled hardiness, its freedom from disease, and its ease of culture, it is, withal, the largest as well as one of the most fragrant and beautiful flowers that grows?

I have intimately known and loved the Peony for more than 25 years and for the past 16 years I have devoted my life work exclusively to this flower and the rose.

734 15th Street, Washington, D. C., Nov. 10, 1919

"I have had the same men planting for the past five years Peonies from France, Holland, and the United States, and they all agreed that yours exceeded by far anything that they had ever planted. I agreed with them, and I want to thank you for your excellent shipment."

"I have no objection to your quoting me at any time you desire to do so. I think it is well for the public to know where they can get good Peony roots, correctly named, as I have had some sad experience in the past."

EDWARD P. SCHWARTZ

My new Peony Catalogue for 1920 will open a door of ever-increasing garden delight. May I send it to you?

George H. Peterson *Rose and Peony Specialist* **Box 50, Fair Lawn, N. J.**

Mohican Supremacy

WHY WE LEAD

BECAUSE of the study of, and devotion to, the Peony alone,—an undivided allegiance. It's significant.

BECAUSE our system of cultivation is unmatched in this country. Every root given individual and intensive culture,—as in a private garden. Ask those who have been here.

BECAUSE we do not send out a root until—regardless of its age—it has bloomed satisfactorily here the spring prior to its going to you. Some of the plants we deliver are three and four years old—with no advance in price.

BECAUSE there are not 2,000,—nor 1000,—nor 500 distinct varieties; but scarcely more than 100; and we have "spiked the guns" of the duplicates at high prices.

There are lots of POOR Peonies; why not have the benefit of really expert advice. Our fame is nationwide. 'Most everybody everywhere knows of the ABSOLUTE SUPREMACY of our Peonies. Do you? One of the REASONS is because

WE GROW PEONIES —NOTHING ELSE

Suspicions of the other reasons will be awakened by our catalogue. Instant confirmation of them if you could visit our grounds and see the plants growing—*the stock we send to you.* Ask those who have been here.

"OUR REPUTATION HAS BEEN BUILT ON THE QUALITY OF OUR STOCK"

DISTINCTIVE CATALOGUE NOW READY

Mohican Peony Gardens, BOX 300 Sinking Spring, Penn'a

EVERGREENS

Must be planted during September. From 5c. each (four years old) up, in quantities of all varieties, over a million from which to select. Specimens up to 25 ft. high. Trees delivered by motor truck and planting by our own men. Our Evergreens are of course guaranteed.

We Build

Gardens *Golf Courses* *Roads*

Rustic Houses and Pergolas

Tennis Courts and Transplant Full Grown Trees

A beautiful landscape album showing 96 of America's most famous gardens and landscapes free to Estate owners.

Local Representative will gladly call and advise you what and where to plant.

Tall Cedars and Old Boxwood a specialty.

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WAGNER Flowers

FREE BOOK

THE opportunity is yours to make your home more enjoyable and more valuable by beautifying its surroundings, whether you own spacious grounds or a modest city lot. Our Landscape Service Department will be glad to advise with you on appropriate plans and planting for your grounds.

Write today for our large, illustrated fall catalog No. 196. It will suggest hundreds of plants and shrubs suitable for gardens and grounds of all sizes.

THE WAGNER PARK NURSERIES COMPANY
Box 95 Sydney, Ohio
Florists *Nurserymen* *Landscape Gardeners*

A UNIQUE TREE SAVING EXPERIMENT IN THE SOUTH

EXCESSIVE grading of the park strips in one section of the beautiful suburb of Myers Park, Charlotte, North Carolina, was obviously endangering the lives of several large Willow Oaks since these began to show dead wood, and sparse foliage, poor in color. The roots in many cases were exposed, the top soil being entirely removed, and what was even worse for this tree, the water flowed away from them owing to their elevated position.

To preserve these examples of one of the finest

The cement wall with side wings looked very much like a big box before it was filled in with the earth

shade and street trees in the South, the remedy shown in the photographs was adopted for each tree. A strong cement wall battered on the inside, with footings extending into the ground inside of the curb, was built up above the curb; wing walls of the same construction were extended into the parking strips far enough from the base of the tree to avoid cutting any roots more than $1\frac{1}{2}''$ in diameter. Roots under this size were pruned to induce the formation of a greater number of small feeding roots.

The walls were built up to allow of a fall from the top of the wall to the surface of the ground at

The earth used to fill the space thus boxed up with cement was a careful mixture and well worked into the subsoil

(Continued on page 50)

Certainly—

you want the charm and cheer of Narcissi all through the winter—right in your own home! You can have their beauty and fragrance from October until Spring—by planting right away and then every three weeks.

Were You Disappointed

—unable to procure good Bulbs for late planting last season? They're scarce again this year—the crop is of exceptionally fine quality, but production has been unavoidably limited, for Europe needs food first of all!

Don't Delay—Buy All You Need NOW

We ship as you need them, or all at once, as you instruct.

Special Offer to Garden Magazine Readers

NARCISSI

Paper White Grandiflora, Jumbo size, $1.00 dozen; $8.00 per 100
Paper White Grandiflora, Mammoth size, $ .75 dozen; $6.00 per 100
Soleil d'Or (Yellow), Jumbo size only, $1.50 dozen; $10.00 per 100

These will bloom in the house in a few weeks, in either Fiber, pebbles and water, or soil. All fragrant varieties, and guaranteed to grow—they never fail.

The most fascinating way is to grow Narcissi in Fiber, prepared for use in bowls or vases—any vessel without drainage. You can use a bowl of your favorite color, to harmonize with the scheme of the room, etc. This will lend additional charm to your plant.

Schling's Prepared Bulb Fiber, 1 quart. 50c; ½ peck, $1.25; 1 peck, $2.25, delivered with full directions for use.

Max Schling's Seedsmen,
Incorporated
23 W. 59th St., New York
Our Bulb Book mailed free on request

Thousands of Miles in Search of the New!

It has always been a source of peculiar pride to us to think of the many superior novelties introduced by us to American Gardens. Despite increased difficulties in securing novelties our Mr. Totty has visited all horticultural centers in Europe this summer, in search of the New! Early in our business life we determined that it should be the Newest and Best for Totty customers—or none at all. Garden Magazine readers will continue to be the judges.

A Plant that will make a good hardy garden better

Among the most desirable hardy border plants rank the Heleniums, called Helen Flower or Sneezewort. They succeed in any soil, in moist or dry location, in sunny or shady spots. Their adaptability knows no limit.

Due to their strong growth, Heleniums bear enormous crops of flowers in late summer and early fall. As illustrated alongside the flowers are borne on long, stiff stems, furnishing ideal material for cutting. The plants make broad spreading heads, hence ample room should be given in border.

Helenium superbum—deep yellow flowers.
Helenium rubrum—terra cotta red flowers.

Each, extra strong plants, 30c each, $3.00 per dozen.

SPECIAL OFFER: One dozen each of both above, to *Garden Magazine Readers only for $5.00.*

This is the Month to Start the New or Add to the Permanent Hardy Garden

September brings the great opportunity of the year to realize some of your hardy Garden ambitions. We are ready to help, by act and suggestions, plus the best plant material money can buy, to put into execution any scheme you may have.

Learn to think of Totty's as Headquarters for the Unusual among Hardy Plants

Chas. H. Totty Company, Madison, New Jersey

Beautiful Iris

10,000 splendid plants for fall planting. Will bloom next June. Collection 10 named varieties, one plant each postpaid $2.00. Special price for large orders.

5000 Peonies—Fine assortment. Different colors. Eight named varieties, one plant each postpaid $6.00. Eight plants mixed varieties $5.00. Many other valuable plants. Catalog free.

W. N. Scarff & Sons **New Carlisle, O.**

Peonies Tulips Narcissi

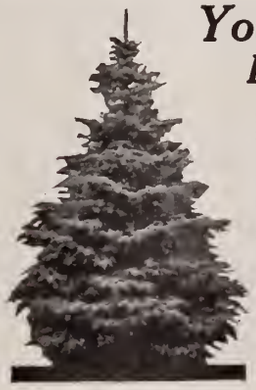
Peonies: Ten varieties in mixture, 100 plants for $20.00, 50 for 11.00, 25 for $6.00. Twelve plants, all different, not labeled, for $3.00, seven for $2.00, three for $1.00.

Tulips: Mixed Late-flowering, all colors, 100 bulbs for $2.40.

Narcissi: Ten varieties in mixture, 100 bulbs for $3.00.

All quotations include delivery by mail or express. Please order early.

Oronogo Flower Gardens **Carterville, Mo.**



You Must Act Quickly
If You Plant Trees This Fall

We will have Evergreens ready for immediate shipment by September 1st, Deciduous Trees by October 15th. Orders will be filled in rotation. Place yours now.

Our Evergreens include such favorites as Koster's Blue Spruce, American Arbor Vitæ and the Retinosporas. Our Deciduous Trees include Norway Maples, Oriental Planes, Elms and other delightful shade makers. Our California Privet and Barberry make ideal hedges. Indeed, there's scarcely a planting need that cannot be fully met at Harrison's Nurseries.

Write for free Planting Guide—to-day

Harrisons' Nurseries
J. G. HARRISON & SONS PROPRIETORS
"Largest growers of fruit trees in the world"
Box 56 Berlin, Maryland

A Veritable Hedge of

Madonna Lilies

LILIUM CANDIDUM (Choice Northern Grown)

The favorite lilies of the old-fashioned garden; produce strong, stiff stems, studded with a mass of pure, glistening, white flowers, that enliven the perennial flower garden or, for effects of contrasts with the beautiful green shrubs of the June garden, are unequalled.

Plant some bulbs during September and October and enjoy a big crop of flowers next June or pot up, store in cold frame, and force for early Winter in the greenhouse or conservatory.

	Each	Doz.	100
Extra Large Bulbs	25c	$2.00	$15.00
Jumbo Bulbs	30c	2.50	20.00

Giant Freesia Purity

A charming little bulbous plant for window-garden, greenhouse or conservatory. Has tall, stiff stem, bearing six to eight beautiful, snowy white flowers.

Plant a dozen bulbs in a 5-inch pot and enjoy a feast of blooms for Christmas. Where a continuous display during winter is desired, plant a dozen or more pots and set in cold frames bringing in at intervals of two weeks from October. Excellent for cutting, remaining in good condition a week or more in water. Much superior to the popular Refracta Alba Freesia, in size of flower, strength of stem (often measuring 20 inches), and purity of color.

Large fine plump bulbs	50c doz., $3.50 per 100, $30. per 1000
Jumbo bulbs	60c doz., $4.50 per 100, $40. per 1000

Our catalogue of Best Bulbs for Fall Planting will be sent to all customers in August. A postal will bring you one.

Stumpp & Walter Co

30-32 Barclay St. New York

PEONIES, IRIS AND DUTCH BULBS

will give you the earliest Spring flowers. Plant them now.

FIVE CHOICE PEONIES FOR $5.00
prepaid to any part of U. S.

	Regular Price
George Washington, bright red	$2.00
Mons. Jules Elie, large lav.-pink	1.00
Queen Victoria, white	1.00
Alexander Dumas, light pink	1.00
La Coquette, deep pink with white center	1.00

SIX SUPERB IRIS FOR $1.00
prepaid to any part of U. S.

	Regular Price
Her Maiesty, nearly pink	$ .35
Panchurea, smokey shade	.25
Herant, good blue	.25
Florentina Alba, white	.25
Elizabeth, lavender	.25
Honorabilis, popular yellow	.15

My new Fall Catalogue gives complete cultural notes, and contains 71 varieties of Peonies, together with a complete collection of Iris, Tulips, Hyacinths, Narcissus, Ornamental and Flowering Shrubs, and Evergreens. It's free. Write for your copy at once.

"The Dahlia King"

J. K. ALEXANDER 27-29 CENTRAL STREET
EAST BRIDGEWATER, MASSACHUSETTS

(Continued from page 48)

Decidedly sick were the trees but they responded almost at once to the treatment which corrected local conditions

the base of the tree trunk, thus securing retention of moisture at the base of these water-loving trees. Then the poor earth around the feeding roots was carefully "picked" away and holes drilled into the ground and filled in with rich cow manure. The space within the retaining walls was then brought up to the proper grade with a rich mixture of sandy loam, woodsoil and leafmold, and well rotted manure in equal parts, this being worked into the hard clay subsoil which it covered. The ground was then mulched with straw manure, the branches of the trees pruned and the dead wood cut out and they were kept well watered the rest of the summer.

Within a very short time the trees responded most encouragingly and have continued to show renewed life and vigor, demonstrating the success of the measure. Ivy and clinging Evonymus will be planted at the base of the concrete wall, so the result when the walls are covered with evergreen vines will be as pleasing to the eye as it is beneficial to the tree.

E. S. Draper.

THE YIELD OF FRUITS AND VEGETABLES

NOW is the time to note just what your garden is returning to you for the seed planted, with a view to making it more exact another year. While it is always wise to plant enough it is never good judgment to use seed and space more lavishly than need be; and each place must be studied to know accurately its own capacity.

The use of a seed bed is a great saving in the amount of seed required as well as in time, especially in a backward spring; and it is perfectly possible to get the quantity necessary to plant of each vegetable down to so fine a point that there will be no waste either in seed or in space used or in time devoted to sowing and subsequent thinning out.

BIRDS IN THE GARDEN

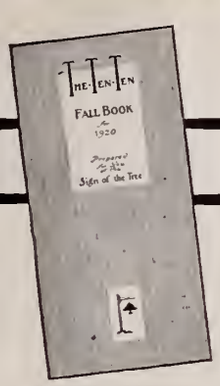
THERE are people who boast about their success in coaxing birds into their gardens and others who discuss the best means of driving the birds away. Naturally it depends something upon the garden itself—and upon the birds. While the feathered visitors add much to the joys of a quiet retreat given over to ornamental shrubs and blooming plants, they often prove a nuisance in the vegetable garden as well as in the fruit garden, this being true specially of

The empty cobs on these Corn-stalks bear mute witness to the highly developed avian taste for this cream-and-nectar combination which we want for ourselves!

robins, sparrows, and blackbirds. Crows might perhaps be included, except that they seldom invade the small garden of the amateur. Sparrows are especially persistent in destroying Peas. Many gardens are seen decorated with strings from which wave strips of white cloth. This device, however, is only partially efficient. Oftentimes the sparrows pay little attention to the waving rags. A more satisfactory plan is to dust the young plants with powdered tobacco, but another device and one which is recommended as being remarkably satisfactory has been suggested by a naturalist who has found that birds have a curious dislike for crimson color. He says that it is only necessary to fasten a length of crimson worsted to two stakes along the rows in order to keep the birds at a distance. Is it so? [Blue is effective sometimes. Ed.]

It is a pity that some easy way cannot also be originated for dealing with the blackbirds which at times become a very serious pest. The accompanying illustration will show how they ruined my Sweet Corn. My neighbors suffered in the same way, too. The birds came in immense flocks and what they did to that Corn was a-plenty. They did it in short order, too, and then went on their way, doubtless looking for new fields to devour. I haven't found any way to save the Corn from the blackbirds except to keep a

(Continued on page 54)



Fall Planting Gives Top-Notch Results

This Ten-Ten Catalogue Tells How

Strange, isn't it, how long it took so many of us to wake up to the decided advantages in planting lots of things in the Fall.

Some old Granny a few thousand years ago must have said; "there is no time for planting like the Springtime"; and seemingly that settled it for all time.

But when you see your neighbors' Fall-planted Hardy Flowers making kangaroo jumps ahead of your Spring planted ones, you sort of do some thinking.

When you see another neighbor's Fall-planted Shrubs filled with Spring blooms, while yours that came from the same place, have only a sprinkling—you ask yourself why you, too, didn't plant in the Fall?

When along in January, you see Fall planted Evergreens giving color and relief to the dreariness of some lawn, you wonder why you didn't do likewise, and have those additional months of satisfaction at no additional cost.

But back of, and in front of, the whole thing is another thing of no little importance, and that is: In the Spring, everybody is busy gardening and planting. Help is next to impossible to get.

In the Fall, it is different. Help is easier to find, even in these times of help shortage.

But your first and most important help is the Ten-Ten Fall Planting Book.
It is as much of a departure from other catalogues, as Fall Planting used to be.

Its Ten-Ten Plan makes ordering simplicity itself.

Trustworthy Trees & Plants
Members American Association of Nurserymen

Julius Roehrs Co
At The Sign of The Tree
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HOSEA WATERER
Highest Quality Bulbs

HYACINTHS, TULIPS, NARCISSUS, WATERER'S SPECIAL EVERGREEN LAWN GRASS SEED

Seedsman and Bulb Importer

107-109 S. Seventh St. Philadelphia, Pa.

Catalogue on request

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Fancy EVERGREENS in Large Sizes for Quick Effects

Specimens of the famous Koster's Blue Spruce, growing in our nursery

We have on hand a fine lot of large Evergreens, some imported before importation was stopped, as in the case of Koster's Blue Spruce shown alongside.

Specimen Native Evergreens

growing on our hills in Connecticut, are seldom grown to such perfection as with us. We have been for years very successful locally in the layout of private grounds, building drives, making tennis courts, building rustic fences and pergolas of native cedar. Planting hedges and windbreaks, etc.

May We Serve YOU?

We can successfully execute orders within a radius of 300 miles. Transportation by auto and truck makes near neighbors of us all, is quick, and safe. No rough handling of stock on freight trains. No delays in delivery. Price is a very large factor these days. We believe that we can make this attractive. We also have made special studies on forestry. A crew of skilled men is at your disposal for the purpose of executing any pruning, tree surgery, or any special garden work requiring experience and skill.

Group of round-headed standard Box, and small specimen Evergreens

Please afford us an opportunity to serve you

NEW LONDON COUNTY NURSERIES

W. J. SCHOONMAN, Proprietor

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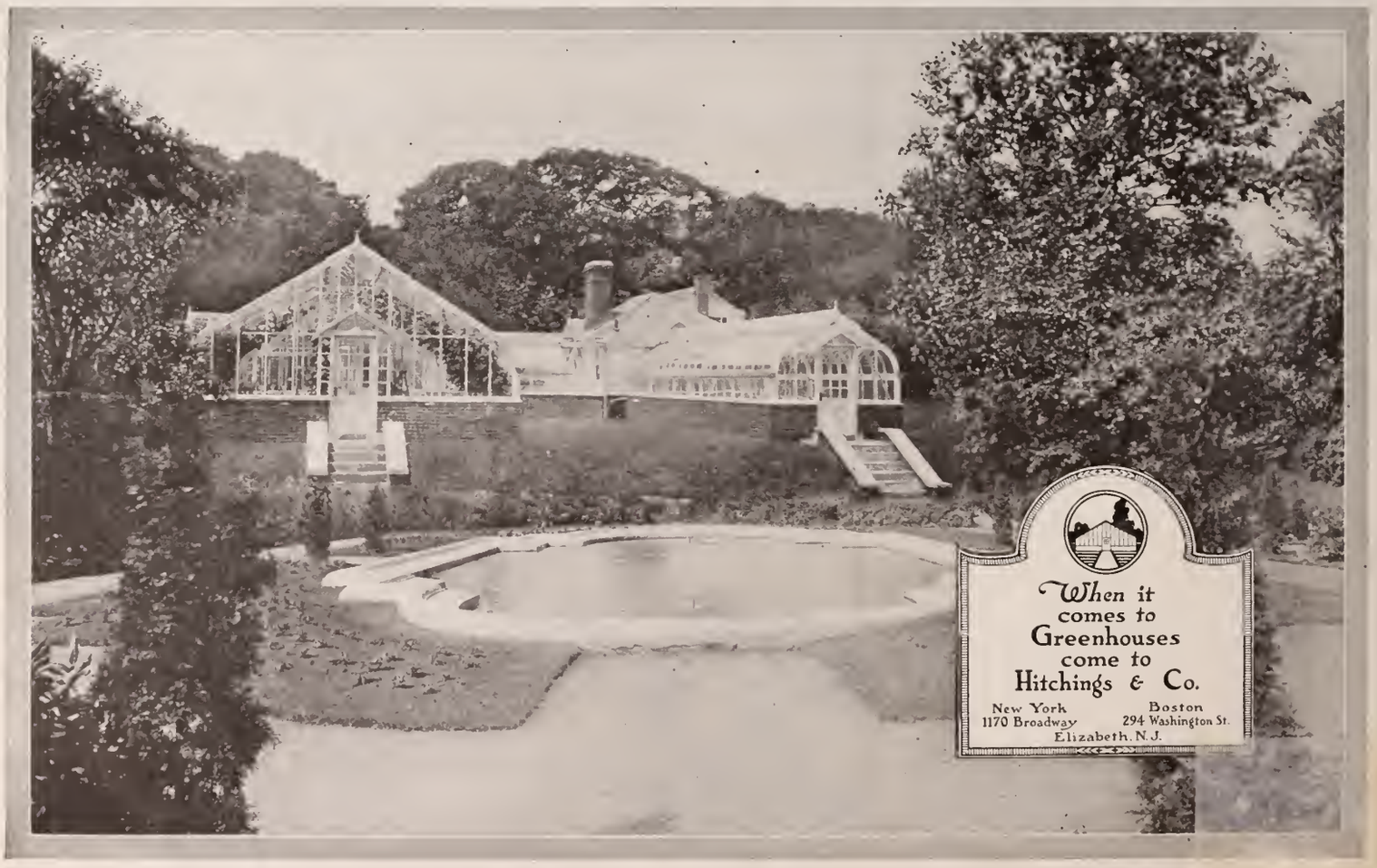


The Surpassing Beauty of Single and Japanese Peonies

has won for them a high place in the esteem of those who value simple yet graceful form, linked with exquisite color combinations. Most of them have contrasting centres and are quite bizarre. To win more friends for this lovely type we offer our

De Luxe Collection of 12 for $45.00

The following embrace a wide latitude in season of flowering, variety of form and colors:

Albiflora, White	$2.00	**LeJour,** White	5.00
Camille, Purple	3.00	**Mrs. C. W. Ward,** Dark Pink	3.00
Hesperus, Pink	5.00	**Madeleine Gauthier,** Flesh	5.00
Kameno Kerogama, Carmine	5.00	**Mikado,** Purple	5.00
Lucienne, White	5.00	**Othello,** Purple	5.00
L'Innocence, White	5.00	**Tokio,** Carmine Rose	5.00
			$53.00

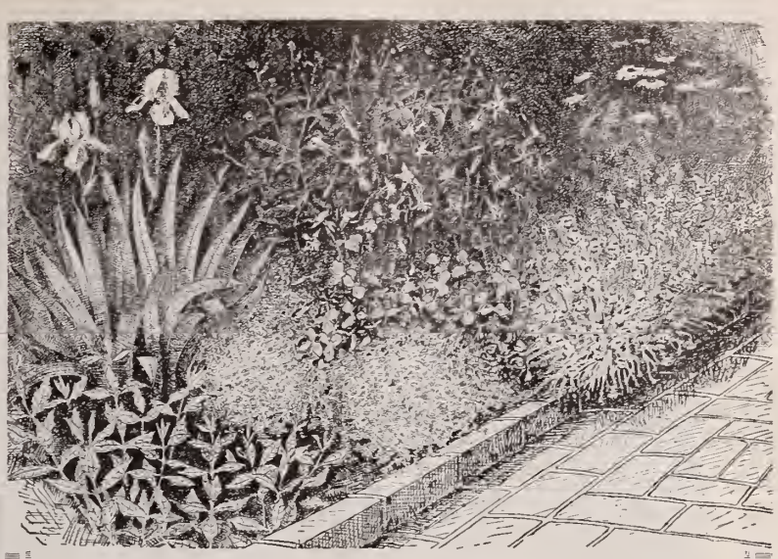
One strong, 2-year-old Root of each, bound to bloom next June, if planted this month, **for $45.00.**

Other Kinds from $1.00 to $10.00 Each

Among our nearly 400 varieties will be found sorts to please every fancy. If it's a Peony worth growing, you'll find it here, though we do not offer as yet some of our rarer varieties or new seedlings.

Please ask for our free catalogue—It contains some valuable cultural hints

Cottage Gardens Co., Inc., Nurseries
Queens, Long Island, New York



We Are Prepared

to help those contemplating the planting of hardy gardens or borders of the kind dealt with in the article of Mr. John L. Rea on pages 299-302 of July G. M. All of the classes he mentions are growing thriftily in our 30-acre nursery which holds, perhaps, the largest stocks of hardy herbaceous plants in this country. Besides, many rare new plants find a happy home here, waiting for adoption to still happier home gardens.

For those who are at a loss how to start, we suggest *Selection A*, below, as an easy means to get acquainted with the charms of old-fashioned hardy plants. Selection B is compiled to suit the fancies of the connoisseur.

Palisades Popular Perennials
For Every Style of Hardy Garden

Selection A

contains four each of the following popular favorites in choice varieties:—

Aquilegias or Columbines; Boltonias or False Starwort; Coreopsis or Tickseed; Pyrethrums or Persian Daisies; Dianthus or Sweet Williams.

20 sturdy plants in all—enough for a three foot border, 20 feet long, delivered prepaid for

$5.00

Selection B

contains five each of the following more *unusual* hardy plants:—

Anchusa Picotee or Alkanett; Helianthemum, Double Rose or Sun Rose; Phlox Agillacea, Silvery Lavender Phlox; Spirea Queen Alexandra, Pink Meadowsweet; Hemerocallis Queen of May, orange, sweet scented.

25 splendid plants, carefully packed and securely labeled, delivered prepaid for

$10.00

We Have an Unusual Catalogue for You

You will find it quite different from any other book you'll receive. It attempts to serve as a textbook to hardy plants, giving both Latin and English names, besides height, blooming season, etc., etc. Quite a valuable guide to those planning the building of Rock Gardens, since we specialize in such plants as well. Write for your copy to-day,—gladly sent free on request.

THE PALISADES NURSERIES, Inc.
SPARKILL NEW YORK

Revitalizing Worn Out Soils

Each summer, plant life takes from the soil which sustains it certain elements of productiveness.

SODUS HUMUS

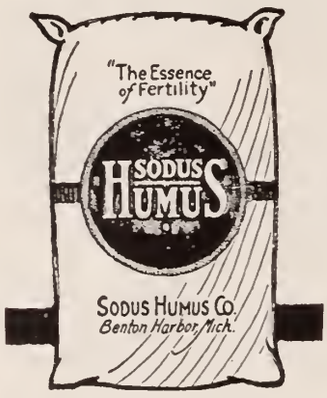
"The Essence of Fertility"

puts them back in generous abundance.

Now is the time to use this wonderful natural fertilizer to replenish and build up run-down soils.

You will be glad you did so when next spring rolls around. The results will well repay you.

A sweet and odorless silt and leaf loam that improves the growth of flowers, vegetable plants, shrubs, trees and lawns.



Full directions for all uses accompany each shipment. Order a 2-bushel sack, at least.

Prices on ton and carload lots upon request to large users like Golf Courses, Nurseries, Greenhouses and Estates, etc.

SODUS HUMUS COMPANY

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IRISES, PEONIES, GLADIOLI

Importers and growers of choice varieties.
600 varieties of Irises—Catalogue free.

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Edith Ripley Kennaday
Consultant in
Practical and Decorative Gardening
Naturalistic Plantings
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The charm of little gardens and the balance and beauty of larger gardens are due to careful thought and consideration
STUDIO 22M 119 East 19th Street, New York City

PEONIES and IRISES

To our comprehensive though simple price list, you are welcome.

First Quality Roots

Clarence W. Hubbard
GROWER OF
PEONIES & IRISES

True to Label

6144 LAKEWOOD AVE. CHICAGO, ILL.

(Continued from page 51)

small boy on the edge of the patch with a shot gun.

Then there are the robins which might more appropriately be named robbers. Theorists tell us to plant Mulberries on the principle that the robins will eat them in preference to the Cherries. Practical experience, however, shows that they eat both, and their capacity seems limited only by the supply. In foreign countries it is a common plan to protect the Cherries by covering the trees with netting, and that is feasible here in a small garden before the trees have grown large. It is a simple matter to make a netting from fly screening, although at present prices it is a question if the screening isn't worth more than the Cherries. Still the netting can be made to serve a double purpose, or perhaps I should say a triple purpose, for after the cherries have been saved it can be spread over the Strawberry bed and later transferred to the Currant bushes. When the Strawberries first begin to ripen the robins often do a great amount of damage and protecting them with screen cloth is worthwhile, even though the Cherries are left to suffer.

For that matter, though, there are other ways by means of which at least a few of the Cherries may be saved. Something is accomplished by hanging pieces of looking glass or shining tin in the trees. The birds are quite suspicious of the reflections and the noise. Windmills and clappers are sometimes used with success, but the very best plan which I have discovered is the simplest of all. When I have robins in the Cherry trees, I immediately sneak out as quietly as I can and plug them with pieces of clod or pepper them with handfuls of loose earth. It is remarkable to find how effectual this method is for frightening the robins away and causing them to remain suspicious for some time. And it has the added advantage of not actually hurting the birds, which is greatly in its favor.

Alas and alack, however, no such simple expedient will serve with the starlings, which unfortunately are moving relentlessly northward and seem to have taken up their permanent residence in New England. These are the most rapacious and brazen of any feathered creatures that I know of. So far I have heard of only one method which has been at all successful in thinning their numbers. In Connecticut the plan has been tried of building bird houses with double floors, the upper floor being pivoted so that it will give way and allow any bird that steps upon it to fall into the opening below. A good many starlings have been caught in this ingenious kind of a trap.

E. I. FARRINGTON, *Mass.*

AN EXCEPTIONAL PEA

THE best of nine varieties tried was Sutton's Discovery. This surpassed on a heavy clay soil Thomas Laxton which, though pronounced the best there is by M. B. Keeney, the veteran Pea shark, with me was distinctly inferior. Little Marvel was also grown; and this is the hardest to pull and to shell of any ever tried! On the other hand, Sutton's Discovery was easy to grow, easy to pick and shell, prolific and the most luscious "second big help" variety that I have ever grown. Indeed, it is in every way exceptional and greatly to be recommended.

M. G. KAINS, *L. I.*

Hardy Native Plants, Ferns and Azaleas

have been my specialty from the start. Years ago I determined to have an utterly different kind of a Nursery. I always was fonder of the wild things nature gives us than of the cultivated forms of plant life. My Hardy Fern and Flower Farm now holds unquestionably the greatest collections of unusual plants in this or any other country.

Plant Lilies This Month

Our wild Lilies are among the showiest of all flowering plants. A patch of Meadow Lilies is a sight to behold. If you are fond of yellow, plant a clump of a dozen and witness a real blaze next June. *20c each; $1.75 dozen.*

To make more friends for hardy Lilies I will send a sample collection of

6 Superb Hardy Native Lilies for $1.00

2 strong bulbs of 3 different species, properly labeled, securely packed, sent postpaid anywhere for $1.00.

An Utterly Different Catalogue Awaits Your Request

As a true representative of an "utterly different" nursery you will find it full of fascinating facts concerning the most interesting wild flowers of our country. Ask for it, please and mention G. M.

EDWARD GILLETT
3 Main St. Southwick, Mass.

Osmunda Claytoniana

Our Collection of Native Ferns Is The Best In America

NOW is the time to plant EVERGREENS
and Perennials

We have one of the finest collections of both to be found in America.

Our 1920 Price List will be ready about September 1. Parties interested can have one for the asking.

Soon October will be here when nearly all deciduous trees, shrubs and vines can be planted quite as safely as at any time. Visit us if possible, but if you cannot do that, send us a list of your requirements and give us a trial order.

We depend upon pleased customers to sell our goods. For a quarter of a century we have been pursuing this policy and we have never been disappointed. We regard pleased customers as one of our most valuable assets.

THE BAY STATE NURSERIES, NORTH ABINGTON, MASS.
W. H. WYMAN, *Proprietor*

A Garden for Every Home

Beautiful native plants and bulbs for Mass planting and naturalizing. Delivery September—October.

Hepatica acutiloba	$10.00	per 100
Hepatica triloba	10.00	" "
Mertenzia virginica (Virginian Cowslip) clear blue	10.00	" "
Phlox divaricata	8.00	" "
Trillium grandiflorum	5.00	" "
Lilium Canadense	8.00	" "
Lilium Philadelphicum	8.00	" "
Lilium Superbum	10.00	" "

Dielytra spectabilis (Bleeding Heart)
Extra strong clumps for outdoor planting and forcing
Spiraeas pink and white varieties extra strong clumps.

Bulbs for Fall Planting and Forcing

Write for Catalogue

SPECIAL OFFER

Oleanders, pink 7-9 feet Bush Specimens. Potgrown Figs 3-4 feet Specimens. Bush Box 12-14 inches high.

Write for Prices

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An Open Letter to My Friends
and prospective ones

To live right, is to serve—and I have always believed in giving the *right kind* of service. That this attitude meets with the hearty approval of fair-minded people, is brought home to me quite often by letters of which the one printed herewith is a fair sample. I receive such letters—well, perhaps not daily but frequently. I will endeavor to treat anybody doing business with me in the fashion that pleased the writer of the above. I am looking for many opportunities. May I "surprise" *you?*

Let me send you one or more of these

12 Peonies worth $7.25 for $5.00

Augustin d'Hour, Couronne d'Or, Berlioz, Duc de Wellington, Duchess de Nemours, La sublime, Mme. Boulanger, Marie Stuart, Umbella a Rosea, Virginie, Philomele, Edulis Superba. Substitutes as with Iris.

12 Peonies Mixed for $2.25, 100 for $15.00

12 Peonies worth $13.25 for $10.00

Albert Crousse, Avalanche, Floral Treasure, Grandiflora Nivea, Plena, Karl Rosenfield, La Tendresse, Livingstone, Madame de Verneville, Madame Ducel, Marguerite Gerard, Mireille, Venus.

12 Iris worth $3.00 for $2.00

Arnols, Dr. Bernice, Exquisite, Florentina, Her Majesty, Mrs. Allan Gray, Mrs. H. Darwin, Pallida Dalmatica, Princess Victoria Louise, Wyomissing, Mme. Chereau, Queen of May. If you have any of the above we will substitute others.

12 Iris worth $6.20 for $5.00

Amas, Halfdan, Iris King, Isoline, Lohengrin, Loreley, Monsignor, Mrs. Neubronner, Rhein Nixe, Walhalla, Rose Unique, Nibelungen.

12 Iris Mixed for $1.00, 100 for $5.00, 1000 for $45.00

and kindly read this:—

From Oakland, Cal.

"I wish to express to you my surprise and delight over the manner in which you filled my recent small order for Iris Bulbs. When I ordered "Bulbs" I expected to receive "Bulbs", and was both greatly surprised and pleased on opening up the huge parcel, to discover that every "Bulb" as shipped by you were in reality, good sized clumps. I planted these clumps that night and after about four weeks I received another surprise when I discovered nearly all of the clumps (sent to fill my order for Bulbs) were in full bud. Since then I have cut quite a number of nice blooms which have been greatly admired by all who have seen them.

Thank you for the liberal, yes extravagant manner in which you filled the order. I trust that I shall be able to return your kindness in some way.

May we work together for a more *Beautiful America?* Price list now ready.

GEO. N. SMITH Wellesley Hills, Mass.

BLUEBERRIES
Sturdy Nursery Grown Plants for October Shipment

The Blueberry, although among the finest of fruits and the finest of all berries for pies, is almost unknown in the average garden. This is due to the scarcity of nursery grown plants, the only kind that transplant easily.

We have to offer this fall some excellent nursery grown plants—ideal for successful results in the home garden. The plants are very hardy, rapid growers and heavy bearers. Blueberries can be planted most successfully in the autumn.

The flavor of the Blueberry is almost impossible of description. The Blueberry is in a class by itself, with its delicious melting flesh, full of rich creamy juice and a delicate wild taste all its own. Next summer when you are eating luscious Blueberry pies made from berries picked from your own bushes you will appreciate the wisdom of planting Blueberries.

WRITE today for our illustrated Fall Catalogue, describing Blueberries; also fruit trees, shrubs, ornamentals and evergreens.

J. G. Mayo & Co.
801 Ellwanger & Barry Bldg., Rochester, N.Y.

Peonies!

NEXT to roses, peonies are undoubtedly the most popular of flowers—and for very evident reasons. Their charm, fragrance, and color are irresistible — true aristocrats of the garden! And so easy to grow, too—no pests, no spraying, no particular care. And no matter how small your lawn, you can have peonies! They glorify any garden as with a touch of royalty, and they have few equals as cut flowers—they keep well and are so generous with their showy petals and their delicate perfume.

By a wise choice of early and late blooming peonies, you can easily extend your peony season. In addition to the most prominent double varieties, we also have the single varieties, which are particularly desirable for cut flowers. Prices range from 75c to $2.00. Write for complete list, or ask us to send you our own selection, according to the amount you name and the colors, etc., you prefer.

Moons' Nurseries
THE WM. H. MOON CO.
MORRISVILLE PENNSYLVANIA
which is 1 mile from Trenton, N. J.

FREE Greenhouse Book

Contains many valuable suggestions for prospective greenhouse-owners. Get it today. Many Callahan Greenhouse owners are now making big profits in their spare time with this pleasant work. YOU can too.

CALLAHAN SECTIONAL GREENHOUSES

SAVE YOU MONEY

You can erect it yourself in a few hours. Enlarge or move it at any time. Styles and sizes for homes and estates. Built of indestructible Red Cypress and completely finished in easy-to-handle sections. They make under-glass gardening easy and very economical and insure healthy plants.

Also Cut-to-Fit Greenhouse material and Duo-Glazed sash for Hotbeds

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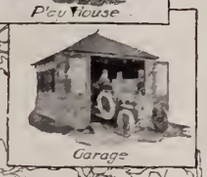
ACT TODAY
and be sure of having it ready for winter

HODGSON *Portable* HOUSES

Solve the Housing Problem



A plot of ground—a Hodgson Portable House—and the housing question is solved! Hodgson Portable Houses are wonderfully attractive—you will be surprised at their beauty and permanence. Doors and windows have their places and fit them perfectly.

There can be no mistakes. Hodgson Portable Houses are delivered to you in painted sections—plainly marked—and can be bolted in place without the aid of skilled workmen. They are made of well seasoned red cedar, with Oregon pine frames—carefully designed to withstand all climatic conditions.

Hodgson Portable Houses meet all purposes. Write today for a catalog containing lists and prices, ranging from barracks, churches, offices, and hospitals to playhouses, bird-houses and dog kennels.

E. F. HODGSON COMPANY
Room 228, 71-73 Federal St. Boston, Mass.
6 East 39th St., New York City

Farquhar's for Bulbs

During the past two months, our Mr. Farquhar travelled through the hooks and nooks of Holland, in search for Superior Quality Bulbs. He found them. His choice of the choicest is now on the way here. We assure you that Farquhar Bulbs, crop 1920, are the equal of the best that ever reached these shores.

Darwin Tulips. These stateliest of all Tulips are steadily increasing in popularity. Our collection embraces *the 49* recognized most beautiful varieties.

May-flowering Tulips. The late, single, May-flowering or Cottage Tulips have no equal for garden decoration. They surpass in daintiness of shapes and colors. 26 varieties to choose from.

Do your shopping in Bulb Land through Farquhar's Catalogue of Fall Bulbs—ready September First.

R. & J. Farquhar Company

Boston Massachusetts

Interested in Gladioli?

If so, we invite you to call at our grounds and inspect what is probably the largest planting of fine Gladioli in America.

We are located at Good Hold Farm, stop 52, C. P. & E. Interurban, on the main Chicago-Buffalo pavement, in West Mentor, Ohio, 20 miles east of Cleveland.

The flowers should be at their best throughout August and early September and we would be glad to have you call any day during that time.

THE RALPH E. HUNTINGTON CO., Mentor, Ohio

Hardy Phlox

Can be used everywhere. Unlike other plants, require little care and give bountiful returns in flowers during the season. They have a delightful odor, scenting the whole garden.
I am anxious to send you my list. Write for it now, 300 varieties.

W. F. SCHMEISKE
State Hospital Station Box 11 Binghamton, N. Y.

I grow but few kinds of Plants *But Grow Them Well!*

Pachysandra terminalis, field-grown, $2.00 per dozen, $15.00 per hundred.

Euonymus radicans, three years, $2.50 per dozen, $15.00 per hundred.

Euonymus Vegetus, two years, $3.00 per dozen, $20.00 per hundred.

Euonymus Carrieri, two years, $3.00 per dozen, $20.00 per hundred.

James Wheeler, Plantsman
Worcester Street Natick, Mass.

Bush Box. 2½-3 ft. high x 2½-3 ft. spread, specimen.

Bush Box. 2-2½ ft. high x 2-2½ ft. spread, specimen.

Fruit Trees and *Fruit Plants* in variety for Fall planting.

Write for price

MORRIS NURSERY CO.
St. James Building 1133 Broadway, New York City

The World's Choicest
PEONIES
Including all the New and Rare Varieties

Le Cygne, Solange, Therese, La France, Martha Bulloch, Tourangelee, Mme. Jules Dessert, Primevere, Rosa Bonheur, Elizabeth Barrett Browning, Longfellow, M. M. Cahuzac, Loveliness, Enchanteresse, Jubilee, etc.

Send for catalogue

D. W. C. RUFF, Globe Bldg., St. Paul, Minn.

GALLOWAY POTTERY

GIVES ENDURING CHARM

Send for our illustrated catalogue of Flower Pots, Boxes, Vases, Benches, Sundials, Gazing Globes, Bird Fonts and other Artistic Pieces for Garden and Interior Decoration.

GALLOWAY TERRA COTTA CO.
3214 WALNUT ST. PHILADELPHIA

Do You Garden The Gilson Way?

The Gilson Way of Gardening provides the proper tool for every job and person.

The Gilson Weeder kills weeds. A child can handle it perfectly.

The Liberty Cultivator pulverizes the soil, saves moisture, uproots weeds. As easily handled as a rake.

The Gilson Triplex is a 100% efficient combination of both above—a *man's* cultivator.

Learn all about the remarkable Gilson Line of Garden Tools by writing for Free Booklet.

J. E. GILSON CO., 100 Valley St., Port Washington, Wisc.

WILD FLOWERS

Not only do we furnish any kind that grows, but we give advice on plantings. Have you trouble in getting a natural planting? We might help you with advice or take your planting contract.

BOTANICAL NURSERY CO. Lapeer, Mich.

Can Spare Several Clumps of these Brand Peonies

Chestine Gowdy, Ruth Brand, Frances Willard, Florence Nightingale, Martha Bullock, Archie Brand, etc.

Other good varieties available are

Monsieur Jules Elie,	2nd best	6	any color	Dorchester
Festiva Maxima	" "	20	white	Baroness Shroeder
Louis Van Houtte	1st "	"	red	Therese

Write for prices and terms

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School of Horticulture for Women

(Incorporated)

AMBLER PENNSYLVANIA

Practical work in greenhouses, vegetable and flower gardens, orchards, nurseries, shrubbery, poultry plant, apiary, jam kitchen. Lessons by competent instructors.

Regular **Two Year Diploma Course**, fitting women for self-support or oversight of own property, begins January 17, 1921.

Catalogue. Elizabeth Leighton Lee, Director.

FLOWERS IN THE ARTISTIC HOME

EVERY real home, nowadays, has its bouquet of flowers to lend cheer or charm. And to many of us, the opportunity to arrange flowers artistically by experimenting with this and that color combination of the background, holders or the beautiful blossoms themselves, is a constant pleasure. Every time we have a bouquet to arrange there is the possibility of "discovering" some charming new color effect. The same flowers in different rooms, holders, or even lights, will often give us a delightful surprise.

Dark red Carnations, for instance, rather somber on the dining table, compared with gay pink or bright red Carnations, are richly cheerful in a cream or white room in a position where the sun strikes them.

Green Mignonette, usually a filler for more colorful blooms has a delicate beauty all its own, if thrifty stalks of it are placed in one of the popular shallow bowls that is a shade of mottled green suggestive of sunshine. This study in soft greens with the hint of yellow is charming in a room of pastel neutrality.

Green, which is Nature's own background for flowers, is very pleasing when used in the form of Wild Oats. Many of the cultivated garden flowers will take on a picturesque field atmosphere when combined with half a dozen sprays of this outcast or with other of the decorative field grasses.

Pink and yellow, a rather hard color combination to arrange successfully becomes artistic at once, if a few blue flowers, in almost any shade, can be found to add to the bouquet. Cornflowers are, of course, lovely.

Several shades of yellow makes a fascinating color scheme—but not frequently arranged. Yellow Cannas of several shades are a rich possibility. Jonquils, Broom, and Gladiolus are all spring blossoms in yellow that will give beauty to a dull gray room. Marigolds, Eschscholtzias, Zinnias, and Dahlias are all flowers that bloom in several shades of yellow, and when several shades of the same flower are used the bouquet has much more variety than if one tone only is used.

With the revival of the Victorian in period furnishings, the quaint nosegay of many colors will be an appropriate touch in rooms done in this stiff, prim style. Indeed, exclusive florists to-day are featuring all sorts of original combinations in mixed bouquets. Scotch Heather forming a background for small dainty flowers in pink, blue, and yellow is a favorite arrangement. A multi-colored bouquet made up of only one or two blossoms of a kind, shows up to the utmost advantage in the brilliant black enamel ware.

There are indeed, such a variety of colors and shapes in flower holders, nowadays, that nearly any color scheme can be arranged. Both the dull and glazed potteries in blue, lavender, green, and yellow, are in high favor.

The new pink glaze ware in a rich raspberry tone offers possibilities for a study in pink, with such blossoms as Begonias, Oleanders, Azaleas, Camellias, Althaeas, Snapdragon, Larkspur, Foxglove, Sweet-peas, Apple and Peach blossoms, Stocks, Weigela, Hawthorn, and Roses —any pink flowers in fact.

MARION BROWNFIELD, *Los Angeles, Cal.*

HONEY SWEET BLACK RASPBERRY
—"SWEET AS HONEY"

The berry for the million and the millionaire—there's millions in it.

Picking Honeysweet. Sold on local market, summer of 1920. Fifty cents per quart.

The berries are the most delicious fruit you ever tasted. Ripens in July—sweet and delicious —UNLIKE ANY OTHER BLACK RASPBERRY. Honeysweet is extremely hardy, passing through the severe fruit tree killing winter of 1919-1920 without injury to a single twig on any plant in a four acre patch.

BEARS EVERY YEAR—HAS NEVER BEEN A SLACKER. LARGE SIZE, GLOSSY BLACK, DELICIOUS. THE WORLD'S GREATEST BLACK-CAP.

The big clusters of big, black raspberries literally cover the bushes. Twelve of our vigorous, nursery grown plants will produce many quarts of fruit the first season. Twelve plants will fit into your garden nicely. NO GARDEN SHOULD BE WITHOUT HONEYSWEET.

As a dessert berry: in pies, as a canned sauce, as jam, you never tasted anything like it. TRULY A FRUIT FIT FOR A KING.

Honeysweet has now found its way into every State in the Union and many parts of Canada. Wherever it goes it is a winner. Planted commercially we know of nothing that will pay such immense returns per acre as this new and wonderful variety. Many growers received $1.05 per pound for this year's crop of dried Black Raspberries.

Visitors are cordially invited to visit our nurseries during the fruiting season. Plant Honeysweet—it has been called "The most delicious Black Raspberry."

Price for strong fruiting plants:
$2.50 per 6; $4.00 per 12; $15.00 per 50; $25.00 per 100; $200.00 per 1000

GLEN BROTHERS, INC. GLENWOOD NURSERY (ESTABLISHED 1866)
2006 E. Main Street, Rochester, N. Y.

Would you like to see a

Peony Show in Pictures?

I have a 12 page booklet with (8) eight illustrations made from photographs taken at the Reading Peony Show.

I will be glad to send booklet free with my Peony price list.

LEE R. BONNEWITZ

Eight and Twelve Washington St.

Van Wert, Ohio

CHERRY HILL
PEONIES

For years our Peonies have been noted for their wonderous beauty, their exceptional vigor and remarkable blooming qualities.

Fifty years experience in developing the choicest varieties has made this possible and has given us a collection the quality of which cannot be surpassed.

We have in large strong plants the best of the American and European varieties, also a limited number of plants of our own choice seedlings which are the equal of anything ever produced. Two, three and four year old clumps for those who wish an immediate effect.

Our catalogue is free for the asking and will greatly assist you in choosing the varieties which you should order now for early fall planting.

Why not purchase from a house that has a national reputation for quality and fair dealing?

It will save you time and annoyance and assure you of getting just what you order.

Catalogue Free on request

T. C. Thurlow's Sons, Inc.
Cherry Hill Nurseries
West Newbury Mass.

Beautify Your Home With Evergreens

Direct from Little Tree Farms

Our Famous Offer of

6 Ornamental Evergreen Trees $5

has enabled thousands of home owners, at little cost, to add to their grounds the beauty and dignity of *living* trees—*growing* trees, enhancing year by year the attractiveness of the home and its *property* value.

We make this special offer solely to acquaint home owners with the service and nursery stocks of **Little Tree Farms.** This Special Introductory Offer includes:

1 Silver Fir, 1 Red Pine, 1 Juniper, 1 Douglas Spruce, 1 Austrian Pine, 1 Arborvitæ

Each of these beautiful Evergreens is two feet high, or over; and in sturdy growing condition. Packed carefully for safe delivery to transportation company, Framingham, Mass.; shipping weight 25 lbs. **Send remittance with order.**

***FREE:* The Book of Little Tree Farms**

Beautifully illustrated with photographs of trees, shrubs and landscape effects. Contains valuable data on choice and care of nursery stock. Used as a reference work in schools, and listed in library of U. S. Dept. of Agriculture. *Write* for it.

AMERICAN FORESTRY COMPANY, Dept. A-9
15 Beacon Street, Boston, Mass. *Owners of Little Tree Farms*

Silver Fir

DINGEE ROSES
Sturdy as Oaks

Dingee roses are always grown on their own roots —and are absolutely *the best* for the amateur planter. Send to-day for our

"New Guide to Rose Culture" for 1920

—it's free It isn't a catalogue—it's a practical work on rose growing. Profusely illustrated. Offers over 500 varieties—Roses, other plants, bulbs and seeds. Tells how to grow them. Safe delivery guaranteed. Established 1850. 70 greenhouses THE DINGEE & CONARD CO., Box 937, West Grove, Pa.

ORCHIDS

Largest importers and growers of Orchids in the United States

Send twenty-five cents for catalogue. This amount will be refunded on your first order.

LAGER & HURRELL
Orchid Growers and Importers SUMMIT, N. J.

Have a "Fleur de Lis" Iris Garden

Is there a little nook in your garden where you can rest and "chum" with the glorious flowers named after the Goddess of the Rainbow? Truly, every color of the rainbow may be found in the hardy Iris, or Fleur de Lis, a flower whose fascinating beauty must have been meant to bring peace and rest to humanity. Learn to know Irises at their best by planting

Childs Select Named Irises

Like glowing velvet and scintillating precious jewels, Iris, in their season, eclipse in beauty every other flower in the hardy border. To enable you to know Iris as we love them, we offer postpaid,

20 best named Garden Iris, all different, for $2.50
10 best named Japan Iris, all different, for $1.50
In superfine mixture, 20 Garden or 10 Japan, $1.25

We grow acres of Irises, Peonies, Lilies and other hardy bulbs and plants for fall planting.

We also specialize in **Hyacinths, Tulips, Narcissus, Crocus, Freesias, etc.** Shrubs, Vines, Berries and winter flowering plants in great variety. **Large Catalogue Free.**

JOHN LEWIS CHILDS, Inc., Floral Park, L. I., N. Y.

PLATYCODON

This is a desirable, hardy plant, and always blooms the first season after planting. $2.50 to $5.00 per dozen according to the size of the plants.

HARDY PHLOX

I have a large supply of these desirable plants, and many of my own introductions that are equal to the best raised. Two-year No. 1 plants from $2.50 to $3.00 per dozen.

A descriptive list of my new seedling iris on request.

WILLIS E. FRYER
Mantorville Minn., U. S. A.

HOLLAND BULBS

Beautiful and Desirable Varieties in ***Darwin,*** and other fine ***Tulips, Hyacinths, Narcissi,*** etc.

PEONIES AND IRIS

PLANT THESE NOW

Quality the Best
Prompt Service

LET US SEND OUR CATALOGUE

FRANKEN BROS., Box 152, Deerfield, Ill.

RANDOM OBSERVATIONS IN THE VEGETABLE GARDEN

BECAUSE the Climbing Cucumber would take up much less room in the garden than the ordinary running kind I tried it along the stone wall, and on a trellis. Those on the trellis did well and produced a full, even crop; those on the wall grew more quickly in the early spring but when the very warm weather came on the sun made the wall so hot that it blistered the vine and the fruit ripened long before it was properly developed—a three inch cucumber would be yellow and the inside soft and pulpy like a very large over-ripe cucumber.

Growing Celeriac is not difficult. A little sand sprinkled along the row with the seed when the latter is being planted helps to make a large, firm root. It is difficult to use the same plant for both a full course vegetable and seasoning, so in the same corner of my garden with my herbs and savories I plant enough seed for a small row of Celeriac, having the ground rich and using no sand. The result here is a heavy growth of stalk; and when sown this way it needs no more care than Sage or Thyme while a stalk or two slipped into the soup when it is simmering gives it the coveted flavor.

English Lavender is planted at the corners of my vegetable garden beds. It attracts the bees, which helps the distribution of the pollen which is so necessary for a successful garden. The dried flowers are used of course for my linen chest.

It is useless to plant Okra seeds until the ground is thoroughly warm and the sun shining. I have tried the early planting only to find that the seed had chilled in the ground, and when the plants did appear they were stunted and the pods were imperfect. Moreover, they came up no earlier than the seed planted later in the warm sunshine.

There are many so called "greens" in the seed catalogue, yet there is very little difference in their taste after they are cooked that if I were cramped for room I would not plant any, but trust to my weed patch. Two thirds Lamb's-quarters and one third Mustard makes a most palatable dish and Purslane which grows everywhere and is a weed in our country, though in England it is quoted in the seed catalogues, is decidedly a dainty. It has a thick, fleshy leaf and can be used right up to its flowering time. The Belgians also use it. Everyone knows about using the Dandelion but this is best in the early spring. One can indeed clear the garden of weeds and furnish the table at the same time. If you have room, however, there are a few greens that it is worth while to plant. The first one is New Zealand Spinach which is good during the whole summer, for it can be cut down and grows up again very quickly. I always have a few rows of Sorrel too for that is a perennial and is up almost as soon as the snow is off the ground. It has just a little acidity to it and is used for soups or cooked as a green and stirred into a puree. It is invaluable as a spring tonic, and more of it should be grown. It requires very little care. Swiss Chard is good too. I really like it for a midsummer vegetable better than any of the others for it is very tender and sweet. For fall, Kale is splendid—cannot be beaten indeed and a touch of frost improves it. Covered with straw I have been able to use it until late in January.

EMILY H. ROWLAND.

Californian Flowers Charm Everyone

With their exquisite tints of bright yellow, pink, cream, and pure white, they are most charming.

You can easily grow the Erythroniums (pictured above), Lilies, all of the fine Trilliums, the lovely hyacinth-like Camassias, and many fine hardy plants including Cypripediums and rock plants quite novel in the East.

This spring brings reports from delighted customers in Michigan and New York, in Delaware and Massachusetts, who planted the western Giant Dog's-Tooth Violets in colonies last fall.

Catalogue A describes and illustrates the native Californian plants and flowers, and includes full cultural directions.
Catalogue B contains my list of hardy plants, including special material for rock gardens. Either catalogue sent free upon request.

Carl Purdy, BOX 99 Ukiah, California

YOU, TOO, CAN HAVE A PERFECT LAWN

Some "live-wire" Hardware Merchant, Florist, Grain Dealer, or other store in your vicinity is handling ***that one*** of the following brands of Grass Seed that will insure the best lawn in your particular locality.

ATLANTIKA GRASS SEED

WONDERLAWN GRASS SEED

The formulas of these brands are the result of 10 years of scientific investigation.

Send for samples and address of nearest dealer.

ATLANTIC GRASS SEED CO.
46 WEST BROADWAY, NEW YORK, N. Y.

The Largest Stocks of
Brand's Famous Peonies
In the East

Also the new and rare French and English varieties. Our new catalogue tells you how to grow them. All stock

Guaranteed True-to-Name

To become acquainted we will send you

Collection A—

70 Roots and Bulbs for $5.00

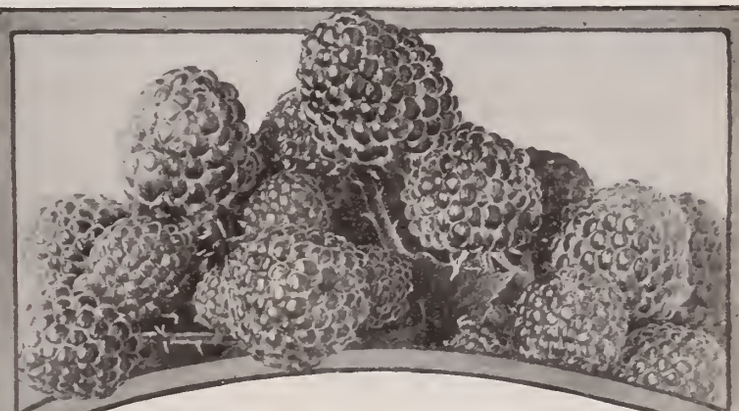
We send out large roots, sure to bloom for you.

8 Double Peonies, 75c to $1.00 varieties, all labeled	$2.00
12 Iris—fine ones—all different	$1.00
25 Narcissus, choice named varieties, mixed	$1.00
25 Darwin Tulips, mixed	$1.00

Special Premium. With each collection above I shall send *free*, 12 bulbs of Lilium superbum—a fine, hardy Lily that will grace any garden. We prefer to ship by express. If desired by parcels post add postage on 20 lbs.

Our new catalogue tells you how to grow them. It is free. Send for your copy to-day.

Babcock Peony Gardens
R. R. 79 Jamestown, New York



Luscious Raspberries
Readily Raised from Plants Set this Fall

You need not wait two years or more for fruit—*Get it next Summer* from these strong two-year field-grown fruiting canes. Set the plants this fall, any time before the ground freezes. You will want at least a dozen—maybe more—so write us for prices.

Tree Currants
Good standard red variety, trained in tree form; and already bearing fruit.

Grape Vines
We have a few extra fine four-year vines grown for those who want the best.

Write us for descriptive circular and prices. Our reputation has been built on the quality of the plants we supply.

T. S. Hubbard Company
Box 18, Fredonia, New York

Dreer's Reliable Spring-Blooming Bulbs

DO NOT miss the joy of having a bed or border of Bulbs next Spring. Plant them this Fall as early as you can and success is certain.

We import the very highest grades of the finest varieties and offer in our Autumn Catalogue splendid collections of Hyacinths, Tulips, Narcissus, Crocus, Lilies, etc., etc.

The Fall is also the time to set out Roses, Hardy Perennial Plants, Vines, Shrubs, etc. Our Autumn Catalogue also gives a complete list of seasonable seeds, plants and bulbs for out-doors, window-garden and conservatory.

Mailed free to any one mentioning this magazine

Henry A. Dreer, 714-16 Chestnut St. Philadelphia, Pa.

ANDORRA

Ornamentals exclusively, distinctive in quality and variety, for street, park and all civic planting

We cater to the most discriminating trade.

ANDORRA NURSERIES Chestnut Hill, Pa

Have you seen ANDORRA?

The Lawns of
THE NATION
Kept Green

Showing Installation of Underground Lawn Sprinklers on the lawn in front of the United States Capitol.

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Engineers and Contractors
for Plumbing, Heating, Lighting, Automatic Fire Sprinklers, Water Supply Systems

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National Bank of Commerce, Norfolk, Va.
86 Park Place, Newark, N. J. Colonial Trust Bldg., Philadelphia, Pa.

LANDSCAPE DESIGNS

We solicit your correspondence relative to the beautifying of home grounds. Designs drawn by experts familiar with every phase of this work. Planting plans furnished free under conditions which we shall be pleased to explain on request.

Write for sample plan and full particulars

GUARANTY NURSERY COMPANY
Landscape Department

449 Cutler Building Rochester, N. Y.

The Bushel Basket Strawberry

Productive of large, handsome, bright red delicious strawberries. Very attractive for the Gentleman's Garden. Interesting illustrated plant circular free.

A. B. KATKAMIER, Macedon, N. Y.

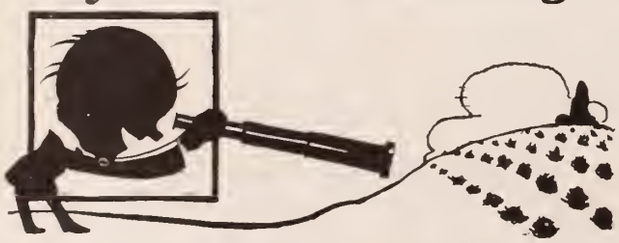
Four Well Known Peonies for $25.00

Jubilee—Large prize white	$10.00
Elwood Pleas—Double shell pink	6.00
Nellie Pleas—(Syn Multiflora) Silvery pink	5.00
Monsieur Martin Cahuzac—Deep red	4.00

Note what $25.00 will buy if sent to the right place.

MRS. WM. CRAWFORD
1602 Indiana Ave. La Porte, Ind.

If you are Looking for Plants



that will make your Landscape charming the whole year through, you will find them compiled in

Our New 24 page Fall Catalogue reproduced in full color throughout

which is sent with our compliments on request.

We guarantee everything you plant in the fall.

HICKS NURSERIES, Box M Westbury, L. I., New York

GROWING APPLES

AFTER twenty years with experimenting with fertilizers in Apple orchards the New York State Experiment Station at Geneva leaves the subject pretty well in the same condition as it was before it began its work. Thus the carefully observed results over this long period of years do not seem to justify the use of fertilizers on cultivated orchard soil that is naturally well supplied with plant food—an average good soil. On thin, unfertilized soils or in sod orchards the results may be quite different. Contrary to popular conception manure did not cause any appreciable increase in yield or growth but additions of complete fertilizer caused a small increase in yield; so on the whole, the conclusion would seem to be that if your land is fairly good, and cultivation is fairly good you don't have to worry about artificial feeding; and there is some comfort in that!

HEN MANURE AS FERTILIZER

NO FARMER would think of throwing away 30 pounds of nitrogen, 20 pounds of phosphoric acid and 18 pounds of potash which he might find on his place. Rather he would treasure it for its great fertilizer value. Yet this is exactly what 2,000 pounds of ordinary hen manure contains, according to the soil fertility workers at the New York State College of Agriculture. Hen manure has the most fertilizer value, weight for weight, of all the animal excrements, yet in most gardens little attention is paid to saving or using it.

Where ordinary farm manure has a fertilizer value of $4.50 a ton, poultry manure in a thoroughly dry condition is worth $15 a ton, and at prevailing prices the value is much larger. Even when produced in small amounts, such material is well worthy of careful preservation.

Poultry manure should be allowed to dry as quickly as possible, and then should be kept dry. In this condition it will lose but a small amount of its valuable constituents. Like ordinary manure, it ferments rapidly when moist and will lose a large part of its nitrogen, worth on the market 25 to 30 cents a pound. Since much of its potash, phosphoric acid, and nitrogen is soluble, this manure may suffer greatly from leaching.

Caustic lime should never be mixed directly with poultry manure, as it tends to liberate nitrogen as ammonia. Poultry manure is rich in nitrogen and low in phosphorus. These two conditions may be corrected by diluting and reinforcing the manure as follows:

To ten pounds of the manure add six pounds of sawdust (or some similar dry material) and four pounds of acid phosphate. This gives a fertilizer carrying 1.5 per cent. of nitrogen, 4.5 per cent. of phosphoric acid, and 1.2 per cent. of potash, or about the same proportion of plant food elements as are found in a 3-9-2.5 mixture, but only one fourth as concentrated.

If it is not thus reduced but is used in its natural state the obvious correlation is to use it sparingly. Nothing is better for light dressing around plants that are "top crops"—that is, plants grown for their leafy portions or heads such as cabbage, lettuce, etc. But use every bit of it—and use generally as well as for the special crops.

Ten Fine Named Peonies
For $2.50 or 20 for $5.00

All different and truly labeled. A chance to obtain a fine collection at half price, these are selected from varieties that I have in greater numbers. With the $5.00 collection I will include one plant of Baroness Schroeder free. I have a fine stock of Lady Alexandra Duff, Le Cygne, Soulange, Mons. Martin Cahuzac, Sarah Bernhardt, James Kelway and various other fine sorts. Send for catalogue.

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Crossed with garden varieties; part easily from the husk, then handle like cherries. Plants mailed $1 dozen.
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Let our latest catalogue guide you in your fall planting. It is full of attractive suggestions for the smallest plot to the most regal lawn. Evergreens, hedge plants, shrubs, climbers, roses, shade trees, large and small fruits, Hypericum Prolificum, St. John's Wort—the hardy shrub, which bears a multitude of roselike yellow flowers, and blooms in early June Write for this helpful catalogue to-day, and do not delay sending your order.
THE MORRIS NURSERIES
Box 804 West Chester, Pa.

THE SUGAR MAPLE BORER

THE most destructive insect of the Sugar Maple in the northeastern states is a borer which attacks healthy, vigorous trees. It works just under the bark in the sapwood, making a wide tunnel which prevents the flow of sap.

The egg of this grub is laid during the summer by a beautiful black beetle, having brilliant yellow markings. It is about an inch long. The eggs are laid just under the bark and by September they have hatched and the grub grown to something like half an inch long. It spends the winter in this condition and continues to feed during the following year until it is about sixteen months old. It is then about two inches long. This grub is white, and footless. It makes a burrow a half inch wide and it is not uncommon to find that one of them has tunnelled for eighteen inches through the sapwood or just under the bark. As they usually go diagonally upward around the trunk, it means the cutting off of a considerable portion of the sap.

The grubs usually infest the lower portion of the trunk of the tree and the crotches. When they work in a crotch, the branch is generally killed. This is often the cause of a dead branch in an otherwise perfectly healthy Sugar Maple.

When the grub is working in the trunk of a tree, the damage is conspicuous, for it causes a ridge over the channel, the bark of which is slightly broken. Where several of these borers occur in the same tree, it is a matter of only a few years before they will completely girdle the tree, killing it.

When it comes time for the grub to change into a chrysalis, it starts boring inward toward the heart of the tree, and then upward for some distance, following the grain of the wood. Here the balance of the life of the insect is spent, changing from grub to pupae and in spring from pupae to beetle, when it emerges, by chewing its way out, making an oblong hole, just large enough to crawl through.

To get rid of this pest, one should follow the burrow with a strong wire, killing the grub by piercing it. Should this method not be satisfactory, the burrow can be opened up here and there with a knife, and a wire used to clean the intervals; it is not wise to cut the entire burrow as it may permanently injure the tree. Having removed the borer, fill the burrow with cement, grafting wax, or similar material to protect the wood from the weather. Look for these borers each spring and fall, and if the ridges on the trunks are not apparent, look for the frass—the fine sawdust-like borings, that are pushed from the tunnel, in the crotches as well as on the trunk.

Painting the trunks of the Sugar Maples with lime sulphur wash or a carbolic soap wash, in early summer, will in most cases prevent the laying of eggs by the adult.

HAROLD CLARKE.

WHEN NOT TO CULTIVATE

IN THE perennial border where uninterrupted vegetation is the desideratum, it is unquestionably defeating this purpose to keep up surface tillage constantly. For a time this is of course desirable—that is, until the perennials are well established, vigorous plants—but after this simply pull out weeds and let the surface of the ground alone.

Don't Wait For Rain
Start Your Fall Planting Now!
This month and next there's lots of fall planting of perennials, evergreens and other things to do.
Get an early start, and make sure of results by using Skinner Irrigation.
Absolute protection against dry weather losses. Costs but a fraction of expense of replanting.
Send for our new book on Irrigation for Home Grounds—tells all about watering systems for every conceivable purpose.
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The New Hardy Dwarf Edging and Low Hedge
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Sure Insect Killer

IMP Soap Spray is a scientifically prepared compound that is destructive to insects without injuring plants or roots. Does not spot leaves, fruit, grass or deface paint work. May be used on fruit trees; shade trees; flowering shrubs; vines; garden truck; and on all sorts of plants, both under glass and out of doors.

It is most effective against rose bug; mill bug; white, black, green and rhododendron fly; red spider; thrips; aphis; fruit pests; elm leaf beetle and moths. Very economical, one gallon is mixed with 25 to 40 gallons of water. Full directions on each can. Order direct if your dealer cannot supply.

Pint can	$ .50
Quart can	.75
Gallon can	2.25
5 Gallon can	10.00
10 " "	18.00

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wonderfully convenient and economical. These sections obviate the necessity of fence posts, separate strands of wire, fence stretchers, post hole diggers, hammer, nails and staples. You erect them simply by pushing the legs in the ground and wiring the ends together. They can be set in any desired arrangement and changed to a new location at will.

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YOUR hens will lay better and oftener if they are comfortable. Hodgson Poultry Houses are designed with this in view. They are roomy and well ventilated—easy to clean and spray and absolutely weather proof. Simply bolt them together. No skilled workmen needed. Write today for illustrated poultry catalogue.

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Offers a wide choice of objects, from simple fern dishes and bud vases to impressive jardinieres and plant stands. Its predominating characteristic is refined elegance in designs and colors. A post card request will bring you the "Moss Aztec" catalogue and name of nearest dealer.

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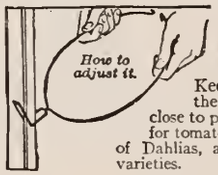

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Two sizes
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No. 1, with two discs with 6 inch or 7 inch knives, will work rows 9 to 11 inches wide.

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Ask about Ro-San Indoor Closets and Washstands. No Plumbing Required.

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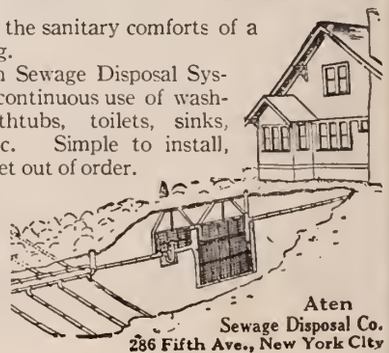
Secure all the sanitary comforts of a city building.

The Aten Sewage Disposal System allows continuous use of washstands, bathtubs, toilets, sinks, showers, etc. Simple to install, nothing to get out of order.



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The Iris, taken as a single plant or massed in the border, is of surpassing beauty. Graceful in flower and leaf, of noble, stately habit, with coloring of pearl-like delicacy, intense brilliancy, or deep velvety richness, the plant is without a fault. It is of easiest culture and perfectly hardy.

Our collection is one of the largest in the world, and includes the rarest and loveliest American and European hybrids.

The following collections we recommend; they furnish an infinite variety of type and color.

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Caprice ..... Deep Violet Rose
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Her Majesty ..... Glowing Rose
Hiawatha ..... Lavender and Purple
Iris King ..... Old Gold and Crimson
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Jeanne D'Arc ..... White Frilled Lilac
Juniata ..... Bright Blue
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Loreley ..... Sulphur and Purple
Mary Garden ..... Cream Stippled Maroon
Mme. Guerville ..... White Sanded Violet
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Quaker Lady ..... Lavender, Blue and Gold

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Canary Bird ..... Pale Yellow
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Chelles ..... Golden Yellow and Red-Purple
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Fairy ..... White and Soft Blue
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Iris King ..... Old Gold and Crimson
Jacquesiana ..... Fawn and Red Violet
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Pallida Dalmatica ..... Silvery Lavender
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A Sunlight Double-Glazed Greenhouse makes that winter garden possible and links economy with the pleasure and recreation of gardening.

The principle of the ***Sunlight Double-Glazed Greenhouse*** is based on two layers of glass—instead of one—with a dead air space of $\frac{5}{8}$-inch between. This forms a transparent "blanket" which holds the heat from the sun and repels the outside cold.

This principle obviates the necessity for an expensive heating system making the cost of growing winter vegetables and flowers small.

Sunlight Double-Glazed Sash used on Hotbeds and Cold Frames need no covering—they are complete in themselves.

SUNLIGHT Double Glass Sash for Hot-beds and Cold-frames

Our Free Illustrated Booklet explains everything in detail, gives prices and valuable information about Greenhouse, Hotbed and Cold Frame operation. Send for a copy—and get your order in early.

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Tulips, Hyacinths, Daffodils, Narcissi, Crocuses

From Grower to Consumer

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The Best Breeder Tulips

The Breeders form a distinct class of unbroken forms of the old-time Tulips. Most varieties are an attractive bronze, brown, buff, or terra cotta.

	Doz.	100
Alcida. Copper-bronze	$0 80	$5 50
Belle Brunette. Coffee-brown	1 00	7 00
Bronze Queen. Soft buff, inside tinged golden bronze	80	5 50
Bacchus. Dark violet-blue; very large 60 cts. each	6 50	
Butterfly. Lilac, lighter toward the edge	1 00	7 00
Cardinal Manning. Dark rosy violet, flushed rose-brown	60	4 00
Chestnut. Dark brown	75	4 50
Feu Ardante. Brick-red shaded mahogany	1 00	7 00
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James Watt. Brownish black, bronze edged; very large $1.50 each		
La Singuliere. Silvery white, margined dark maroon	80	5 50
Lord Byron. Purplish red; very large	80	5 50
Louis XIV. Rich dark purple, steel-blue shaded, flushed bronze, golden brown edged .50 cts. each	4 00	
Madras. Dark bronze	75	5 00
Medea. Salmon-carmine; large flower	75	4 50
Prince of Orange (Orange beauty). Orange-red, edged light red	80	5 50
Yellow Perfection. Light bronze-yellow, golden edge	80	5 50
Superfine Mixed	50	3 00

Special Collection of Breeder Tulips for Bedding

The following 10 varieties: Bronze Queen, Cardinal Manning, Chestnut, L'Singuliere, Lord Byron, Madras, Medea, Prince of Orange, Yellow Perfection, Jaune d'Œuf.

5 bulbs each of the above 10 named varieties, 50 bulbs	$ 2 75
10 bulbs each of the above 10 named varieties, 100 bulbs	$ 5 25
25 bulbs each of the above 10 named varieties, 250 bulbs	$12 00

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The Cottage tulips bloom at the same time as the Darwins and as they offer a strong contrast to the prevailing shades of Darwins they are especially valuable for bedding with Darwins.

	Doz.	100
Fairy Queen. Rosy heliotrope, broad amber yellow margin	$ 60	$4 00
Gesneriana Spathulata. *20 in.*, brilliant scarlet, with dark blue center	60	3 50
Inglescombe Pink. Soft rose, with salmon flush	60	4 00
Inglescombe Yellow. Very large yellow	70	5 00
John Ruskin. A blending of apricot, rose and mauve; pale yellow edge	85	6 00
Picotee (*Maiden's Blush*). 20 in., white, edged deep rose. Perhaps the favorite in cottage tulips	60	3 50

10 bulbs of the above 6 varieties, 60 bulbs	$ 3 00
25 bulbs of the above 6 varieties, 150 bulbs	6 50
100 bulbs of the above 6 varieties, 600 bulbs	25 00

Parrot Tulips

These rare tulips are becoming favorites wherever grown, due to their peculiar dainty coloring and unique shape.

	Doz.	100
Admiral de Constantinople. Large red flower with orange points	$ 60	3 50
Cramoisi Brilliant. Brilliant carmine	60	3 50
Lutea Major. Large yellow flowers with crimson and green stripes	60	3 50
Perfecta. Yellow with red stripes	60	3 50
Markgraaf von Baden. Yellow, striped green and scarlet	50	3 00

5 bulbs of each of the above 5 named varieties, 25 bulbs	$1 10
10 bulbs of each of the above 5 named varieties, 50 bulbs	2 00
25 bulbs of each of the above 5 named varieties, 125 bulbs	4 00

Daffodils *Special Collection*

Emperor, Empress, Golden Spur, Madame de Graaff, Bicolor Victoria, Barrii con spicuus, Poeticus ornatus, Sweet Jonquils, Albopleno odorata, Orange Phœnix, Sulphur Phœnix, Von Sion. **Jumbo** Bulbs only.

5 bulbs each of the above 12 named varieties, 60 bulbs	$ 3 50
10 bulbs each of the above 12 named varieties, 120 bulbs	6 50
25 bulbs each of the above 12 named varieties, 300 bulbs	15 00

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We guarantee all of our bulbs, roots and plants to grow and to be true to name. We will replace any bulb, root or plant, prepaid, if found otherwise.

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Specialty Bulb Growers

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THE COUNTRY LIFE PRESS GARDEN CITY, NEW YORK

Fruits for Fall Planting

A New Series of Old Gardens

GARDEN MAGAZINE

OCTOBER 1920

25 CENTS

VOL. XXXII. No. 2.

Doubleday, Page & Co., Garden City, N. Y.

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Upon Request

Silver Vase

Mark, G.M.10-20
Octagonal Colonial
Plain or Engraved
Sizes 7 to 14 inches
in height

Vases Designed–
any degree of importance.
Sketches Submitted

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Jewelers Silversmiths Stationers
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The Flowering Crab

DO YOU recall a gorgeous cover of the Garden Magazine a year ago, showing the rose-like cluster blossoms of Bechtel's Flowering Crab? In the same issue was a splendid article by John Dunbar of the Rochester Park System on what he calls "the most wonderful of all the flowering trees for American gardens—the Crabapple." There is no exaggeration in his glowing description of "the fragile tracery and delicacy of their bloom," their wide range of coloring from white to pink and rose-crimson, and their profuse flowering, starting very young and increasing in glory from year to year—while in the fall the branches are laden with miniature golden-yellow or ruby-red fruits, that may be cut for interior decoration, or left to attract and feed the birds.

We are as enthusiastic about the Flowering Crab as Mr. Dunbar is—and as you will be when you plant it on your lawn, and feast on its loveliness from year to year. The Bechtel variety in particular bears a fascinating likeness to the rose. This and other varieties may be planted either alone or in groups like shrubbery, or in skilful combination with shrubbery.

How grateful you will be when you wake up some nice morning in May to find your Crabapples in a shower of bloom! Order some now— in sizes from 5 to 10 feet high, from $3 to $10 each— you can't make a mistake! Tell us something about your lawn and we'll tell you how and where to plant them.

Write us today!

Moons' Nurseries
THE WM. H. MOON CO.
MORRISVILLE PENNSYLVANIA
which is 1 mile from Trenton, N.J.

"The kiss of the sun for pardon,
The songs of the birds of mirth,
One is nearer God's heart in a garden,
Than anywhere else on earth."

Isn't it true? Especially of an Iris garden. According to Greek mythology, the Goddess Iris was messenger from the Queen of Heaven to mortals on earth, using the rainbow for a pathway. Wherever her feet touched the earth, "Flow'rs over all the field, of every hue that ever Iris wore, luxuriant grew."

Have you an Iris garden? Let me send you some of the wonderful new creations far surpassing in beauty anything of which those ancient Greeks ever dreamed.

Try one or more of these selections

12 Iris worth $3.00 for $2.00

Arnols, Dr. Bernice, Exquisite, Florentina, Her Majesty, Mrs. Allan Gray, Mrs. H. Darwin, Pallida Speciosa, Princess Victoria Louise, Perfection, Mme. Chereau, Queen of May. If you have any of the above we will substitute others.

12 Iris worth $6.20 for $5.00

Amas, Halfdan, Ingeborg, Isoline, Lohengrin, Loreley, Monsignor, Mrs. Neubronner, Rhein Nixe, Walhalla, Rose Unique, Nibelungen.

100 mixed Iris for $5.00, 1000 for $45.00

As the Irises go out, the Peonies come in, and the two present a continuous joy of sights, the like of which has never been captured by painter or poet. So that you may enjoy your garden to the utmost, I'll send

12 Peonies worth $7.25 for $5.00

Augustin d'Hour, Couronne d'Or, Humei, Duc de Wellington, Duchesse de Nemours, La Sublime, Mme. Boulanger, Marie Stuart, Umbellata Rosea, Virginie, Philomele Edulis Superba. Substitutes as with Iris.

12 Peonies worth $13.25 for $10.00

Albert Crousse, Avalanche, Floral Treasure, Grandiflora Nivea Plena, Karl Rosenfield, La Tendresse, Livingstone, Madame de Verneville, Madame Ducel, Marguerite Gerard, Mireille, Venus.

12 Peonies Mixed for $2.25, 100 for $15.00.

Six or eight weeks remain in which we may work together and prepare for a glorious display of color next Spring. Price list on application.

Yours for more and better gardens

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Framingham Nurseries
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THE GARDEN MAGAZINE
OCTOBER 1920

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LEONARD BARRON, Editor

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The Garden MAGAZINE

Vol. XXXII, No. 2 October, 1920

LIBRARY NEW YORK BOTANICAL GARDEN

VINE SHADED AND SHELTERED WALKS THAT TRANSPORT TO SUNNY ITALY

Constructed in the true Italian style, which utilizes overhead the natural sapling as it is cut from the woods, resting on concrete supports hollowed to receive it, these arbors at Fenway Court, the famous Boston residence of Mrs. Jack Gardner, embody the very best of pergola tradition

OCT 4 - 1920

Mattie Edwards Hewitt Photograph

SOFT GREEN GLOOM THAT IS WELCOME ON A SUMMER'S DAY

Cool stone mosaic underfoot bordered with Pachysandra and Ferns, the whole reticulate with the shifting gold of sunlight as it filters through the Willows, and walled with Arborvitae, this walk at Rockmarge, the estate of Judge Wm. H. Moore, Prides Crossing, Mass., is a perpetual invitation

Arthur Eldredge Photograph

THE AUTUMN BEAUTY OF FLOWERS AGAINST A SUNNY WALL LINGERS

In the safe retreat thus provided the Asters and Anemones, Chrysanthemums and Snapdragons round out exuberant careers and fairly turn the seasons roundabout, regardless of the onward march of Time and Winter. Garden of Mr. C. Ledyard Blair, Peapack, N. J.

PLANT BRIEFS

Hamamelis japonica, which blooms out of doors in midwinter, is certainly a novelty. It is the Japanese cousin of our own native Witchhazel, but far handsomer than this and an exceptionally good subject to plant in a city yard. The severest cold weather does not injure it, and it can stand city conditions with perfect fortitude. It has two forms, one of which blooms a few days before the other; both are handsome and certain to attract much attention in the middle of February, when they may be expected to flower in the latitude of New England. The blossoms are larger and darker in color than any other Hamamelis. There is another species, H. mollis, which comes from China, which also blooms in February, having bright yellow flowers of unusual size that remain in good condition for several weeks. This species is equally at home in a city yard. One other, H. vernalis, which should not be overlooked is a native of this country. This flowers in late December or early January. It is comparatively new in cultivation, having been discovered in southern Missouri.

Agathaea coelestis (the Blue Marguerite) is by no means a new plant. It has long been bedded out in quantity in the south of England, though so little known here. The flowers are small compared with those of the white and yellow Marguerites, but are abundantly produced in winter and spring in quite small pots in any greenhouse where a minimum of about 40 degrees is maintained. Good blue-flowering plants are not abundant and for that reason it seems strange that so admirable a little plant as this is so seldom met with. It is easily propagated from cuttings and there is no difficulty at all in its culture. Some day it is hoped there may be a blue Marguerite of equal size with the yellow ones—and here would seem to be a grand chance for some hybridization!

Callicarpa is an irristible plant, for nothing else that grows has fruit resembling its small violet berries. By the same token no plant which can be chosen will prove more ornamental in a garden planned for fall color effects. As with many plants, there are allied species in this country and on the other side of the world. The native plant is Callicarpa americana, often known more commonly as the French Mulberry although this name is of course a misnomer—for the plant is not a Mulberry and did not come from France! In some parts of the south they call it the Possum-berry. Unfortunately, it is not hardy in the northern states, but in southern Georgia and northern Florida it grows in great abundance, especially in rich, moist ground where it oftentimes may be seen bordering the roadsides. To a lesser extent it is found as far north as Virginia, and as far west as Arkansas. Perhaps it is not so highly treasured in its native home as it would be in the North if it could be grown there. Fortunately the Japanese species is much hardier and will thrive in Northern sections, if planted in somewhat sheltered locations or given a little winter protection. It grows luxuriantly in the Arnold Arboretum, near Boston, and greatly delights visitors with its fine show of delicately colored berries. In some ways it resembles Buddleia variabilis, because even when killed to the ground young shoots spring up rapidly and bear flowers and fruit the same season. Its flowers are pink but are not conspicuous, and it is only for its fall fruit that the plant is worth growing. It is reasonable to believe that if the Callicarpas could be cultivated extensively enough the berries would be in great demand by florists in the fall. They should sell quite as well as the Black Alder (Ilex verticillata) immense quantities of which are now marketed. Moreover, it is possible to grow the Callicarpas in the greenhouse, if they are given an abundance of light and air. They are readily propagated by greenwood cuttings, made either in the spring or in the summer under glass. Hardwood cuttings may also be made, and plants may be started from seeds; so apparently there is no reason why Callicarpa japonica should not become a very useful plant in the North, and perhaps more widely appreciated than the native Callicarpa americana is now, or ever has been, in the South.

A VIOLET-BERRIED WINTER SHRUB

Callicarpa japonica flourishes in Northern gardens, furnishing a delightful bit of color amid the winter grays

Saxifraga longifolia, the Pyrenean Saxifrage, which simulates a silver "sunburst" and is justly called the "queen of the Silver Saxifrages," is the best of this class of Saxifrages, which are distinguished by encrustations of lime on their leaves. They all draw particular attention to their beauty of form and coloring during fall and winter. This particular one needs to be planted in a rock cleft so that water will not lodge in the rosettes, using well drained soil containing broken limestone or old mortar rubble for its roots. When the background is of dark colored rocks the effect is striking. Others easily grown belonging to this group are the many varieties of S. Aizoon; and S. Cotyledon which, in addition to its handsome foliage, produces in early spring wonderful panicles of white flowers.

Autumn-blooming Crocus are delightful planted in amongst carpeting plants such as dwarf Thymes and Cerastiums. These latter serve a double purpose when bulbs are associated with them; they prevent heavy rains from splashing the soil to disfigure delicate blooms, and they cover the ground when the bulbs have had their little day. Crocus zonatus is a species with pale lilac flowers from the mountains of Cilicia, Try planting it with Cerastium tomentosum.

AUTUMN ACTIVITIES FOR THE HOME FRUIT GROWER

With Many Kinds of Fruit Practically Unattainable at Any Price and Prices Perpetually Ascending, Is It Not Worth While to Plant Now a Few Trees or Berry Bushes and Get Them Started, as Well as to Protect and Cultivate Assiduously Those Already Growing?

LAST winter an immense amount of damage was done to young fruit trees by mice and rabbits. With fruit trees at their present high prices, it would be the part of wisdom for fruit growers to take precautionary measures this fall. Lime-sulphur and various other sprays have been recommended, but they are only partially efficient, as their value is lost after a few months. The one effective plan is to put a tube of wire or wood veneer around each trunk. Strips of wire cloth and veneer can be purchased, but it is a simple matter to prepare wire protectors at home of galvanized quarter-inch mesh wire cloth. A piece 15 x 18 inches ought to be about the right size for a young tree, although the protector must be high enough to come above the deepest snow. It can be shaped readily by wrapping it around an iron bar or a broom stick. Also, as mice work close to the ground, and even burrow under the ground a little, it is wise to push the wire an inch or so below the surface. This is especially necessary if there is a mound or mulch around the trees. Fruit trees are likely to remain expensive for several years, and it is real economy now to take some such action as this to prevent their being destroyed during cold weather. Certainly it is much cheaper to apply a wire guard than it is to take the time for bridge grafting in the spring. If you have a good sized orchard which harbors field mice, perhaps you will find it a good plan to try trapping the rodents in addition. The proper way to do this is to buy a considerable number—say half a bushel—of inexpensive little wooden traps sold at the ten-cent stores. Bait them with cheese and hide them in corn shocks, using eight or ten to each shock. Where the mice are numerous, a large number will be caught within the first few days, and usually it isn't necessary to re-bait the traps because the animals are killed before they have a chance to nibble the cheese.

LAYING DOWN THE CANES

This simple process of insurance against winter will save many a berry

STRAWBERRIES IN OCTOBER

The Everbearing type seems eminently worth while when it produces fruit like this in October—and later!

IF YOUR garden is in an exposed position, and you are growing Raspberries or Blackberries, the hardiness of which you cannot guarantee, you will do well to lay them down for winter. This is a simple matter when two people work together. One person should wear gloves and bend over the canes while the other throws a little earth over the tips—or if it seems necessary, over the entire canes. Sometimes, and especially with Blackberries, it is necessary first to loosen the roots on the opposite side. Even in northern states some people are growing the Loganberry successfully by covering with earth in this way each fall. This berry seems very tempting to the birds and often can be saved only by covering with fly screening.

THERE would be much less loss of young fruit trees during the winter months if they were given a thorough application of water in the fall. They ought to go into the winter carrying a large amount of moisture, yet this is often lacking after a long, dry summer. Make a little depression around each tree and keep it well filled with water until the ground is thoroughly saturated. This simple expedient in the home garden will often save trees that might otherwise be lost.

IF YOU want to keep a few apples fresh and in good condition for a long time, get some fine sawdust or cork dust and place a thick layer on the bottom of a barrel or box. Then place a layer of apples on top, but not too close together, and not touching the sides. Use more sawdust over and around the apples, and continue in this way. Of course they must be kept in a cool place. The fact that the apples do not touch prevents decay from spreading even if it starts in an apple which may perhaps have been bruised in some way.

THE mistake is often made of mulching Strawberry beds too early in the fall. The work should not be done until the ground is frozen hard, for the purpose of the mulch is not to keep the frost out, but to prevent the alternate freezing and thawing of the plants which tends to heave them out of the ground, thus exposing the roots to the drying winds. Hay, straw, and leaves are among the materials most commonly used. Hay and straw are expensive if they must be purchased, but preferred by those who complain that it is too much work to handle leaves. This work can be lessened, however, by using an old blanket upon which to rake them. The four corners of the blanket can then be thrown up around the leaves, which can be carried easily to the Strawberry bed. The covering should not be deeper than three inches, if of leaves, as otherwise they are likely to mat too hard when they get wet. In exposed places it will be necessary to use a few boards or branches to keep them from being blown away. When Pine needles can be obtained readily they make a very good mulch for Strawberry beds.

IT IS a good plan to make a raid on the Peach borers at this season. This pest does a great amount of damage by restricting the flow of sap, and even in extreme cases by cutting it off

as a result of the girdling of the trees. The borer often continues laying eggs until October, the grub remaining dormant during the winter and emerging as a moth in May or June. Various plans of injecting vapor-forming liquids into the trees have been tried, but undoubtedly the old-fashioned plan of digging out the borers remains the best one to follow. A sharp knife is the most useful instrument, but the cut should be made up and down rather than crosswise. A wire is often thrust into the opening to kill the borers, but this method is not always successful. The results are more certain if the wire is nicked so as to form tiny barbs. Mounding up the earth around the base of the trees helps to restrict the damage, as the moths do not lay their eggs on the tree trunk when this is done. It is not a good plan, though, to leave mounds like this around the trees during the fall and winter. Very good results have been obtained by using a flexible mat which is fastened around the trunk on the ground and sealed to the wood by some kind of viscous material.

ELIMINATING THE BORER

By mounding around the tree-base (see upper cut) is far simpler and less tedious than digging him out (lower cut)

DO NOT hesitate to plant Raspberries, Blackberries, Currants, or Gooseberries in the fall, except in the coldest sections of the country. Fall planting is often desirable, in fact, but should be done as early as possible; that is, immediately after the first hard frost has killed the foliage. It is further a good plan to mulch the ground around the plants a little with strawy manure or something of the kind. Much better results are found by fall planting when done early than by waiting until spring, when the spring happens to be a late one. Shipments are often delayed in the spring so that the plants are not put in until long after they should have started growing.

OF ALL the new Raspberries which I tried this year, Ontario has given by far the largest and finest berries. The fruit is little less than mammoth in size, and always elicits exclamations of approval when sampled. The vines, too, are very strong growing, and there is reason to believe that this will prove one of the best Raspberries yet introduced for northern sections. Latham (formerly Minnesota No. 4) has proven an excellent bearer, and the berries are very good indeed, although not so large as those of the Ontario. Erskine Park has smaller berries, too, and the color is less attractive, but the berries have a flavor which for sparkle and zest is not surpassed by that of any other Raspberry. The habit of growth is such that the plants require staking or supports of some kind.

THE La France Raspberry has given a splendid account of itself again this year. The flavor of the berries is remarkably fine, making a strong appeal to home gardeners. Although they will produce in the spring, it is as a fall berry that it is most prized; and another attribute not to be overlooked is the rich red color that is retained after cooking. There are plenty of good Raspberries for spring picking, but a first-class, large-sized, prolific fall Raspberry is a rare treasure. Perhaps the best way to handle this variety is to cut it back hard in the spring so as to get a good strong growth of canes for fall production. With such treatment the canes make enormous growth and bear immense quantities of fruit. It must be remembered, though, that this variety suckers very freely and that the grower must keep the rows clean—but this offers an easy way of building up a good-sized plantation from a small beginning.

THE value of the Taylor Blackberry, both for home use and for shipping, is impressive. It is doubtful if there is a berry which bears more prolifically, although the Eldorado is a very heavy cropper. The Taylor berry is large, well flavored, and ripens over a season of two or three weeks, although the later berries are not of course so large as those which ripen earlier. Apparently this variety has very little tendency to rust, which is a point greatly in its favor. If it were not for the fact that it rusts so readily the Wachusett would be unexcelled as a home Blackberry because of the fact that it is practically thornless. Many plantations, though, have had to be given up because of the rapidity with which disease has spread. Remarkable success in eradicating the rust, however, by spraying with lime salt and sulphur, using one part to ten parts of water, is reported.

IT IS a simple matter to increase the Currant plantation from cuttings. The best time to take these cuttings is in October, using wood of the present season's growth. Cut them just below a joint and have them about ten inches long. Set them in a bed to about half their length. The bed should be well dug over and raised slightly so that it will shed water; and of course it must be placed where the drainage is good. This point is often overlooked because a situation which seems perfectly dry in summer may become very wet later on. Firm the soil well around the cuttings, and before the weather gets very cold mulch then with coal ashes or some other material. Another plan, and one which some growers prefer, is to bed cuttings in the spring. The cuttings should be taken in the fall, however, just the same, then made into bundles and buried, butt end up, in moist sand in the cellar. If you do this, be sure that you plant them out early in the spring. The next season they may be set in nursery rows about eight inches apart, with three feet between the rows, and kept cultivated very carefully. There will be very little loss if the cuttings are made from well-ripened wood.

WHEN planting the orchard fruits in the home garden it is a time-honored custom to set out one each of different varieties of the same kind of fruit. Now this mixing of varieties has really a deeper importance that may be overlooked, and one, too, that will likely account for both the profuse bearing of certain trees in one place and the practical failure to bear of the identical varieties in another. Many, perhaps all, apple varieties bear more freely when the flowers are fertilized by pollen from a different variety. The same varieties planted together do not necessarily react in this same way where the soil, climate, and conditions are different; but the general truth remains that a planting of mixed varieties will yield better than a large planting of one kind alone. Another thing to be considered in selecting apples and pears for the garden is the desirability of planting something other than those met with every day in the markets.

GLADIOLUS THAT WON THE PRIZES

A Tri-Society Fête in Association with the Annual Meeting of the American Gladiolus Society, Boston, Mass.

MANY a repetition of such remarks as "With three societies showing Gladiolus together, it was some show!" conveyed the general impression of the Gladiolus exhibit held in Boston, August 14-15, when the American Gladiolus Society, the Massachusetts Gladiolus Society, and the Massachusetts Horticultural Society held a joint display. It was the biggest show of the kind ever staged, and brought together what was probably the largest gathering of Gladiolus growers ever seen in America, although a few well known faces, like those of B. Hammond Tracy and J. K. Alexander, were missing. Moreover the show was early, considering the season; several of the best among the late Gladiolus were not shown at all, not having opened in time.

Naturally there was a multiplicity of awards, but taking those of the national society as a basis it was interesting to note that many of them were won by popular favorites. In the white class, for example, Europa stood out unsurpassed by any other variety, new or old. The three spikes for which Mr. A. L. Stephen, of Waban, Mass., received first prize were magnificent. In the yellow class Mr. Charles F. Fairbanks won a first with Yellow Hammer, a splendid flower with tall slender spikes. In the pink class leading awards went to Panama, Myrtle and Evelyn Kirtland. Winning reds were Crimson Cross, Red Emperor and Liebesfeuer.

As all Gladiolus growers know, good blues are hard to obtain. Among the blues and purples one which seemed to make a great impression at this show was Anna Eberrus, originated by Richard Diener of California. This is a purple flower, which holds its color more persistently than any other variety. Heliotrope, however, as shown by Mr. Madison Cooper, was perhaps the most beautiful dark purple to be found in the hall. The shade of this flower is very dark, and few of those displayed attracted more attention. Mr. Theodore Havemeyer had an extremely beautiful lavender-blue in Muriel, a variety which seems destined to become very popular. Lilac Royal, shown by Mr. H. H. Meader, also made a good impression.

As was sure to be the case, many new varieties were shown, some of them never having been exhibited before. The American Gladiolus Society's silver medal for the best new seedling went to Mr. Thomas Coggar. The flower shown was white, with a dainty pink edge, and few people who saw it questioned the fairness of the award. It has been named Mrs. Thomas Coggar.

Undoubtedly Circe, shown by Dr. S. Irving Moody, of Brockton, Mass., is the darkest red of any Gladiolus ever shown. It is almost dark enough indeed to be called black.

The GARDEN MAGAZINE Achievement Medal was won by Mr. A. L. Stephen, prominent in whose collection were Gold, a remarkably fine new yellow, Mary Fenell, Loveliness, Mrs. Dr. Norton, Mrs. Frank Pendleton, Europa, Jenny Lind, and Snowboy.

Obviously there was no diminution in the popularity of the Primulinus hybrids. Obviously, too, remarkable improvement is being affected in this class. Many named varieites of Primulinus hybrids were exhibited, the collection of Mr. Fairbanks being especially noteworthy. Among the most conspicuous of the varieties shown were Alice Tiplady, Argo (a wonderful deep orange), Capella (reddish orange), Salmon Beauty and Sirius. And Mr. C. W. Brown showed a remarkable novelty in a pure white Primulinus hybrid, something never seen before. He also had a pure yellow flower in this class.

Another novelty was a cross between Primulinus and America, in which the general habit of the former was retained, but was combined with the size and strength of America. Mr. O. Gilchrist, of W. Toronto, Ont., received many compliments on this exhibit. Still another novelty was found in a set of seedlings shown by Mr. E. S. Spencer in which the ground color was set off by well marked borders of contrasting shades. The Henry F. Michel silver medal for the largest and best display in the noncommerical class went to Dr. Frank E. Bennett, of St. Thomas, Ont., president of one of the liveliest horticultural societies on the continent.

At the meeting of the American Gladiolus Society, Professor A. C. Beal, of Ithaca, N. Y., offered his resignation as secretary, but the society declined to accept it. All the other officers retained their positions for another year except that Mr. J. H. Prouty was elected to the executive board to succeed Mr. Lee R. Bonnewitz.

On behalf of his society Dr. Bennett presented an invitation for the meeting of the National Society to cross the border next year and, although definite action was deferred, the feeling of the membership in attendance was distinctly in favor of acceptance and therefore in all probability the 1921 Gladiolus show will be at St. Thomas, Ontario.

At the annual meeting of the Massachusetts Gladiolus Society the most important action taken was a vote to change the name to the New England Gladiolus Society, and to seek the membership of growers throughout the New England states.

A BASKETFUL OF SUMMER GAIETY

Its wide range of color, the decorative and enduring character of its flower-stalks, keep the Gladiolus in high favor

"GLADS"

THIS picture was taken during the fifth week of "Glad-time" in my garden. The varieties of Gladiolus used in the basket were Mrs. Frank Pendleton, Loveliness, Halley, Prince of Wales, Evelyn Kirtland, and Gretchen Zang. The green used was the plebeian garden Asparagus. The combination was surely a beautiful color study. My little garden is gay with "Glads" for a period of nearly seven weeks each summer by planting the bulbs at intervals of two weeks from first garden-making time until the second week of June. "Glad-time" is truly one of the happiest times in my Iowa flower garden.

MARY BURNHAM HOMANS.

THE PLEACHED LANE OR GREEN GALLERY

NORMAN K. MORSE

A Charming Feature for Garden or Estate is This Old-World Form of Arbor in Which the Vegetation Forms the Structure Itself as Well as its Leafy Shade

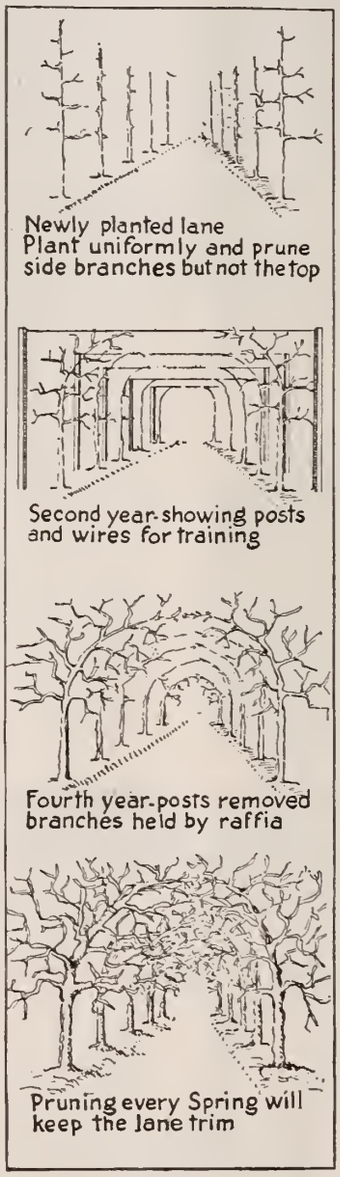
ALTHOUGH it is an old-world feature, the pleached alley or green gallery will, with the proper trees and the proper care, produce the same beautiful effects here. There are indeed several examples in New England and on one or two estates in the South, but it is decidedly uncommon in America. Pleaching is the plaiting or braiding together of the branches of trees or shrubs; and as applied to a lane, the operation forms a dense natural canopy over a walk or drive.

As the density of the interlacing is largely governed by the pruning and by the natural habits of the trees used, the selection of the variety of plant is very important. Several things must be considered, namely—whether the lane is to cover a walk or drive; whether the ground is dry or moist; whether the trees must be groomed and clipped annually, or left alone; and finally, what the character of the surroundings may be. The use of the lane will decide whether a tree of large, medium, or low growth will be needed. The soil will determine which trees in any possible group must be eliminated because of decided preferences or needs. The surroundings will largely decide the character of the external appearance—and this last will govern the pruning, while the necessity for pruning will react in the selection of varieties known to submit to it without detriment.

Old gardens abroad have lanes of Elm, Lime (which is the same as Linden) Ash, Plane, Oak, Hornbeam, Beech, and numbers of the smaller trees as well as some of the larger shrubs or semi-trees, such as Lilac, Hawthorne, and Privet. These will all pleach nicely here, although the difference in weather conditions sometimes makes it desirable to use trees which have a more rapid growth. We select, rather naturally then, such trees as the Plane, Linden, Elm, Birch, Norway Maple or even the Silver Maple. More lasting effects are possible of course with the Oak and Beech.

Two young avenues have recently been started in Pennsylvania, one at Eddington and quite an extensive one, covering the new public park walks near the railroad station, at Bristol. The former is on a private estate and it covers, or rather will cover, a walk leading from the mansion to a terraced Italian garden. The Silver-leaved Linden (Tilia argentea), is used here in preference to the European or other varieties of this tree because it has a more compact growth, seems to keep a better color during the Summer, holds its leaves longer, and pleaches well. In addition to these excellent qualities, it makes fairly rapid growth and is seldom attacked by the borers which infest the other Lindens. The rows are set twelve feet apart and the trees spaced at about the same distance. And as the pleached Linden lane is entirely in keeping with the Italian architecture of the buildings and the design of the garden, the effect should be unusually good. The surrounding features are in harmony and waiting to accept this addition from the old-world garden.

The planting at Bristol Park is of quite a different nature. Being for public use it must necessarily be on a more extensive scale, and has required development with a view to its practicability. A mile or more of walks border and cross the park, some straight, some in easy curves. The trees are being trained to make a flat top. The Oriental Plane (Platanus orientalis) was considered the most satisfactory tree here as it pleaches well,



THE ORIENTAL PLANE TREES AT BRISTOL PARK

More than a mile of walks are being roofed with their dense green with the sides kept open to afford unobstructed views

LILACS ARE EXCELLENT PLEACHING MATERIAL

Those bordering this walk are not so treated but obviously the operation would develop them into a most delightful "gallery"

A PLEACHED DRIVEWAY IS ONLY A MATTER OF A LITTLE MORE TIME

The material must of course be brought higher before the pleaching begins in order to allow for the passage of vehicles, but otherwise the work is identical and always the effect is lovely as this example on the estate of Mr. Anthony J. Drexel, Drexel Hill, Philadelphia, shows

has a long life, grows rapidly, and its shade is not too dense. The dust from the railroad was another of the items considered in selecting these trees—the Plane is not affected seriously by it because of the coarse character of the leaves. Incidentally, the Plane's chief popularity as a city street tree is due to this same quality and the ease with which it establishes itself after transplanting.

The natural character of the Elm, Ash, and Plane would suggest a loose and open growth of the matured pleached lane, while the Linden, Hornbeam, English Oak, Beech, and Birch would seem inevitably to make a dense mat of interwoven twigs and leaf masses. It must be remembered, however, that the character of this matting of branches and twigs can be controlled to a remarkable extent. For example, we have a double row of young healthy trees which some day will be a pleached lane. We find a little later on that for some reason one of the trees is developing more slowly on one side; this may be for lack of a good root system, or shock in transplanting, or possibly from a bark bruise on that side of the tree. After stimulating the growth by a little extra fertilizing, the twig growth can be increased by cutting back the branches a little all around but principally on the weak side. In a few months, unless there is something radically wrong with the tree, we find that where before there was one twig, we now have two or three or more, depending on the kind of tree with which we are working. And in a comparatively short time this tree will have caught up to the others in growth.

Under this same principle we can have either a densely shaded lane or a rather loose open one, depending on the frequency and character of the pruning. The training is done with the young wood by actually interlacing the branches and tying them together with raffia and then supplementing this by pruning. Pruning alone might and usually will result in a densely shaded lane; but this is not a pleached lane by any means. The beauty of the feature lies in the interwoven boughs as these age and build, by growth, the actual woody framework of the "gallery."

The outline of the cover or top, however, is entirely in the pruner's hands. It may be flat on the outside with an arch or semi-circle underneath, flat both above and beneath, or arched above and beneath. It may be quite formal with clearly defined outlines like a clipped hedge, or open and quite natural. The character, after you have selected the most suitable tree, should be governed largely by the surroundings and the intended use of the space beneath. The rough outline, for instance, would not be so good for the public park as the more formal one: and a flat top and sides would not seem so suitable through the naturalistic part of an estate as an arch, which is a less positive form—or better perhaps, a more insinuating one. The character of the clipping in the arch in turn depends on whether that part of the property generally is "kept" or "unkept." Each case obviously needs forethought and a consideration of the fitness of things.

The pruning itself is not a very difficult operation. It means that the twigs and buds must be regularly examined; for by observing the character of growth in twigs of the same tree, it is easily seen by the direction of a bud just where it will be when it becomes a twig. If it is going in the direction to make part of the top or sides of the covering, it is safe to leave it as it is: if it should be going in the wrong direction, it should be clipped off. Always remember that a twig will die back to the first bud; therefore, it is better to clip it off near the bud than allow the dead wood to remain, as this encourages decay. Any heavy branches cut off should be made waterproof and insect proof with creosote and asphaltum paint. The creosote acts as a caustic, closing the wood pores, while the asphaltum is an elastic paint which will not crack or dry off unless the cut is very wet. It can be mixed together and applied about one part creosote to five or six of asphaltum paint.

A very important factor in establishing the trees is cultivating and fertilizing. The ground at the base of each tree should be forked at least once a month during the growing season, and more frequently in time of drought. This attention, in combination with the fertilizer will nourish the young twigs, make them grow quickly, and keep them pliable and easy to train. After they have become established the treatment will be the same as for other trees of the same variety, a lookout being kept for the pests and diseases which are likely to attack them. It is then just a matter of pruning once or twice a year and watching the development.

THE OLD GARDENS OF PENNSYLVANIA

I.—BARTRAM ARBORETUM AND PARK

JOHN W. HARSHBERGER
Professor of Botany, University of Pennsylvania

EDITOR'S NOTE:—*For many years Dr. Harshberger has devoted much time and energy from a very busy life to collecting data about the beginnings of gardening and plant study in and around Philadelphia. Here in this cradle of American gardening and botany he has worked over the relics that fortunately remain to us, and in the series of articles of which this is the first he will retrace the footsteps of those pioneers and interpret to us something of the significance of their work. In the modern-day rush of up-to-date activities we are in danger of losing much of the monumental past, and Dr. Harshberger's studies of those early activities adds an important chapter to our records.*

DATING FROM 1731—JOHN BARTRAM'S HOUSE
A noble survival of the period of leisurely, loving building when a man's home seemed doubly his because his hands had helped to fashion it

RICH in old places of botanical and horticultural interest is the city of Philadelphia and the country tributary to the city; and with the increase in wealth of its citizens a large number of new demesnes have been planted. It is the older places that are especially appealing, however, because their shrubs and trees have had a chance to develop over a long period into fully matured specimens, and this enables the plant lover to determine the successful, or unsuccessful, acclimatization of the introduced plants. And no arboretum or garden of this section has more to offer in this respect than the one laid out by John Bartram, the King's botanist, at Kingsessing, on the west bank of the Schuylkill not far from the junction of that river with the Delaware River.

In the days of the colonies, and of George Washington, the garden of John Bartram was far out in the country; but with the growth of the urban limits, it is now surrounded by factories and rows of city houses. The arboretum had its inception in 1730, which was about the time that work was started on the stone house. This is still in an excellent state of preservation. On its south gable is an inscription in stone—John: Ann: Bartram: 1731.

Bartram's curiosity with regard to plants was aroused by a Daisy which he pulled up while plowing. Securing from a bookdealer in the city a work upon botany, written in Latin, he applied himself to the study of the two—Latin and Botany—until he had become somewhat proficient in both, and was able to learn more about the Daisy and the structure of the other common plants about him.

Eventually he travelled extensively in the northern and southern states, at his own expense, observing and collecting. The plants thus collected on his journeys to various parts of America were either grown in his garden, or were sent to his correspondents abroad, among whom he counted Peter Collinson, Carolus Linnaeus, Lord Petre, Philip Miller, and the dukes of Norfolk and Richmond.

An annual allowance of thirty guineas was in time provided by interested persons to meet the expenses incident to his procuring seeds, roots, plants, and cuttings of American plants for European gardens. During the years of his active work along these lines, almost every ship leaving Philadelphia for London carried consignments of plants from him. So important indeed did this trade grow to be, that a neighbor, William Young, became a competitor and also sent to Europe many plants which he had collected in the southern states, and as a consequence, while on a visit to London, Young was appointed Queen's botanist—which was a bitter pill for the King's botanist to swallow!

John Bartram and his son William, who fell heir to the property, introduced into the garden a large number of trees, shrubs, and herbs which they had collected on their extended travels. Some of these plants were of great beauty and rarity. One of the most interesting of these trees is the mysterious Gordonia Altamaha otherwise known as Franklinia. This was described by Michaux, discovered by the Bartrams in 1765, near Fort Barrington along the Altamaha River, in Georgia. It was obtained in some form by them and cultivated in their garden, but it has never been seen in the wild state since their discovery of it. It is therefore known only through specimens secured by layering from the original Bartram tree.

John Bartram planted, so the story goes, a Cypress riding whip, which took root and grew and finally developed into a tree more than a hundred feet tall and seven feet in diameter. Although this tree has been dead for some years its base still

AN ENDURING WITNESS

The unusually large and stalwart old Sycamore above still serves as a vigorous reminder of Bartram's enthusiastic pioneering

attracts the visitor; and it is protected from relic hunters and total demolition by an iron railing. Originally the base of the tree was surrounded by the characteristic Cypress "knees" which function as aerating organs, but these disappeared before the guard rail was erected.

At the northeast corner of the old house stands one of the splendid trees placed there by Bartram—a Yellowwood, or Virgilia (Cladrastis lutea) which has, here on the banks of the Schuylkill, reached a notable size of stem (8 feet, 5 inches circumference) and spread of branches. When in flower in May with its hanging clusters of creamy white blossoms and its light green, compound leaves, it delights the eyes of the lover of trees and of the beautiful. The

A GIANT MONUMENT

Brought up from the South in John Bartram's saddle-bag about 1740 this giant Bald Cypress lived nearly a century and a half but was blown down May 1, 1920

THE DIGNITY OF PERMANENCY

Part of the arboretum planned in 1730, the old Boxwoods below have nearly two hundred years to their credit

A REMARKABLE EXAMPLE OF AMERICANIZATION

The famous Lady Petre Pear tree, shipped across the Atlantic in infancy (1760), and still enjoying a sturdy and fruitful old age

swollen leaf bases, which form a cap over the axillary buds, are always a matter of interest to the botanically initiated.

The Bartram Oak (Quercus heterophylla) which measures 11 feet around, stands on a knoll a little distance south of the house and is still in a vigorous condition, although exposed like the other old trees of the place to the increasing smokiness of the neighborhood. A few Kentucky Coffee-trees near the house are probably descendants of the trees originally planted by the Quaker botanist. Several species of Horsechestnut or Buckeye, are representative trees of this arboretum, and have been there from earlier days. Such are several fine Sweet Buckeyes (Aesculus flava) the largest 9 feet in circumference with panicles of greenish-yellow flowers, Red Buckeyes (Aesculus Pavia), and European Horsechestnuts (Aesculus Hippocastanum). The shrubby Aesculus parviflora (A. macrostachya) is here and also the hybrid Aesculus carnea (A. rubicunda) a cross between the European Horsechestnut and the Red Buckeye. Several fine Silver-bell trees (Halesia tetraptera) remain alive from Bartram's days and also the Fringe-tree (Chionanthus virginica), which becomes one of the show trees when in flower.

The Cucumber-tree (Magnolia acuminata) and the Mountain Magnolia (M. Fraseri) are included in the collection of trees. The Great-leaved Magnolia (M. macrophylla), although originally grown in the garden, has disappeared, as also the evergreen species (M. grandiflora) perfectly hardy as far north as Philadelphia. The North American Papaw (Asimina triloba) is represented by a small group of trees which flower profusely in April and May, and on these trees mature fruit is occasionally found; but, although the pulp is sweet and the fruits edible in autumn, they can hardly be recommended for extensive use.

At the southern end of the old mansion stands an old Pear tree still in vigorous health known as "The Petre Pear tree" from the fact of its having been raised from a seedling sent over from England in 1760 by Lady Petre. It is a famous old variety of Pear, scarcely known, however, out of Bartram's own garden in Philadelphia. The Box trees planted about the house have reached a large size and it is difficult to get views of the house from certain vantage points on account of their dense foliage. A large Ginkgo (9 feet 3 inches girth) grows in the northern part of the arboretum (perhaps the first Ginkgo tree planted in America, since it is much larger than the one in "The Woodlands" which some authorities surmise is the oldest), while at the southern end a Mossy-cup Oak, one of the largest trees of the place, has succumbed to the influence of the gases and smoke blown from the near-by railroads and manufacturing plants.

"A Catalogue of Trees, Shrubs and Herbaceous Plants indigenous to the United States of America, cultivated and disposed of by John Bartram & Son at their Botanical Garden, Kingsessing, near Philadelphia," published in 1807, gives some idea of the extent and influence of their horticultural work. After the death of William Bartram the place came into the hands of Robert Carr, a printer, who married Ann M. Bartram, daughter of the John Bartram who was a nephew of William Bartram. And the business was extended by Carr apparently; for a committee of the Pennsylvania Horticultural Society, which visited the garden in 1830, when it was still under his direction, found the estate to be in most excellent order, with frequent additions to its collections, so that it represented a rich depository of the American flora.

Later the property passed to Andrew M. Eastwick in whose estate it remained until purchased by the City of Philadelphia in 1896 as a public park. Possession by the city will insure the preservation of the old stone cider-mill along the river front, and the house and other historic buildings of the arboretum. The old house, built by John Bartram himself, has been neglected of recent years, but with a sufficient appropriation of money it can be easily restored to the fine condition it enjoyed when John Bartram, having been put out of the Society of Friends on account of his unitarian beliefs, inscribed over his study window and signed his simple creed:

THE BARTRAM POTTING SHED AND TOOL HOUSE

Where Bartram spent many pleasant hours with his plants

"It Is God Alone Almyty Lord
The Holy One By Me Ador'd
John Bartram, 1770"

STRIKING PERENNIAL COMBINATIONS

ISABELLA PENDLETON

To Know the Most Effective Foil and Contrast to Each of the Garden's Favorites Is to Know One of the Greatest Secrets of the Art of Planting Flowers

AS THE long lists in nursery catalogues are often bewildering the aim here is to help the gardener, especially the novice, by presenting a list containing varieties of striking effect—notably so in combination. No plant seems better qualified to head the list than Thalictrum glaucum which, for tall accents in the back of the border, is unrivalled. Its masses of yellow, ball-shaped flower-clusters rise above a sturdy growth of silver-gray foliage. With it drifts of blue Delphinium are effective and a pink climbing Rose in the background makes an ideal third in this colorful group.

Salvia farinacea affords a sensation when seen for the first time—and it is not common. It makes a large plant four feet high, and its gray plume-like branches are jewelled all over with mauve flowers. The effect is dazzlingly brilliant in combination with copper-color and yellow Zinnias, Gladiolus primulinus hybrids, Antirrhinum Orange King and soft Ageratum. And if you have never tried the Gladiolus primulinus hybrids you have one of the garden's most exquisite surprises in store for you. These fairy-like creatures come in tones of yellow, pink, and old rose. They are particularly irresistible when seen through the white mist of Gypsophila paniculata.

THE COMPLEMENT OF EACH OTHER

In both color and form the Columbine, when it is yellow, and the Iris in the blue shades are altogether delightful in each other's company

A bewildering spot of color and of life is Buddleia variabilis superba with Japanese Iris, the former invariably a-flutter with the butterflies who love it. I have seen its panicles achieve a length of thirty inches! This plant needs plenty of space since it is shrubby in growth, and in order to obtain the effect desired it should be massed in quantity. In front of shrubbery Lycoris squamigera is suggested. In early spring attractive green foliage appears which grows until July, when it ripens off and disappears; but a month later, as if by magic, the flower stalks spring from the ground to a height of two or three feet and develop an umbel of large and beautiful lily-shaped flowers of a delicate lilac-pink shaded with clear blue. If you plant with it Amsonia salicifolia (A. Tabernaemontana) its graceful foliage will provide ground cover as well as a soft setting for the pink flowers of the Lycoris.

With regard to Iris, one safe rule, if you don't know much about them, is to "stay clear" of the Squalens section of the Bearded Iris. They are suffused with neutral tones and lose brilliance in the garden. On the other hand, the Pallida section contains all the clear colors. Some of the best mauve varieties are:—Chester Hunt, Juniata, Albert Victor and the always good and reliable Iris pallida dalmatica.

Deliciously fresh looking is the Iris in those varieties that border on pink and some stunning new introductions bordering on the rose shades are:—Isolene, Mt. Penn, Lent A. Williamson, and Mildred Presby. A number of other new varieties are particularly pleasing because of their delicate markings. Anna Farr is white veined blue, Minnehaha is white shaded yellow, and Wyomissing is suffused with a delicate soft rose. These three blooming together with Phlox Laphamii, Heuchera (rose pink), Linum perenne and Columbine make a happy June picture.

The Phloxes are a large group of flowers, many of which, if truth were told, are better left unplanted. The wise gardener will confine himself to the soft pinks, the mauves, and the white varieties. The following are the best I have yet seen:—pink varieties: Elizabeth Campbell, salmon; Madame Paul Dutrie, blue-pink; Peachblow, mauve-pink; America, pink with Tyrian purple eye; Rynstroom, rose; white varieties: Miss Lingard, early; Jeanne d'Arc, late; Tapis Blanc, dwarf; Antoine Buchner, mid-summer; Mrs. Jenkins, late; mauve varieties: Crepuscule, silver-mauve with Tyrian eye; Le Mahdi, dark bluish-violet; Iris, bluish-violet; Pharon, mauve with white eye.

The Globe-thistles (Eryngium amethystinum and Echinops ritro), are lovely with the Phloxes, also Statice latifolia and the blue Salvias. And I do not understand why Phlox Arendsii is not planted more frequently. It is highly effective in combination with lavender Candytuft and purple Foxgloves. Add to these, Delphinium and

DENSE PYRAMIDS OF FRAGRANCE

Seemingly created to consort with flowers of blue are such lustrous white forms as Perennial Phlox furnishes

Madonna Lilies to give enough blue and white to relieve the effect of too much lavender and the whole is most distinguished in effect. And of course all the Dwarf Phloxes are indispensable to the spring garden. Of these G. F. Wilson is the loveliest pale blue, but difficult to procure. Among the other low-growing plants Viola Apricot is unusual and striking, with many-flowered sprays of coppery-rose flowers. Combine it with Anchusa myosotidiflora, Primroses and Aubrietia.

In June, Helianthemum Salmon Queen is smothered with bloom! This new Rock Rose drapes itself over cliffs in a dry, sunny position. If you want a splash of dazzling color interweave with it Lobelia (deep blue) and Portulaca (pink and orange). Another striking rock garden plant is Lithospermum prostratum var. Heavenly Blue. Although difficult to find it is well worth a diligent search, as the clusters of turquoise-blue flowers in May compensate any amount of effort. The plant requires a well drained sandy soil and protection in winter. Daphne Cneorum is also used too seldom in the rock garden. Its vast quantities of rose-pink flowers bloom along with Mertensia virginica, Iberis sempervirens and Narcissus Barrii conspicuus. The blossoms of the flowering Crab-apple (Malus floribunda atrosanguinea) begin at the same time to paint a pink haze against the deep blue of the early summer sky.

THE LOVELIEST OF SALVIAS

To furnish the blue of this combination is Salvia azurea, with claims to distinction which dim the scarlet of its kin

Peonies are disappointing unless one is familiar enough with them to order the best named varieties. Four gorgeous soft pink ones are:—La Perle, Lady Duff, La Fayette, Jules Dessert. A good darker pink is Gigantea while Adonise Superba borders on the cerise pink. For an early white Festiva Maxima is good. Grandiflora blooms later. Although expensive, M. Martin Cahusac is the only red which will blend in with the rose shades; in fact it is to some the only enjoyable red Peony! Certain flowers—or perhaps it is better to say certain kinds or types of flowers—seem naturally to lend themselves to combining with others, while some are such individualists that they will combine with nothing at all. The Peony is, I think, one of these. It comes pretty near to demanding exclusively the garden and one's attention at the time of its glory; and when a plant does this, it is safe to assume that practically nothing else will be at its best in company with it.

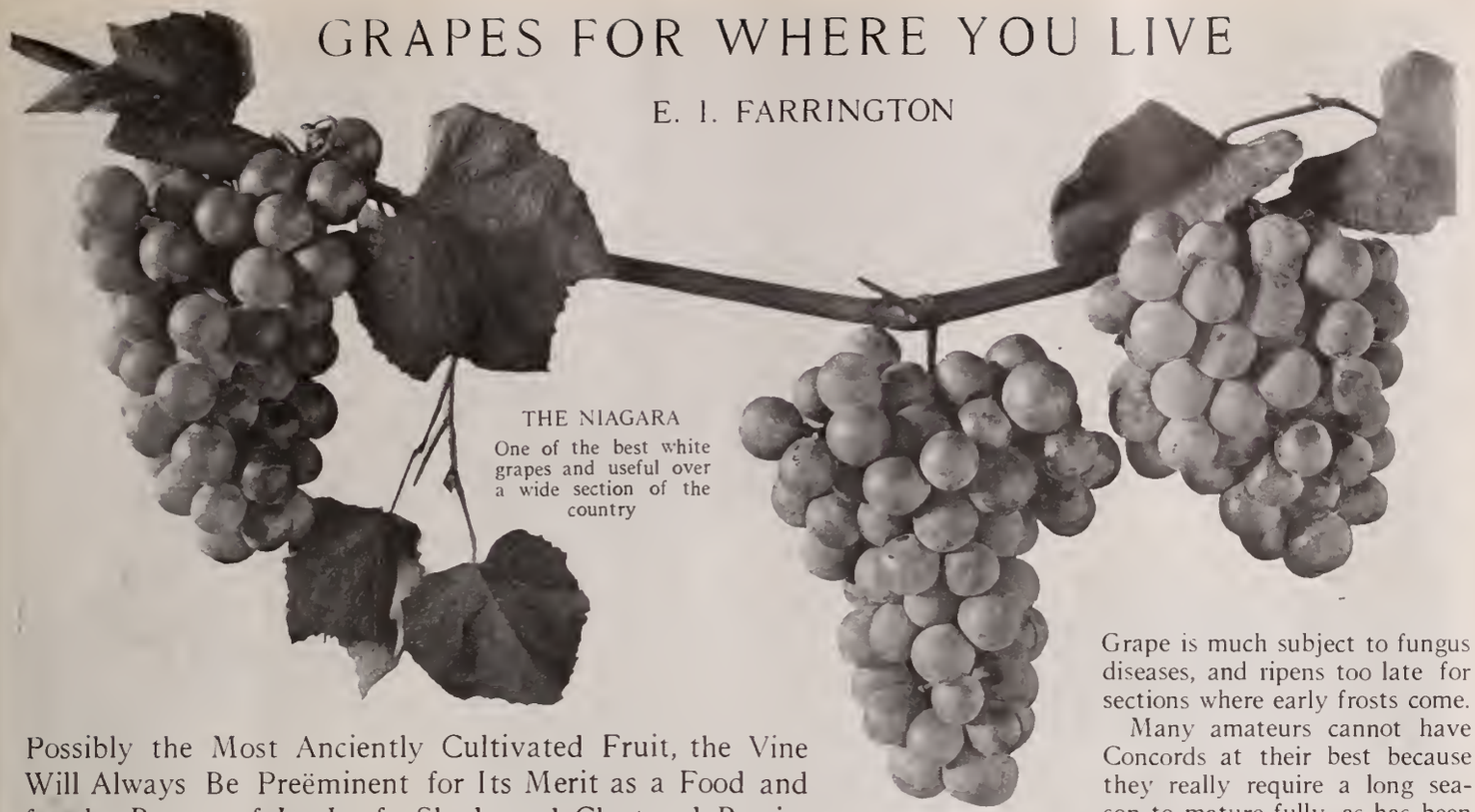
POSSIBLE CHARMING COMBINATIONS

The chart below may prove suggestively helpful in planning color combinations for one's garden

CHIEF SUBJECT	SEASON OF BLOOM	COLOR	COMBINE WITH:
Buddleia variabilis superba	July—Sept	Lavender pink	Japanese Iris
Daphne Cneorum	May	Rose pink	Mertensia virginica Iberis sempervirens Narcissus Barrii conspicuus
Gladiolus Primulinus Hybrids	Six weeks after planting	Yellow Pink Old rose	Gypsophila paniculata Ageratum Zinnias, copper and yellow
Helianthemum Salmon Queen	June	Salmon pink	Portulaca (pink and yellow shade) Lobelia (annual deep blue)
Iris Chester Hunt Juniata Albert Victor Pallida dalmatica Isolene Mt. Penn Lent A. Williamson Mildred Presby Anna Farr Minnehaha Wyomissing	June	Dark and pale blue Clear blue Blue and lavender Clear pale blue Orchid pink Pink and deep pink Lavender pink Plum and pale plum White, veined blue White, shaded yellow White, suffused pink	Columbine, Paeonia, Heuchera, Linum perrene
Lithospermum prostratum Heavenly Blue	May-June	Turquoise blue	Cerastium Stachys lanata Aubrietia
Lycoris squamigera	August	Pink shaded blue	Amsonia salicifolia
Paeonia La Perle Lady Duff La Fayette Jules Dessert Gigantea Adonise Superba Festiva Maxima Mons. Martin Cahusac	May—June	Lavender pink Flesh pink Lavender pink Pale rose Rose pink Cerise White Red	Mauve Iris Lupine Foxglove Columbine
Phlox Elizabeth Campbell Mme Paul Dutrie Peachblow America Rynstroom Miss Lingard Jeanne D'Arc Tapis Blanc Antoine Buchner Mrs. Jenkins Crepuscule Le Mahdi Iris Pharon	July—August	Salmon pink Blue pink Mauve pink Pink with Tyrian eye Rose pink White (early) White (mid-season) White dwarf White (mid-season) White (late) Silver mauve Dark bluish violet Bluish violet Mauve with white eye	Gypsophila paniculata Eryngium Echinops Blue Salvias
Salvia farinacea	June—Sept	Mauve	Antirrhinum Zinnia Ageratum
Thalictrum glaucum	May—June	Yellow	Delphinium
Viola Apricot	May	Apricot yellow	Primrose Aubrietia Anchusa myosotidiflora

GRAPES FOR WHERE YOU LIVE

E. I. FARRINGTON



THE NIAGARA
One of the best white grapes and useful over a wide section of the country

Possibly the Most Anciently Cultivated Fruit, the Vine Will Always Be Preëminent for Its Merit as a Food and for the Beauty of Its Leafy Shade and Clustered Berries

THERE is practically no part of the United States which will not grow some kind of a Grape. Many are not finicky as to soil, and will grow with practically no attention. And no other fruit is so certain to bear annually; for Grapes are produced on this season's wood which rises from last season's wood, hence only killing back of the main vine itself interferes with the crop. Grape vines are ornamental, too, and if left to themselves will soon cover a large area. To be sure, better yields are obtained if the vines are kept properly pruned, yet even when allowed to "gang their ain gait," as it were, they will produce enormously. The late E. P. Powell of central New York, well known as an amateur fruit grower, had a Grape vine with branches over a hundred feet long, and a single vine that covered verandas, porches, and windows and eventually reached the attic windows and half-way round his house.

Yet it is necessary to understand that there are vagaries even among Grapes, and that some of the best kinds can be grown only under favorable conditions. This isn't altogether a matter of hardiness, either. although that enters into the question. One of the best of Grapes, Agawam, bears heavily in some soils, but does very poorly in others, and this is true of several other varieties. Then there is the Brighton, a marvelous red grape—barren if grown alone! This is a fact which escapes the amateur likely as not, with the result that he gets no fruit. Grown along with Worden or Moore Early, however, Brighton will produce heavily.

Grapes which might be worthless for commercial purposes because of becoming soft or dropping quickly, may yet be almost unexcelled for home use, so that there is a certain distinction between commercial and garden lists. A few, on the other hand, are remarkably cosmopolitan in their nature, with the Concord at the head of the list. The Concord Grape will thrive in almost every part of the country, being grown even in California for wine making. Only in the colder parts of New England does it fail to ripen up as well as it should. Other varieties for general planting include the Worden, Niagara, Delaware, Brighton, Moore Early, and Winchell or Green Mountain. There are others equally good as to quality which have some drawback; as for example, the Catawba, which while a popular Grape is much subject to fungus diseases, and ripens too late for sections where early frosts come.

Many amateurs cannot have Concords at their best because they really require a long season to mature fully, as has been stated. Some gardeners may well substitute Worden, a seedling of Concord, which yet has many different characteristics. In quality it is even better; but it is not nearly so good a shipper, therefore it is less available for commercial purposes. But it comes two weeks earlier, and gets sweet almost as soon as it turns color, wherein it differs markedly from its parent. Moore Early is another popular black Grape which thrives over a wide area. It ripens very early, as its name indicates, and hangs well on the vines when well established. It is only on old vines that it makes large too-heavy-to-carry bunches. One characteristic of Brighton has already been mentioned. It is nevertheless when properly accompanied a good red Grape for the home garden over a large part of the country, as it ripens well in the North. It is not, however, a good keeper.

Undoubtedly the Delaware is one of the best known and popular Grapes in the country. Its quality is of the best. Yet the fact must be remembered that it is not entirely hardy in many northern sections, and that it is rather delicate in habit. It needs close pruning and good feeding to make it worth while. For general planting Niagara no doubt is a better known white Grape than any other kind because of its large berries and large clusters. As found in the market it often is not at its best, as it requires to be left on the vines until dead ripe to bring out its best flavor. Unfortunately it is more or less subject to disease. Then there is Winchell. Certainly no green Grape surpasses this for general planting. It is early, of fine quality, and bears large, compact clusters. It is sometimes catalogued as the Green Mountain Grape, and deserves wider recognition than has yet been given it.

GRAPES which will stand the climate of New York are adapted to a wide range, so that it may be well to consider some of them first. All of those so far mentioned will be included, of course. Many others are being grown to some extent, but are hard to obtain at the nurseries. A very good kind to add to the list of purple grapes is Barry, which ripens with the Concord and has extra good keeping qualities. Colerain is a very early white Grape which also has the advantage of hanging on a long time, often until frost. This is a very desirable characteristic in all garden Grapes which are to be eaten out of hand.

IN FORM, COLOR, AND GENERAL COMPOSITION WHAT IS THERE TO RIVAL THE BEAUTY OF THE GRAPE?

A dark red Grape which delights those who grow it for home use is called Lindley. It is sweet, tart, and hardly surpassed in quality. For green Grapes in New York State, few can surpass Pocklington. This is a medium variety with a spicy sweetness which pleases all palates. Massasoit is often mentioned among good home Grapes, and would be entitled to a place in the list except for one fault. It is very susceptible to black rot as well as to mildew. Lucile has been widely advertised of late, and is a good red Grape for northern New York State and other short-season sections, for it is among the hardiest of the red Grapes. But frankness compels me to say that to my taste its quality is not quite equal to the claims made for it.

WHETHER IT DRAPES A RUSTIC ARBOR OR A CLASSIC COLONNADE

That Grapes should be one of the taken-for-granted things of the home was inevitable when man began to build himself a permanent shelter, for they furnish food and drink and cool retreat and beauty all in abundance

Varieties for New England

NEW Englanders grow Concord, Worden, and Moore Early as a matter of course. Campbell Early, which is considered a commercial Grape in New York State, is grown to a considerable extent in home gardens in New England, giving very good results under some conditions. It is not adapted to all soils, however; and, while most of the New England nurserymen catalogue it prominently, amateurs should be pretty certain that it will thrive in their locality before buying plants. When it is grown, too, care must be taken to have it reach full maturity before it is eaten. It gets its color long before it is entirely ripe for which reason growers are sometimes deceived.

Agawam and Salem are good red varieties for amateur gardeners. Both of them are native to Massachusetts, having been first grown by E. S. Rogers in Salem, Mass. Agawam has a fine sweet aromatic flavor, and can be kept a long while, which is one of its chief advantages. It ripens about the same time as Concord. It has some disadvantages, however—one being the fact that it does not yield well in many localities, and another that it is quite susceptible to mildew. It should be chosen only by amateurs who have heavy soil, especially clay soil. In some respects Salem resembles Agawam, and like it is subject to mildew, and rather finicky as to soil. Its fruit is very handsome, though, and of high quality, and keeps well. Brighton may also be added to the New England list.

Niagara and Diamond are standard white Grapes of New England, and two others which are sold by nurserymen are Green Mountain and Pocklington. Diamond, which some of the nurserymen like to catalogue as Moore Diamond, and which they are justified in doing inasmuch as it was originated by Jacob Moore, of Brighton, N. Y., in 1870, is one of the most desirable of the white Grapes, and deserves much wider cultivation than it is given.

Grapes in Canada

GOING into Canada we find the following thriving in the warmer sections; black: Moore Early, Worden, Concord; red: Delaware, Agawam, Lindley; white: Winchell, Niagara, Diamond. In colder sections, yet in localities where the Grapes are pretty sure to ripen, such hardy varieties as Moore Early, Early Daisy, and Merrimac are to be recommended for black varieties. As is to be expected they lack somewhat in quality, but are to be favored for their early ripening.

Early Daisy comes even ten days earlier than Moore Early, but is one of the best to depend upon. Moreover, it keeps well. Merrimac is another Grape which was given to the world by Mr. Rogers, of Salem, Mass., who named it for the great river which turns more spindles than any other river in the world. It is by no means as good a Grape as many others, and not as early as Early Daisy or Moore Early—but it helps to extend the list. Brighton, Lindley, and Moyer are to be recommended for red Grapes in Canada where the seasons are short, and Winchell and Diamond for white varieties.

Flourishing in Pennsylvania

IF you are planning your home garden for Pennsylvania you will do well to secure Niagara, Worden, and Moore Early as your first choice; but you can add Eclipse, Winchell, Concord, Delaware, Barry, Lindley, and Vergennes with full expectation that they will thrive and give you good returns. Barry and Vergennes are to be valued especially for the fact that the fruit keeps a long time. If you want to hold some of your Grapes for early winter you should have these two varieties. Barry is one of the best black varieties for table use, having as one of its parents the Black Hamburg of Europe. The vine makes vigorous growth, but is more or less susceptible to mildew.

Vergennes is not considered a particularly good commercial Grape because the vines have a sprawling habit, which makes them difficult to handle on a large scale, but the fruit itself is of excellent quality, and is borne with remarkable freedom. In fact, there are few kinds which are so productive as Vergennes, and few that yield fruit with equal keeping qualities. The fruit is dark red, and its hardiness is assured by the fact that it originated in Vergennes, Vt. Eclipse, mentioned as a good Pennsylvania Grape, is a dull black, and while the fruit is rather small, the quality is good. One special advantage of this for home use is the fact that the fruit remains on the vines for a long time without deterioration, and that the berries do not crack in wet weather.

THE MOST RESTRICTED SPACE AFFORDS ROOM FOR A GRAPEVINE
And the convenience of being able to pick the fruit from the doorstep as in this California home is an almost irresistible argument in its favor

IN MINNESOTA and adjoining states horticulturists have faced great problems and done wonders in the way of adapting different fruits to a severe climate; and after many tests they have found some Grapes which will do well for them. In many sections, though, the vines must be laid down and covered with earth in the winter. Hence they must be grown by some system of training that makes this possible. The common fan system or the spur renewal system are mostly used, a long horizontal trunk being maintained. This trunk can be rather easily laid down in a trench dug in the line of the row; and for exposed situations this is invariably necessary. Grapes growing close to or on buildings may go through the winter without being protected in this way.

The varieties which are recommended for Minnesota are, in order of preference, the following: Moore Early, Campbell Early, Brighton, Delaware, Worden, Concord, Diamond, Wyoming. Some of the later varieties like Concord, however, will not ripen. Wyoming is a Grape desirable only in cold situations, as the quality is not very good. It is however unusually hardy.

The horticulturists of Minnesota have developed from the common wild Grape, Vitis vulpina, varieties which have been named Beta, Alpha, Janesville, and Hungarian. These are extremely rugged, and as a rule do not need winter covering. And though it is true that they are by no means as good in quality as the others mentioned, they are distinctly valuable.

For the Warmer Sections

GARDEN makers in the South are especially favored because they can choose the best Grapes from all of these mentioned above; and in addition many others of even better quality. Grapes not commonly grown in the North include Headlight, Brilliant, Hidalgo, Goethe, and Scuppernong; of these, Headlight is exceedingly productive, of very high quality fruit, and disease resisting foliage. It is earlier than Delaware, and hangs on the vines in good shape for a long time. Brilliant is the offspring of Lindley and Delaware and possesses the merits of both. The fruit is mid-season, very fine in quality, and has the advantage of hanging on the vines in good condition for weeks. And though commercial growers do not like Brilliant very well because it ripens unevenly, it is very well adapted to the home garden in warmer localities.

The rich, delicate flavor and greenish fruit of Hidalgo make it a prime Grape for home gardens, and lead to its recommendation for sections in the South where it can be obtained. Although Goethe had its origin in Massachusetts, it is too tender for northern climates, but is one of the best home Grapes in the South, its quality being superb. The large red berries are borne so freely that thinning is often desirable.

Probably the Scuppernong is the best known Grape of the South, often growing wild in the greatest luxuriance from Maryland to the Gulf of Mexico, and as far west as Arkansas. Few Grapes will thrive with so little attention, and it bears enormous crops even when wholly neglected. Moreover, it is seldom attacked by mildew or any insect pests, so that every farmyard has its Scuppernong, and they are found growing unrestrained over arbors and buildings. The berries are dull green, often with a brown tinge, and the quality is by no means equal to that of the other varieties described, although people who have been brought up on Scuppernongs find the musklike flavor and peculiar, almost repellent to some, odor agreeable. This Grape has its disadvantages, for the berries keep dropping from the bunches as they ripen, and the clusters are not very attractive. Yet in spite of its faults, the Scuppernong has to be reckoned with, and reckoned in, as a Southern Grape.

Along the Pacific

THE varieties grown on the Pacific coast are entirely different from those of the East, for there the vinifera Grapes thrive luxuriantly. And the Grapes of California are of course unequaled for flavor and quality. Among those especially recommended for the cooler sections of this region are the following; red: Bakator; white: Madeleine, Raisin du St. Pere, Napoleon; black: Duc de Magenta, Madresfield Court, Black Prince, Cornichon. Collections in the warmer regions include Papaykani, red; Rish Baba, white; and Askari, black. All three are early and should be grown on an arbor or trellis. Zabalkanski is a good late red for arbors and well suited, too, for hot sections. Golden Queen is recommended as a mid-season white variety.

FALL PLOWING, FEWER CATS AND MORE BIRDS

EDITH M. PATCH

Entomologist Maine Agricultural Experiment Station

To Avoid Entertaining in the Garden Such an Unwelcome Guest as This Requires Strategic Attack Rather than Direct Action, for Once Established in Residence on His Favorite Plant the Mischief is Done

A GREAT deal of the campaign against injurious insects has to be conducted along the lines long advocated by the anti-suffragist—that is by "indirect influence." But the average gardener prefers straightforward methods. He takes certain grim satisfaction in spattering his Potato vines with arsenicals, for instance, and in seeing the enemy hump up and drop. And when he meets a more insidious foe—like the Corn-ear Worm for example—and you suggest such preventive means as clean culture and the protection of birds as economic factors, he is likely to look baffled.

Yet, after all, clean culture and birds *are* two fundamental elements upon which sound vegetables depend. The consequences of both are so great that not one squad but innumerable armies give way as a result of them. So whether we toil with an eye to the market prices or simply in hope of sufficient and attractive food for our own table, we cannot afford to neglect the business of proper and timely tillage of the ground; and the fullest encouragement of our natural allies, the birds.

"Proper tillage" from the entomological standpoint always includes late fall plowing, for the reason that many insects over winter as pupae, buried in the ground. These pupae are the brown objects frequently spaded up in the garden —innocent looking enough, being legless and headless cases to all appearances, though alive, as is evinced by a wiggling motion at the pointed end, when touched. But though innocent indeed, for the moment, this is the transition stage of some destructive moth—the period of metamorphosis which lies between the caterpillar or feeding stage, and the adult egg-laying insect with wings. To break these pupal cells late in the fall, disturbing the pupae by exposing them to birds or other predaceous creatures or to the elements, is obviously to attack the enemy at a weak place in its life cycle. Hence fall plowing, which does just this, is one of the most effective measures possible.

OUR FEATHERED ALLIES DEVOUR THIS DEVOURER

Hence to protect and encourage these by warning them of the approach of their natural Nemesis through the tinkle of a bell hung on her collar, is to protect our own food

Among the numerous moths which sleep as pupae in our garden o' winters is the Corn-ear Worm—a cosmopolitan insect which may be found in almost any part of the world. In the South it is known as the Cotton boll-worm on account of its injuries to that crop. And besides Corn and Cotton, it feeds greedily upon Tomatoes, Pumpkins, Tobacco, Beans, Peas, and many other kinds of cultivated plants, as well as upon various weeds.

With such a bill-of-fare as this, it will readily be seen that the Corn-ear Worm is capable of enjoying much of the food we intend for our own menu; and if our natural allies did not help us out, this moth would be a much more constant pest than it is. For in the North, at least, the Corn-ear Worm disappears for long periods. The last two serious depredations in Maine, for instance, were twenty-three years apart.

This is not because the insect has a long life-cycle, like the seventeen-year cicada; but because a host of enemies assail its ranks. Birds seek it greedily, pleased with the juicy morsels we are no less delighted to get rid of; and many predaceous and parasitic insects swoop down upon them and silently work their destined extermination. Strangely enough too, one of the most effective of the enemies of a Corn-ear Worm is a second Corn-ear Worm—for these caterpillars are frightful cannibals as can be ascertained by any one who will shut several of them up together. This accounts for the fact that two caterpillars seldom remain long on the same ear of corn. If several choose the same ear, there will be in a short time but one remaining—and that of course the largest, having a voracious appetite and a decided tendency to vary its vegetarian diet when favored by opportunity.

Thus years may elapse before all conditions prove suitable for the next invasion of the Corn-ear Worm, in any given locality—the time of its coming always being a matter of uncertain prophecy. But come it does from time to time; and when full-fed upon the very choicest vegetables of our garden, it enters the ground, where it passes the pupal stage, to emerge in the spring as an adult insect—a moth with wings expanding about one and three fifths inches. The color of the fore wings varies from pale clay to dull yellow or olive green, and the hind ones are light with a broad blackish band. That is, it undergoes this metamorphosis and acquires wings unless natural enemies, among which birds deserve especial honors, overcome it; or unless fall plowing is done with particular care.

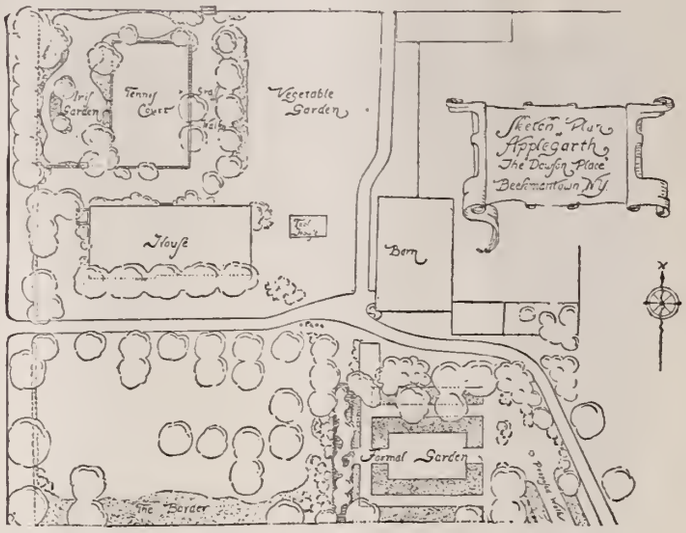
There is too, of course, the further argument for fall plowing that it seasons the soil—or rather puts it into condition for the elements to work upon it and season it, during the winter. The best course of all is to plow, and then to dress with manure; or better still, seed with Rye, if there is time for this to sprout.

A GARDEN BESIDE THE ADIRONDACKS

JOHN L. REA

Under the Old Trees Which Give Applegarth Its Name Generations Gone Are Not Forgotten Even in the Midst of the Feast of Color Spread by Its Present Artist Occupant

IN THE belief that the garden at Applegarth is something of a success, I am moved to tell others about it and a little of how it grew. For in the beginning, which means some ten years ago, when the place was bought back into the family, it was just a vacant, unkempt run-to-seed village property. There was a strip of unmown lawn, perhaps twenty feet wide, at either side of the house, that to the north being bordered by a three-acre Apple orchard and that to the south, by a weedy driveway, an eight foot Osage Orange hedge, and, beyond the hedge, another old Pear and Apple orchard. In front, across a narrow lawn that was yet somewhat wider than those at the sides of the house, ran the newly constructed state highway which had replaced the dirt road of my grandfather's time.



THE GENERAL LAYOUT OF APPLEGARTH

The small lawn spaces had been garnished with circular and moon-shaped flower beds, in which grew at one time pink and white flowered Geraniums—some with variegated leaves—Feverfew, and Heliotrope. At least I am morally certain that these grew there, for they must have furnished forth those trim, close cropped, hard headed, white-and-green Geranium-leaf-encircled, pulpit bouquets childhood memory connects inseparably with the village church!

The first spring was spent getting the orchards into shape and the small farm under cultivation. By July, however, we were ready to tackle the Osage Orange hedge, which we did, armed with a stump puller and extra heavy leather gloves. And once it had been dislodged piecemeal and committed en masse to the brush heap down in the back pasture, we went about making a lawn under the Apple-trees beyond the driveway. The ground was plowed, harrowed, and stone picked at that time, but not seeded until the following May. That first August, however, a start was made toward forming a screen across the end of the lawn away from the highway by transplanting native evergreens from the woods and rough hillsides of the neighborhood. In the Autumn a rather timid beginning was made at planting a hundred and sixty foot border at the side of the lawn farthest from the house.

THIS border was the first and has proved one of the most successful of the various garden projects, hence I shall describe it in some detail. There have been changes as time developed the need, but I shall confine the account of it to its description as it was during the summer of 1918, when the accompanying photographs were made.

In all gardening, the aim, I take it, should be for pleasing, ever-changing color combinations and a series of beautiful garden pictures when seen from the vantage points one naturally comes to in walking through the garden. So in placing a plant or a group of plants I always keep the possible observer in mind quite as much as the plants themselves. The plant must of course have its proper soil and surroundings, but it is necessary to harmonize them esthetically and spiritually as well as physically.

BETWEEN THE TENNIS COURT AND THE HIGHWAY IS THE IRIS GARDEN

This was pictured and described in detail in the February issue of the GARDEN MAGAZINE, together with some very convincing arguments for making this flower a special feature rather than a part of the general border

As a case in point, most people see this border from the end abutting the highway; so in general, the yellows, pinks, and

ALONG THE GREAT SOUTH BORDER WHERE OLD APPLETREES STAND GUARD

In August these snowdrifts of Phlox Tapis Blanc refresh; and through the seasons the procession of Flora, planned with only sufficient lull after each feature to allow assimilation of its beauty, is continuous

bright reds will be found there, the deeper reds next, then the purples and deep blues in succession, and the lighter blues and lavenders at the far end. In short, I follow, as far as practicable, Nature's plan in distributing colors, putting the colors of distance at the end of the planting usually and farthest from the observer. The character of the foliage however and the height to which a plant grows govern its use in grouping for pictorial effect quite as much as the color of the bloom. There is throughout the whole border a lavish use of white—rightly the emblematic color of peace, for it adequately separates and harmonizes otherwise jarring tones. An attempt is made, too, to have the periods when the border is full of flowers, as different species come into perfection, quite distinct in character and separated from each other by a lull, so to speak—a reversion as far as possible to plain greens again. Whenever such a lull comes in the border, we try to have some other part of the garden at a climax of bloom.

THERE are nine more or less distinct acts in the summer performance here. The Snowdrops and Squills, in broad patches among the other plants, usher in the pageant, at the same time that the Crocus riot along the front of the border. Next the early Tulips scattered throughout the planting hold sway for a brief week or two, soon to be followed by the taller red and yellow Parrot Tulips; and these need to be still taller, for by the time they come into flower, each of the hundred odd Peony plants is a considerable mound of green, the Larkspurs are rapidly pushing above the Peonies and the Phlox are making a slower but none the less rigorous growth.

Someone will feel like suggesting here that Cottage or Darwin Tulips might be more satisfactory than the Parrots. I must confess that occasionally, as in this instance, sentiment tempers what might at times be a too ruthless application of preconceived maxims. The Parrot Tulips were in the first place a gift from a very dear friend, and they have thriven so well in this situa- that I have not had the heart to make the change. (Besides, the Cottage Tulips are elsewhere!)

As the late Tulips are passing, the clumps of Fleur-de-lis—solid colored sorts are best for such planting—come into bloom. The Irises are used here mainly for the sake of their foliage, because they will over-lap into the Peony season unless cut down when hardly past their prime. By counting the buds on a half dozen plants at the approach of the Peony season, I have estimated that there must have been in the whole border close to three thousand healthy buds. Keeping any count of the actual number of blooms was never attempted, however, as the lavish cutting would have sadly interfered with any such procedure. But for three weeks they form a surpassingly beautiful picture; and with that I am satisfied.

As they finally wane, the white and blue Peachbells begin to nod, along with the buff-colored Foxgloves. These are all tall plants, and with reason, for the full grown Peonies must now be overtopped and the stiff Lily stalks and towering Larkspurs are also to be reckoned with. These latter, in a wide range of delicate and deep blues and purples (grown from choice imported seed) with the early white Phlox Miss Lingard, scarcely allow the Foxgloves and Peachbells a moment's breathing space before making their presence known, and that in no uncertain fashion. Some of them indeed attain a growth fully four feet taller than the modest thirty-six inches the English seedsman claimed for them. They and the Phlox, which are grouped in considerable masses about them, open at the same

A BIT OF SKY COME DOWN

Lofty spires of Larkspur give the deep blue of the ether, with the early Phlox Miss Lingard to furnish a proper effect of dazzling white cumuli afloat therein

FOURTH SCENE, ACT ONE

With the Peony family in the star parts this extends over a period of three full weeks since they are a generous lot and never grudging with encores

time—and together set to work getting things ready for the hundreds of Madonna Lilies about to open.

This beautiful Lily, either the glory or despair of a garden, is well worth trying because, *if* it thrives, it is a most perfect companion for the Phlox and Larkspur. But for all that a gardener may do, it is my experience that it still insists on deciding for itself in the most arbitrary and apparently unreasonable manner, whether to thrive or not. (In this well-drained border I have counted twenty-seven buds and flowers on a single stalk, the topmost one being well over four feet from the ground, while in the other parts of the garden which are but slightly lower, it refuses to do anything beyond barely existing—and that in a most undecided, half-hearted manner). This blue and white season —for the Dorothy Perkins Roses on the fence back of the border seem only to emphasize the white and the blue—furnishes by far the daintiest and most ethereal effect in the border during the whole summer.

WHEN the Larkspurs, Phloxes, and Lilies just pass their prime, the advent of the late Phloxes is announced by the blooming of that beautiful sturdy, giant-flowered dwarf Tapis Blanc with its full heads made up of individual flowers the size of a half-dollar. From a small beginning of this most desirable sort I have accumulated by division a considerable stock, and have it in masses along the front of the border, where, on a hot August day, it comes nearer suggesting a snowdrift than anything else I know! Frau Anton Buchner, unquestionably the best tall white Phlox, soon follows Tapis Blanc; then the other more brilliant colors gradually spread over the border and soon form a pattern as rich as any church window that ever was. They last into September too, and by pinching back can be induced to prolong the season till the glory of Autumn bursts on the garden.

I had for some years grown the English improvements of our own New England Aster, which in England they call the Michaelmas Daisy, as it blooms at Michaelmas. Only recently, however, have I become acquainted with those very large flowered sorts, bearing rich pink and intense blue and crimson blossoms. So it was only last November that I planted a dozen named varieties of these in the border, where with a few clumps of Goldenrod they will, I trust, help me to carry on until snow flies. Of them I cannot write yet, however.

MENTION has been made of the bank of evergreens started across the rear end of the lawns during the first summer. The motives for starting this were considerably mixed. They would, in the first place, form a natural and graceful ending for both lawn and border, a thing every lawn and border is the better for having; and with the Rose-covered fence back of the border they would form a beautiful and effective background for the border flowers; but beneath these really secondary motives was the desire to build a sight-proof hiding place for a little formal garden I had then in mind.

And so gradually, as the border was taking definite shape and demanding less time, attention was given more and more to this new feature until, by the end of the third summer, the formal garden had come into existence. By then, too, the evergreens had so increased in size and number by growth and addition that, with the help of the Grape covered pergola, leading from the rear of the house out into the orchard, they cut off entirely the view from the lawn. And they do their work so effectively that people of the immediate neighborhood who pass every day, never dream of the existence of this quiet, secluded second feature of my garden plan.

Coming down along the length of the border and finally turning to cross the lawn, one comes quite unexpectedly upon the opening through the evergreens; and before one realizes it, the lure of a disappearing curve has done its work and one stands in the shade of the Grape covered arbor looking out upon a scene entirely different from that just left behind. The sensation of discovery experienced here never wears out, apparently, and in my own case still adds greatly to my pleasure as I go through the garden. Uniformity of style and treatment throughout any garden makes for monotony.

THE plan shows the general layout of this little garden. Two long beds, forming a frame for the bit of lawn in the centre, are planted exactly alike; tall plants are at the back, in this case Larkspurs alternating with New England Asters. In front of these is a solid row of early white Phlox. Groups of white Lilies alternate with Chinese Larkspurs in front of this and Scotch Pinks grow in front of the Lilies, while a big white Lupin plant stands in the end of each bed. All these beds here are outlined with a very small annual Sweet Alyssum.

This arrangement leaves a vacant strip about two feet wide between the perennials and the front of the beds, which gives an opportunity to vary the color scheme from year to year by employing different annuals in this space. At various times we have used Balsams, sometimes mixed and sometimes all one color, Snapdragons, annual Phloxes, Verbenas, Stocks, Schizanthus and Asters in various combinations. Some of these—particularly the Balsams—were unsatisfactory as the very first frost killed them. This season I am using pot Marigolds for various tones of yellow and a pale blue Ageratum.

The outer beds are less formally planted with perennials including Columbines, Foxgloves, Irises, Sweet-williams, Roses, Forget-me-nots, Daisies, Chrysanthemums, Hollyhocks, Pyrethrums, Larkspurs, Pansies, Pinks, etc. Bold broad color effects are not aimed at in these outer beds, as they are always viewed from close at hand.

The charm of this secluded retreat will be greatly increased by the small oval pool we plan to build in the centre of the green and the placing of garden seats under the pergola or in the shade of the Apple trees. The border and formal garden are still the two chief features in my plan, although there were interesting developments in connection with the tennis court which was built several years ago to the north of the house. The Iris garden, between the court and the highway, is one of these and rivals in interest the long grass walk running along the opposite side of the court to the rustic gate which opens into the orchard.

As these several undertakings became accomplished facts, the desire for new problems and conquests seized me. Last summer I made a start at what promises to be, eventually, a long grass walk, running between straight-edged double borders of perennials and connecting the formal garden and the studio. This is still largely a thing of dreams though it is taking shape and substance. And actually this double border is being forced upon me by the accounts of English gardens I read—and the desire to make room for the hundred and one perennials I now have no place for!

In these remote latitudes—eight miles back from the western shore of Lake Champlain in the first foothills of the Adirondacks—Winter, like Richard the Third, is born with his teeth in his head; and with them he holds on so tenaciously that Spring's heralds have fairly to blow their trumpets in his very ears before he will relinquish his grip and make his tardy lingering exit. The summer climate, however, needs no apology and finds little difficulty in inducing us all to lay aside so far as possible the cares of the work-a-day winter and come trooping "hame ag'in."

APPLEGARTH is truly a home and not a show place and the garden scheme suits with it. The planting is simple and aims at being so, the purpose in all the planning always having been to gain a desired effect with the entailment of as little labor and expense as would be consistent with honesty and permanence. The reasons are two-fold: simplicity first for its own sake and second, to make it possible to get on without the services of a professional gardener—without the necessity even of coldframes and hotbeds and all those contrivances and appurtenances that must be taken into account along with the gardener's salary.

This we do; and since gardens—if not gardeners!—are as vain of praise as a child, and bask accordingly, may I be pardoned for the garden's sake for closing with what I overheard a French Canadian visitor tell her neighbor, as they stood together for the first time in the little formal garden tucked away out of sight behind the bank of evergreens?

"'Tis like thees lee'le garden, thees very garden, I know, in those gardens of Paradise!"

WINTER MAKES A TARDY, LINGERING AND RELUCTANT EXIT

But the old trees are the mute, staunch embodiment of that patience which comes to possess the souls of gardeners in all climes and places, they being the folks who at last reach something like a unity with Time

Copyright Max Schling, New York

CONGRATULATIONS TO MOTHER AND THE BABY

Pink Roses and Lily-of-the-Valley

IN MEMORIAM

Study in white flowers with slight color-relief afforded by Orchids and various shades of foliage

Gude Bros Co., Washington, D. C.

WELCOME HOME FROM PALM BEACH

A very modern arrangement of Carnations, Snapdragons, and Lavender

Copyright Max Schling, New York

HERE COMES THE BRIDE

A charming shower-bouquet of white Pansies and Lily-of-the-Valley

H. Penn, Boston

How It Is Said With Flowers

MANY HAPPY RETURNS OF THE DAY

Artistically conveyed by Orchids

G. E. M. Stumpp, New York

Kift Photograph

FOR AULD LANG SYNE

This prim olden-time nosegay carries its message quaintly

WELCOME TO THE DEBUTANTE

Heavenly-blue Larkspur and yellow Gladiolus appropriately suggest the azure skies and golden days due the debutante

Knoble Bros. Co., Cleveland, Ohio

Max Schling, New York

GREETINGS TO THE GIRL GRADUATE

A study in rose, loved color of youth

MY COUNTRY 'TIS OF THEE

The great seal of the United States cunningly done in floral form

Gude Bros. Co., Washington, D. C.

SHRUBS WHICH MAY BE FORCED INDOORS

J. R. WILLIAMS

Some of the Garden's Commonest Favorites Will Lend Themselves Readily to This Process, and in Addition There Are Fruits Not So Common That Are Worth Growing

RATHER than pot the ordinary bedding plants, I prefer to use for forcing some of the common shrubs. Nearly all of them can be brought into blossom in midwinter. They cost nothing, and after being forced into bloom, can be set out again in the open ground—or can be thrown away if one is wasteful.

One of the most readily available for a first trial is the Common Lilac, one of the old-fashioned purple sorts. If dug when about two or three feet high, and placed in a box in the cellar in October, it can be brought into the living room when wanted and in about three weeks it will throw open as fine clusters of flowers as it does in the open ground in May. I have had small bushes carrying forty flower clusters.

EFFECTIVE FOR HOUSE DECORATION

The matured fruit of the Ponderosa Lemon strikes a sunshiny note on the dullest of winter days while its blossoms induce an illusion of spring

Another of our common shrubs that does very well for forcing is the Mockorange—deliciously fragrant! If this has light enough and plenty of water, it will become one great flower cluster. All the Deutzias are nearly as good; but for first rate results take the Deutzia gracilis. This is a low-growing shrub with a big stock of roots, but it will need only an eight inch pot or box. It requires considerable sunshine after its buds have started. Right along with this plant try a bunch of double-flowering Almond. This will stand about two feet high, and will cover itself all over with peach-colored blossoms. While the other shrubs will need about three weeks to develop their flowers, the Almond will require but a little over one week.

I also recommend strongly the culture of fruit trees in the country house, instead of flowers that do not give fruit—for it is just as easily done. Try growing a couple of Ponderosa Lemons. Get those that are from eighteen to twenty-five inches high, and let them have about eight-inch pots—only give them more pot room as fast as they grow and need it. Never cramp the roots of a house plant. Give them also plenty of light, but do not worry much about heat. A little way above frost they will blossom every month—with blossoms as sweet as the genuine Orange and double the size, and there will be fruit setting continuously through the year.

At my New York home I have grown these lemons to weigh one pound each; but in Florida, in the open ground, they become very much larger, weighing sometimes over three pounds each—as large and heavy indeed as a dozen of the ordinary small lemons. The tree also will grow fifteen or twenty feet high, climbing up month by month, and developing superb clusters of flowers. It is finer than an Orange tree and the glory of a Southern home—the same lemon that is known as the New American Wonder, and I think a tree grown to be four or five feet high, given plenty of food, would give you all the lemons you would care for.

I am not quite sure that I ought to recommend growing Peach-trees in pots, although it can be done; but it needs considerable watchfulness, with a good deal of light, and not too much heat. The little trees must be pruned and thinned with experienced judgment. The dwarf Orange however will give you a heavy crop when only a foot high, and it will give you a succession of real Orange flowers, with the true orange perfume. The flowers are small, and the fruit is small; and I am sorry to say the latter is of no value except for its golden beauty. The little trees are about as ornamental as anything can be, however.

Prunus triloba is another admirable little tree for indoor forcing and glorifies itself with large double peach-flowered blossoms, but the fruit is not often there. A close rival is the Bechtel's double-flowering Crabapple. This too is pretty sure to be fruitless, however, after a superb display of rich pink flowers. These two plants the gardener will hardly have at hand, but he can get his Lilacs out of his own ground.

For this purpose it is desirable to have a row of Lilacs, another of Mockorange and a few small shrubs of other sorts always growing in a corner of your garden, to use for winter blooming only when flower buds are developed. These differ from leaf buds in being larger and rounder. Leaf buds are quite uniform in size, and distributed all over the bush; blossom buds are large and round as if swollen. They will be distributed about your bushes in clumps, but generally fairly well distributed. The Lilac will hardly display blossom buds before it is three years old. The little Almond will have them on every shoot that is one or two years old. The Spireas offer them just as liberally. The Deutzia gracilis will bloom from tip to ground, and can be dug of any size. It is one of the best.

It is quite important to dig as soon as the leaves have dropped in autumn. Then give the plants a rest and sleep of five or six weeks if possible—at least of three weeks—in a dark cellar or dark room. They must have some rest in order to do their best. It must be borne in mind that water is essential to the forcing process, just as much as a gentle heat and plenty of light. The plants to be forced should be sprayed all over from time to time, to prevent any shriveling of the wood. If planted outdoors again promptly after blooming is over, I find they are ready for another winter's work after remaining in the ground for two years.

WALKS AND TALKS AT BREEZE HILL—II

WHEREIN IS REFLECTIVE, CRITICAL, PHILOSOPHICAL AND FRIENDLY COMMENT

J. HORACE McFARLAND

On Our Beloved Roosevelt's Favorite Rose and Some Things We Never Hear of But All Will Want to Have, Even if Our Gardens Are Already Running Over Full

AS I write, in mid-July, I am inhaling the fragrance and enjoying the beauty, which is old-fashioned and dainty rather than upstanding, of a cluster of Duchesse de Brabant Rose, cut this morning in the Breeze Hill corner where some eight weeks ago I planted a dozen tiny little plants from two-inch pots. When, in response to my inquiry as to what was Colonel Roosevelt's favorite Rose, Mrs. Roosevelt wrote me that "my husband's favorite Rose was a very old-fashioned one, which I have found it impossible to get of late—the Duchesse de Brabant her name is," I determined to renew my pleasant memories of this profuse-blooming Tea Rose. I had quite a search for plants, but finally found that various Rose growers of Springfield, Ohio, had some; and it was a pleasure not only to get a few for my own garden but to see that Mrs. Roosevelt's need was supplied. The reason for Colonel Roosevelt's liking for this rather shy, retiring and inconspicuous Duchesse de Brabant, as given by Mrs. Roosevelt is that, "he associated it with his mother's garden and mine."

DUCHESSE DE BRABANT ROSE

Largely because of its family association this now little known variety was given a favored corner in Col. Roosevelt's heart

I commend this fine little Rose to those who are willing to have a sentimental corner in their gardens, and most genuine gardeners I have known want a corner for this purpose. I grow some Johnny-jump-ups because my mother had them and loved them, and I carry along a few sacred plants of Lily-of-the-valley and one old Peony which have been cherished—and moved as I have moved—for more than thirty years, because they take me back to that old garden. And I now cherish the Roosevelt Rose. Do GARDEN readers really know what Duchesse de Brabant is I wonder? It has rather small, well-formed buds which quickly open into a full and cup-shaped flower of perhaps thirty-five petals, the dominating color of which is a pure pink, shaded lighter and mingled here and there with touches of fawn, or primrose, or some other yellow tint I cannot adequately describe. The fragrance is pure tea fragrance, and the foliage is the pointed Rosa indica foliage. The growth is free, but dwarf. I do not know whether the plant is hardy or not, but I shall not scold if I do not carry them over; for surely I can square myself for their cost in any one season as reasonably as I can for the cost of a box of candy or similar temporary expenditure. Duchesse de Brabant is not at all a new Rose. It is credited to the French grower Bernede as introduced in 1857, and I knew it well in my greenhouse years, from 1870 to 1880.

Achillea Filipendulina

IF ONLY there were a common name that worked better than this forbidding scientific name for this good perennial! In July its broad corymbs of bright, clear yellow, from two to nearly four inches in diameter, dominated a part of the garden—or did dominate it before they laid down! I knew perfectly well that this good plant needed assistance to stand up, but because a few weeks before it seemed so sturdy on its own legs, I failed to give it the artificial support which heretofore it had had. And one sudden twisting thunder-storm did the business, completely flattening out its upstanding stems of three feet or more in length. So they had to be cut; and a plant that would have maintained color all through July (for it is most enduring in its bloom) went out of business right after the middle of that month!

Achillea filipendula does not touch upon any resemblance to the favorite Pearl variety, or Achillea Ptarmica, nor does it suggest the

A RARE FOXGLOVE

Digitalis lanata, the Orchid-flowered Foxglove, deserves the friendship of the flower-loving public

Yarrow. It does remind one at a little distance of Tansy, though its color is brighter and better and its corymbs quite different in form. For some reason, I do not often see it, with its deeply cut foliage, in the gardens of my friends. It is an easy perennial, but ought to be transplanted either every year or at most every two years, as it crowds itself out of comfortable habitation. I have it in one of the oblong beds which yet disgrace the centre garden at Breeze Hill.

So soon as my nerve and pocket-book reach an understanding, all of these beds will disappear into widened borders, in which this good Achillea will find a satisfactory and more appropriate place than it now has, though I must confess that the juxtaposition in which it bloomed this summer is not bad, flanked to the east by a great mass of Hemerocallis fulva, and to the west by as great a mass of Heliopsis Pitcheriana.

By the way, I have discovered how to handle the other Achillea above mentioned, known familiarly as The Pearl. This is one of the perennials that proceeds to absorb an entire vicinity, to slop over on the grass walks, and to do the other things which make it hard to endure, even though its fine white flowers are freely produced and are among the best of all flowers for cutting. This year I dug every atom of it out of one of those same oblong beds to which I have disparagingly referred, long after it had started growth. It was cut up into little clumps about the size of my two fists, sheared off to the ground, and replanted a little more than a foot apart in a rather dry and troublesome location. It is now thanking me for this treatment by a mass of lovely white blooms, larger and better and with accessible stems.

The Better Astilbes

DURING the last week in June and the first two weeks in July, Breeze Hill has in various parts a showing of the better Astilbes which is distinctly pleasing. Most garden folks and more cut-flower buyers and spring-plant buyers know Astilbe japonica, miscalled Spirea japonica. But the Astilbe hybrids produced a few years before the war by George Arends, the cunning German hybridizer, do not resemble either japonica, one parent, or Davidii, another parent, to any appreciable extent. It is these, in some ten named varieties, that I call the better Astilbes.

In general the habit of these plants is more robust than that of the familiar Astilbe japonica. The catalogues speak of some of the sorts running to four or five feet in height to the tip of the bloom spike, but I have not had any reach that height. The colors range from white through good pink shades to a deep pink which is *nearly* magenta, but not *meanly* magenta. One or two have a distinctly salmon tint which is most agreeable. All of them grow freely, particularly in a semi-shaded spot, and will seemingly endure much shade, though the flowers will be paler and smaller in such a location. They are obviously better with plenty of water, particularly in the growing time. Dividing them this spring rather brutally, cutting each clump into two, three, or four smaller clumps, seemingly only increased the desire of the plant to be "among those present" in the garden with bloom and beauty. In this endurance of transplanting it is like other close-knit, fibrous-rooted plants, I presume.

A FIND FOR THE WIDE-AWAKE GARDENER

Both foliage and feathery spires are finely decorative. Astilbe Arendsii ideally fills a semi-shaded nook where less robust plants refuse to grow

The general class of these Astilbes is known as the Arendsii hybrids. Nurserymen seem scarcely awake to them, though Bailey's "Cyclopedia" tells a good story about them. In that indispensable reference work, these hybrids are collectively called Astilbe rubella and Mr. Rehder, who wrote the section, refers them mostly to Lemoinei (which itself is a hybrid, of course), Chinensis, rutilans, carminea, etc., though he admits that they are properly called in the trade "under the collective name of A. Arendsii." Whatever their name may be the plants themselves are exceedingly desirable subjects, worthy of much more extensive use. Why do not some of the herbaceous plant nurserymen wake up to them?

The Blue-leaved Honeysuckle

IT WAS in the spring of 1913 that there came to Breeze Hill some eighty little plants selected at the Arnold Arboretum for me by E. H. Wilson. With the genera of most of these plants I had a reading acquaintance, but the species' names were all unfamiliar. I located various of them according to my "hunch" as to where they might prosper; but I had no guess whatever in relation to about twenty-five, which were consequently planted in one group, called for awhile "the Arboretum bed." This bed proved somewhat of a joke on me, by reason of the contiguities innocently established. A creeping Lonicera—I didn't know it could only crawl!—was neighbored with another Lonicera, similar enough as to the little original plant, but rapidly reaching up and out until I removed it this spring at twelve feet across and ten feet high in order to keep room to breathe!

Another of these plants—again a Lonicera—I moved at the end of two years to a six-foot border just inside a hedge of Berberis Thunbergii (which was planted to grow to three feet and has given no sign of stopping at five). The Lonicera is quite able to maintain itself against the hungry thready yellow roots of the Barberry, however, and has had to be cut back several times. And what a beatuy it is! I have written of it once before in the GARDEN MAGAZINE, before it had attained the proportions of the present. Now I again call attention to it, because of its sheer loveliness all the growing season, to say nothing of the elegance of its bloom in early June. Only the name it bears is against it—Lonicera Korolkowi var. floribunda! Nor does the Anglicizing of this portentous name to the Abundant-blooming Bush Honeysuckle of the Korolkow Mountain in China do us any good!

So let us discuss it just now as the Blue-leaved Honeysuckle, even though the color of the leaves is only blue by comparison with the normal average leaf-green. A rather dull glaucous green-blue would be more exact color guess, and these leaves are on twigs which when young are wine red, or "crushed strawberry" in hue. The arrangement of the leaves is peculiarly pleasing, so that, great shrub that it now is, this Lonicera arrests the attention at once of any garden visitor and adds great distinction to the shrubs that nudge it right and left. And high-flung wands of dainty pink cover it for ten days at the blooming season.

After or during a shower too, or early enough in the morning to find the dew unevaporated, there is still another charm—the

crowning one I think. For the leaves do not "wet," and the drops on their surface remain drops—or diamonds, if one wants to degrade the description. At such times I thank God for life and plants and the love of them!

Who has plants of this to sell? I don't know; I've tried to make slow nurserymen see its beauty, and I know it grows easily from hard-wood cuttings. Perhaps Farr or Farquhar, or some other truly plant-loving nurserymen might have it—of course under its imposing name, Lonicera Korolkowi var. floribunda.

A BUSH AND A CLIMBER WHOSE DELICACY OF SHOOT CONVEYS A DECEPTIVE IMPRESSION OF FRAGILITY

Lonicera Korolkowi floribunda, or Blue-leaved Honeysuckle (upper left-hand cut) is, despite its willowy appearance, very aggressive in type and quite able to hold its own against all comers. Its somewhat bottle-green foliage affords welcome variation. Evangeline (lower right) is conspicuous among climbing Roses for its natural grace of growth and its generous disposition in the matter of flowering

Digitalis Lanata

IF I had to coin a common name for this little-known Foxglove, I would call it the Orchid-flowered Foxglove, for its individual flowers make me think of some of the odd Cypripediums fastened upside-down to an impressive bloom spike. By no means showy, it is none the less desirable in the garden and is a very good cut-flower of distinction and grace. The spikes will run from six to eighteen inches in length, and the color is hard to describe other than as involving shades of fawn and ecru.

Classed as a perennial or biennial, I do not yet definitely know its life-habit. Seed sown in 1918 gave little plants that bloomed lightly in 1919 and superbly in June of 1920. The foliage is different from that of the familiar Digitalis purpurea and its varieties, and the plants were hardy through the bad winter of 1919-20. I do not intend to have Breeze Hill Gardens without this good Foxglove hereafter.

One Man's Roses

I AM impressed with the debt one owes to M. H. Walsh for his Climbing Roses. The display this year included Hiawatha, with its crimson brilliance set about bright yellow stamens; Paradise, deeply pink, each petal crisped enough to give it distinction; Evangeline, nearly the same in form but a daintier and yet entirely clear pink, and Milky Way, of purest white, with abundant yellow stamens. So much for the vigorous, decorative, and altogether charming single Roses which hang in informal profusion from the stakes and wires to which they grow.

The double Roses, more enduring but less charming, include Excelsa, undoubtedly the best bright crimson climber of its type; Lady Gay, the standard pink Rose which shares honors with Dorothy Perkins, the latter distinguishable only by its slightly more crisp petals; and the yet little known Mrs. M. H. Walsh, pure white, with glossy foliage, abundant flowers, and an extraordinarily determined desire to creep rather than to climb. Indeed, I can think of no more pleasing ground cover than the Rose Mrs. M. H. Walsh; yet I have without much difficulty succeeded in getting it to the top of the eight-foot post from which it droops in lovely profusion, and from which also, in autumn, its persistent and glossy foliage droops in purple beauty.

There was a time when I could not see the importance of having American Pillar and Hiawatha in the same garden, but this year, which is a year of Rose brilliance, establishes the worthwhileness of both. American Pillar does not have the depth of color one finds in Hiawatha, though it does have its own lovely qualities of size, habit, and profusion.

The Walsh Roses, evidently more closely related to R. wichuraiana than to R. multiflora, and therefore practically free from mildew tendencies, are rampant growers and must be given respect when one places them. Like some other climbers, they will not do their best for several years after planting, and snap judgment on them is unfair. But surely Breeze Hill Garden would be far less attractive if Mr. Walsh had not worked to success.

This is the second article in the "Walks and Talks," a series that will be continued from time to time, as occasion and interest suggest.

DO PLANTS NEED THE DARK?

ROBERT H. MOULTON

Strangely Dependent Upon It They Assuredly Are, According To the Latest Discoveries That Follow Exhaustive Investigation and Experiment on the Part of Government Experts

NOTHING in the world is more dramatic than the denouement which often comes at the close of a long series of patiently conducted experiments, that have been carried on sometimes so gropingly that the layman finds himself wondering if the experimenter has any idea at all of what he is trying to do! And dramatic is the result at which careful workers have arrived in recently completed experiments, covering a period of two years, concerned with the effect on plants of light. Everyone—scientist and layman—has believed for generations that sunlight was necessary for the normal growth of most kinds of plants; but no one has ever supposed that the darkness played any especial part in the process.

Yet it is now demonstrated that, quite apart from possible injury from burning by a too hot sun, plants may be adversely affected by too much daylight; or, in other words, too many hours of daylight in proportion to the number of hours of darkness which they enjoy. Too long a day as well as too short a day will prevent many kinds of plants from ever arriving at the stage of flowering and fruiting. It has also been found that, although daylight in too great proportion for flowering and fruiting may stimulate profuse vegetative growth, plants will not reproduce except when exposed to a favorable length of day. Length of day favorable to both reproduction and growth seems to be the factor that results in the "ever-bearing" type of fruits.

MAKING ASTERS BLOOM TO ORDER

Note the superior vegetation of plants which lived a normal out-of-doors existence, but show no desire to bloom (on right), whereas those under artificial light treatment (on left) are already in full blossom

Plant life depends, in short, on light rather than temperature for growth, and may be controlled by regulating the hours of light and darkness. The principle is revolutionary; but it rests on actual experiments in which it was demonstrated that plants subjected to alternate periods of light and darkness in carefully determined proportions, could be brought to maturity at any time of the year. Going even further, the experts say that eventually it may be found that the animal organism also is capable of responding to the stimulus of certain day lengths. They believe that the migration of birds may be an illustration, on the ground that direct response to such a stimulus would be more in line with modern biological teachings than theories which assume that birds "go south" as a matter of instinct.

Furthermore, it has been shown conclusively that the intensity of the light has very much less influence upon the growth of the plant than has usually been supposed. Rather it is the number of hours; for the experiments show that the flowering and fruiting period of practically any plant can be made to take place at any time of the year by darkening the greenhouse in the morning and evening if the day is too long, or by lengthening the day by artificial light if the day is too short. This application of the newly discovered principle will, of course, be used by florists and other greenhouse operators. For example, Violets bloom naturally only during the comparatively short days of spring; but if Violet plants are covered with light-proof boxes at night and not uncovered until the sun is about "half a house" high each morning during the summer time, they can be forced to bloom again in the summer.

Spring flowers and spring crops happen to be spring flowers and spring crops because the days at the season of their flowering have the necessary proportion of hours of daylight to bring these particular things to flower or to maturity at this time. Correspondingly, the early summer flowers and crops must have a longer period of daylight. This has been proven as to a large number of plants; and scientists believe that the principle will hold not only throughout the higher forms of plant life, but that it is probably applicable to animal life as well.

A DECORATIVE RADISH

Shorter days meant a longer—and more decorative—seedstalk!

Long series of tests have been made with a large variety of vegetables and flowers. By employing dark chambers to shorten the period of light and artificial lights to extend it, they have shortened or lengthened the life cycle of plants and forced some of them to complete two cycles in one season. They have brought others into flower and fruit months in advance of their regular time and, with still others, have greatly delayed and even completely prevented fruiting.

A test made with Soy Beans is typical of the experiments carried on and shows how the principle works. Both test and control plants were used in order to check up results. For the test plants the day was shortened by several hours. That is, they were exposed to the light only from 10 o'clock in the morning until 3 o'clock in the afternoon. They were placed in the dark house May 20, 1919. The control plants, otherwise treated exactly like the test plants, were left exposed to the light from dawn until dark. The first blossoms appeared

on the dark-house plants on June 16. On the plants that were left in the light all day no blossoms appeared until September 4, or 80 days later. But, while the dark-house plants averaged only 6 or 7 inches in height, those that were left in the light all day grew to an average height of 57 or 58 inches. This test proved conclusively that the Soy Bean requires a short day and a long night for flowering and seed bearing.

In tests with other plants, just the opposite was found to be true. The plants that were left in the light all day did not grow luxuriantly, but produced flowers and seeds, while those that were kept in the dark a part of the day made abundant growth. The latter, however, were either greatly retarded in producing seed or produced none at all. Temperature moreover, appeared to exert no influence in the tests. A striking illustration of the relative unimportance of temperature lies in the fact that plants kept in the dark for a part of the day underwent, in midsummer, the changes that naturally come in the fall and that, heretofore, have been attributed to lower temperatures. This was true even when the dark houses registered a higher temperature than the outside temperature.

Equally interesting were the results obtained by artificially extending the period of light instead of shortening it. In a test with Iris, for example, the artificial illumination was so arranged as to give 18 hours of continuous light in a greenhouse during the winter, a large number of tungsten filament incandescent lights being used for the purpose. Control plants were kept in a similar greenhouse with no artificial light. This test was begun on October 20, 1919. In the greenhouse where daylight was supplemented with electric light the plants made rapid growth, soon attained normal size and produced blossoms on December 24. On the other hand, the plants in the greenhouse where no artificial light was used, remained practically dormant and showed no tendency to blossom as late as February 12, 1920, notwithstanding that this greenhouse was kept at the same temperature as the other.

Another test was conducted with the seed of Spinach, which was sowed November 1, 1919, and came up in both greenhouses on November 6. The plants in the control house, 20 to 25 in number, grew very slowly, producing low, compact, leafy growths or rosettes, and gave no evidence of blossoming as late as February 12, 1920. The plants in the lighted house, however, elongated very rapidly, soon developed flower stalks, and all blossomed in the period between the dates of December 8 and 23, 1919. These continued to elongate more or less throughout January and February, 1920, blossoming and shedding pollen continuously, thus becoming in effect "ever-blooming" plants.

The advance in agricultural practice which may come through this new discovery will have to be brought about largely by plant breeders and other crop specialists. For instance, it will prove of material significance in the future planning of cropping systems for different regions, especially where consideration of new crops from different latitudes is necessary. The new principle undoubtedly explains the erratic behavior which has been observed with many crops when they are shifted to different latitudes, and may also clear up the conflicting results of variety tests and field tests conducted with the same crops in different regions.

The experiments have shown, for instance, that Ragweed requires for flowering a stimulus that is afforded by the shortening of the days and lengthening of the nights. It does not come into flower until the period of daylight falls below 15 hours. In the latitude of Washington D. C., that comes about July 1. But if Ragweed should be taken to northern Maine and planted, the plants would not experience a proper length of day until after August 1 and, though the vegetative growth might be very rank, they could not mature seed before killing frosts intervened. The long days, therefore, might make it impossible for Ragweed to perpetuate itself in that latitude. On the other hand, plants that get their flowering stimulus from a long day could not perpetuate themselves through seed formation at the equator, where the day never exceeds 12 hours.

This principle seems to clear up the puzzling fact that many plants grow most luxuriantly near the northern limit of their range. The long northern day allows them to attain their maximum growth before the shorter day intervenes to check vegetative growth and start the reproductive process.

RADISHES ARE DECIDED LOVERS OF LIGHT

This is conclusively proved by the response of plants (on left) raised under usual conditions, and the marked dejection of those (on right) whose light supply was restricted to seven hours daily

AND THE SOY BEAN IS JUST THE REVERSE

The almost tropical abundance of the plants (on right) matured in comparative night (their daily light-exposure was only from ten to three) convincingly indicates the magical properties of darkness

ADVANTAGE OF BUYING OUT OF SEASON

By GRACE TABOR

And So Have Things at Hand When the Time Comes

To "Heel-in" is merely to lay the plants closely along the side of a trench, when the roots are well covered and the tops protect each other

IT IS perfectly conceivable that any number of persons—good gardeners, too—will shake their heads at the idea and put it aside with a "no thank you!" For any number of us are ready to take up other interests when autumn comes; moreover, there is a general feeling that certain things belong to certain times and seasons and should not be carried beyond these. But I am going to ask you to reconsider, if you are one of these; and to examine a little into this idea of a distribution of the work in which we are all interested (else we would not be here in this magazine). The matter of overdoing at one season to the detriment of oneself, and possibly *not* to the advantage at any rate of the work done, is as vital a factor in garden making as it is in any other enterprise. Hence if there is any way by which it can be avoided it seems to me legitimate to inquire into it, and perhaps proper to adopt.

The only way of avoiding a pile-up however in anything, as we are perfectly aware, is to keep up with it—to spread it thin by dividing it by the days of the year and assigning the divisions each to its day, if this is possible; if it is not, to use the weeks or the months instead of the days. But can even this last be done in so distinctly a "seasonal occupation" as gardening? Not altogether, possibly; and not so much in gardening as in garden making—which is a little different. But to a surprising degree it can; and to the general lightening of some of the most arduous tasks thereof, as a matter of fact. Indeed the work which may be carried on out of the season of seed sowing, cultivation, and harvest is the truly heavy work. And to prove to you that this is so, take a look at the nurserymen.

How is a large nursery carried on, as far as the work of planting and unplanting and transplanting and all that sort of thing, is concerned? Do they send to the field, for example, and dig for us the Cornus Amomum and the Syringa coronarius and the Diervillas and the what-not of our order, when this comes in on a sunny March or April day? They do not!

These shrubs and the smaller specimens of deciduous trees of various kinds as well, have all been either out of the ground altogether and in the warehouses since late autumn, or else heeled-in in blocks, row on row, over the same period. For it would be a physical impossibility for a large nursery to dig and ship, as orders came in, during the rush of the springtime.

Indeed some of the largest growers offer certain of their stock, notably Roses, at a special price if it is ordered before a certain date; this date being set in conformity with the time when they will begin potting up the heeled-in plants. Everything ordered before this can be counted and tagged and collected into a group, and all but packed and shipped, you see—hence it will not need handling when the rush commences, nor will it need handling a second time.

If we think of the things that we intend setting out—trees both fruit and ornamental, shrubs, small fruits and even Roses—as even now being dug and packed away for the winter in whatever nursery we may be going to buy them from, we may very suitably begin to feel that to order and have delivered now is the better way, even if we cannot set them out where they are to remain. For is it not better to heel them in close to their final abiding places, under the conditions which they will be under when finally planted, than to have them thus treated at some remote place, to endure the further strain of a long journey in the spring?

Certainly it is; and though the material, as handled by those expert in doing this work at the nurseries, is not perhaps really injured by the process, I personally dislike the flattened out, sardine effect that pervades roots and branches of everything shipped into a place in the spring. It is very often not overcome for a long time, and I have seen trees which never came back to their proper shape until pruning had brought them there. Consequently if it is possible to avoid it, why subject them to it?

There is indeed no reason for postponing the purchase and delivery of deciduous material now, even though it may not be possible to use this for a year or two, or several, in its permanent place. Get it on to the ground and into the ground in some convenient spot, even though building operations and grading and no end of things are yet to be done. For it will then be making the growth which, otherwise, you would still have to wait for, if it were not shipped in until everything was ready to put it into permanent place; and the local shifting from your own "nursery" is a matter of so little disturbance that, done at the right time and in the right way, it will not appreciably affect either trees or shrubs. You may therefore have the greatly longed for finished effect practically as soon as your planting is done, instead of having to wait two to three years for things to grow up to their spaces and to each other.

IMPROPER BRANCHING OF TREES AND ITS CURE

M. G. KAINS

A Most Potent Source of Breaking Down of Limbs and Tree Tragedies Generally Is the Y-Crotch Which Can be Cured so Ought Never to be Endured

ONE of the most common causes of breakage of trees under ice storms or the weight of fruit is the so-called Y-crotch. Scarcely an orchard but has its quota of trees broken in this way, between the ages of five to ten years in the case of Peaches and Plums and ten to twenty years in that of Apples and Pears. And in ninety-nine per cent. of those cases the injury could have been prevented at the time of planting, or within the first four or five years thereafter. So it is a matter for the careful orchardist and the grower of home fruits to attend to. One of three methods may be adopted. The first two are preventive, the third remedial.

In the first method the development of a Y may be definitely prevented, even when a start has been made on a small tree, by cutting off one of the arms or branches involved. It is not a good plan to do this altogether however, when the tree is freshly planted, because a proportionately large wound must be made and the tree may suffer in consequence through drying of the tissues at that point. The better plan is to shorten the branch to, say, a foot or even six inches, allowing some good buds to remain upon the stub to keep life in this part for a year or two. Any branch that may develop from these buds should be prevented from growing to any extent, the idea being simply to keep the stub small but alive while the other branch of the Y is growing. When the time comes for the complete removal of the stub, this other favored branch should have grown to two or three times its original size and the stub should be relatively so small that its removal will leave only a small wound that will soon heal. This is undoubtedly the most satisfactory way of handling the Y-crotch when the trees are newly planted or quite young.

FIGURE 1
The strain of concentrated sleet ice at one point proved too much for the naturally somewhat fragile Japanese Plum

FIGURE 2
The simple expedient of screws and (number eleven) wire saved this peach tree from probable disaster

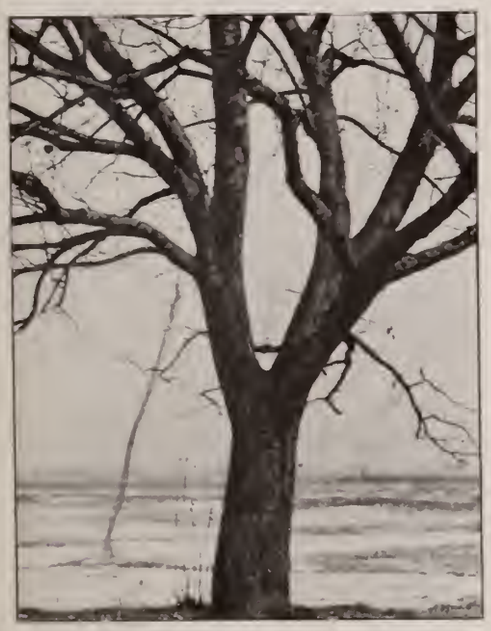


FIGURE 3
The sound, symmetric branching of this sturdy native apple tree should insure it against insidious breakage

The second method applies when the removal of either branch would be too serious a loss, or would compel the development of other limbs either too high or too low. It consists in compelling one of the branches to take second place, to become a side branch on the other. This is accomplished by shortening it as already described and then allowing it to develop a branch or two, these to be greatly restricted and subsidiary to the main branch. While the actual Y-crotch is thus not actually prevented, the development of the cut-back limb will be so small in comparison with the other that its leverage will be scarcely appreciable and never likely to reach the breaking point.

The third preventive method is chiefly needed where trees have grown several years before the Y-crotch is discovered. It resorts to a natural brace of living wood between the two arms of the Y, and in effect it depends upon natural graftage; for two branches are made to grow together. These branches should be chosen one from the inner side of each fork of the Y and preferably they should be from two to four years old and long and slender. They should also be at approximately the same height and their tips should extend out beyond the branches which it is intended they shall unite. A good height above the angle of the Y is from three to five feet. Each branch is twined carefully over the other so as to form several coils between the two main branches. After they are twined they must be fastened securely so they will not uncoil or move very much, though a little motion will help because it will rub the bark away and lay bare the cambium layer beneath, allowing the branches to unite the more quickly. All the leaves that develop on each of these branches are allowed to grow, because they help feed the branches, and small twigs may also be allowed to develop. But large ones and the tips of the twisted branches themselves should be shortened for they must be removed after the union

FIGURE 4

The correct curvature treatment

is complete. In from two to five years the brace will have united into one limb, joining the others in the form of an inverted letter A. Placed high enough this will effectually correct a Y-crotch.

So much for preventive measures; how about curative ones? The proper treatment is shown in Figure 4. This tree broke exactly as that in Figure 5 but bolts were put through the limbs to hold a chain. (Through accident a limb broke off and was sawed as shown. This stub would not have been left but it was needed to help hold the other limb in place.) When the tree is loaded with fruit the chains become taut and not slack as seen in the picture. A case similar to this is shown in Figure 2. Here the weakness of a Peach tree was recognized and large screw eyes put into four of the limbs and joined by wire.

What happens when too many limbs are developed at one point is shown in Figure 1. This is a case really of several Y-crotches in a bunch together instead of just one. Plum trees have weaker wood than Apple or Pear trees, but in no kind of tree is it wise to allow several limbs to rise near together. It should indeed always be possible to lay the two hands between one limb and the next above it when the young trees are planted, or at the end of the first season in the newly set orchard. This will insure strong crotches and a minimum of breakage.

FIGURE 5

A less effective method

APPLE VARIETIES COMPARATIVELY ARRANGED

EUGENE D. BACHER

To See at a Glance What May Be Expected of the Various Kinds Tells the Whole Story of What to do With Each

Variety	Class	Storage	Acidity	Juiciness	Culinary Uses		
					baked	sauce	as pie
Baldwin*	Dual	4–8 weeks	Sub-acid	Very	Good	Good	Good
Northern Spy	"	3–5 "	" "	"	Excellent	Excellent	Excellent
Wealthy	"	3–6 "	" "	"	Good	Good	Fair
York Imperial	"	3–6 "	Slight	Medium	"	"	Good
Grimes Golden	"	2–4 "	Mild sub-acid	"	"	"	Fair
Hubbardston*	"	3–6 "	Sub-acid	"	"	"	Good
Tompkins King*	"	3–6 "	" "	"	Excellent	Excellent	"
Sutton	"	3–7 "	" "	"	Good	Good	"
Wagener	"	4–8 "	" "	Very	Excellent	"	"
Gravenstein	"	3–4 "	" "	Medium	"	Excellent	Excellent
Newtown Pippin	"	3–5 "	Mild	"	Good	Good	Fair
Alexander	Cooking	None	"	"	Fair	Fair	Poor
R. I. Greening	"	4–8 "	Sub-acid	Very	Good	Excellent	Excellent
Roxbury Russet*	"	5–9 "	" "	Medium	"	Good	Good
Golden Russet*	"	5–9 "	" "	"	"	"	"
Twenty Ounce**	"	3–5 "	" "	Very	"	"	"
Yellow Belleflower	"	3–5 "	Very	"	"	"	Fair
Rome Beauty	"	4–7 "	Mild sub-acid	Medium	Fair	"	Good
Fallawater**	"	3–5 "	Mild sweet	"	"	"	Poor
Pound Sweet	"	3–5 "	None	"	Excellent	"	Good
Minkler*	"	3–5 "	Mild	Very	Fair	Fair	Fair
Willow Twig*	"	4–6 "	Sub-acid	Medium	Good	Good	Good
Esopus Spitzenberg	Eating	3–5 "	" "	"	Excellent	Excellent	Excellent
Winesap	"	3–4 "	" "	Very	Cooks away		
Delicious	"	3–5 "	Mild sub-acid	Medium	Good	Good	Good
Fameuse	"	2–4 "	Mild sweet	Very	Cooks away, losing flavor		
Jonathan	"	3–5 "	Sub-acid	"	Good	Excellent	Good
McIntosh	"	3–4 "	" "	"	Cooks away		
Ben Davis	Inferior	5–9 "	" "	Medium	Poor	Poor	Poor
Wolf River	"	2–3 "	Mild	"	"	Fair	"

*Cooks at a medium rate. **Slow cooking. All others cook quickly.

THE DECORATIVE ELEMENT IN THE FOLIAGE OF IRIS

ROBERT A. STURTEVANT
Secretary American Iris Society

Looking at the Many Kinds in a New Way Reveals New Uses to Which They May be Put in Garden Composition

AMPLE SURROUNDINGS HERE AFFORD THE IRIS THE COVETED OPPORTUNITY FOR FOLIAGE DISPLAY

The simple open planting about this delightful pool at Krisheim, the estate of Dr. George Woodward at St. Martins, Pa., allows the individual plant free development and furnishes striking proof of the decorative quality of its blades

IN A garden of intricate design, plants become mere masses of tone and shape, rightly subservient to the general scheme. But in a simpler garden, or more, even, in a border along a much used path, each plant or group receives an individual glance of appreciation. Did you ever note in looking through a bunch of garden pictures, for instance, how few express an artist's conception of composition; and how many of the photographs of perennial plantings gain interest by the chance placing of some strong clump of Iris with their upright leaves?

Aesthetically and to some extent culturally, the Irises best adapted to general use fall into two main divisions; the moisture-loving Apogons with grass-like, erect growth, and the Pogon or Bearded Irises with broader, sword-shaped leaves and fans of foliage. In color the latter offer the wider range, and we find the harmonizing gray tones that delight Miss Jekyll, but in height the former may excel, developing a five foot growth under favorable conditions. Withal I have excluded the lesser species, some perhaps a little difficult to grow, others too small or with too sparse a growth of leaves for our purpose, and some especially fitted for use in bog or rock garden.

In actual practice the amount of space covered by a clump of Iris influences largely the pictorial effect, even from the point of view of foliage alone, just as the introduction of a graceful sheaf of Iris blades into a grouping of cut flowers contributes a characteristic zest. With this in mind in studying our garden plantings, we have found that, for pleasing character and emphasis small clumps of well-grown three to four year growth from a single root are best; or, if we need a larger mass, covering a square yard or more, we plant the rhizomes in simulation of an older planting—that is with the rounded, sprouting ends outward from the centre, in a rough circle. Without this little attention we get, for at least a season, a higgledy-piggledy mass of leaves with no unity in growth direction.

IN THE small border at once comes the question of whether there shall be a set planting regularly spaced of alternating varieties or intermingled drifts and clumps of many shades. If it is a narrow two- to three-foot border, it seems to demand the formal treatment, and for this some Japanese varieties are among the best. These are easier to keep in condition through the season too than the less symmetrical forms of the Bearded Irises. Near Bordeaux I have seen these latter grown in pots, and I have also seen stiff clumps in gardens, but they have rather an exotic effect foreign to our usual desires.

Among the Apogons we have a range of choice as to width of foliage, though "deep dull yellow-green" (Ridgeway) is the typical color tone. The spuria group, aurea, gueldenstaedtiana, Monnieri, and the hybrids for which we are indebted to Sir Michael Foster are slow to become established, but in time form vigorous tufts with inch broad, rich green foliage, three to five feet high and unusually rigid in character. The green leaves of the Japanese, one to two and a half feet long with gracefully drooping tips, are too familiar to need comment.

The sibericas, with the exception of the orientalis varieties, are of dense tufted habit with grassy leaves not much more than a quarter of an inch wide.

THE tall varieties with their flowing lines are a softening element in the picture while the orientalis, so densely tufted as to become spreading rather than erect in growth when long established, offer a variation in color; var. White Queen is clean, vivid green while the deeper tone of var. sanguinea harmonizes with the rich red tinge on base of fans and flower buds. All these Beardless Iris will endure considerable moisture and are particularly delightful when placed where their erectness may be reflected on some still pool. I have neglected the sturdy Flag, Pseudacorus, with its yellow blooms, for with me it self sows by the pond's edge—even stands with its feet in the water during the winter—and is altogether suited for naturalization with our native Flags.

In the Pogon or Bearded Iris, with their hundreds of hybrid forms, a slight glimpse into their history shows to what may be traced the particular foliage character of any one variety. Let us first, however, set aside the dwarf varieties with leaves from two to twelve inches in length, just mentioning that the pumila hybrids make excellent, bristly borders that are a solid bank of color in earliest spring. All die down conspicuously after blooming but they may be almost completely submerged by other growths; and the hybrids form a new growth in the fall which, though it becomes flaccid with frost, holds its cheerful green well into the spring.

With the larger, later blooming Bearded Iris, which through their ease of culture are most adaptable, we come to the most popular members of the genus. In the consideration of the garden effect of foliage, the twenty or more botanical species may be reclassified something like this: amoena, Cengialti, neglecta, and variegata with no winter growth; germanica, pallida and plicata with moderately long foliage that becomes unsightly with cold weather; and trojana, cypriana (or Ricardii as the botanist may see fit to term the group) which have almost a full growth of green throughout the year.

THIS winter value may be taken advantage of for borders near the house, for there is a host of smaller evergreen perennials to associate with the Iris. It reflects quite accurately too the summer value of the foliage. A certain analogy between winter growth and the climate of the place of origin of a species is traced by Mr. W. R. Dykes, but as the Bearded Iris all come from central or south Europe or Asia-Minor this is a safe guide only in the broader application.

Visiting the garden on January 30th, to note once more the Iris foliage I found almost without exception that the old varieties and the old clumps showed no foliage value. Two strains only carried good fans of green—the pumila-interregna hybrids and the so-called trojana or "tall, late-flowering hybrids," most of which are still in the seed beds. The pallidas may be kept in fine fettle during summer and also a number of the newer bicolors of red and yellow or purple shades; but only the trojanas are fully dependable through the year. Hence it seems that where you can trace pallida or trojana blood, then the Iris is likely to be effective as an all-season foliage plant. But of course general soil conditions must be considered, as even the best show the result of a long drought while the poorest can, within limits, develop size and luxuriance when well treated.

In color we may choose from the gray, glaucous (Mytho) green of a fine pallida variety or its white-frilled (plicata) variations, the greener hues of a lavender bi-color, or the yellow-green that perhaps reaches its climax in variegata aurea. These show a very even gradation in green; some are bright and glistening, some dull and so striate as to be rough to the touch, and others, particularly among the lower lavender bi-colors (amoena, neglecta) and the yellow variegatas, often deeply tinged at the base with red. Mr. Fryer's seedling, A. E. Kunderd, is stained for half the length of the leaf; and in our own Lugarda, the shading seems to echo and enhance the rich purple of the bloom. Indeed there seems to run a certain parallel between flower color and depth of leaf tone; the warm, creamy white of Samite, Mr. Bliss's new seedling; of Athene, or La Neige is reflected in the bright yellow-green leaf fans; while on the other side, the cool, bluer white of Mrs. Horace Darwin or Albicans, and the lavender wash of kashmiriana are coupled with a blue glaucous tone of foliage. Roughly this relation holds true as the color deepens.

FEW individual varieties stand out in my memory and few purchasers would be justified in considering foliage only, but some examples to illustrate the possibilities of variation are not amiss. There is what we bought as Mme. Almira (probably a selected I. pallida speciosa) with enormous sheaves of leaves, a single blade sometimes being two feet long with a breadth of two and a half inches. Our Gloire de Hillegom, with flowers of lightest lavender like Celeste, has large, lush leaves with drooping tips; the stalks of Foster's Yellow scarce rise above its light green; Carthusian, that gigantic lavender of French origin, has markedly short, broad leaf blades; pallida dalmatica is typical of the rather stiff, wide shape; Caterina of the more flexible, bending class; and Mr. Farr's description of the fountain-like growth of Juniata is not far fetched. Varieties even of similar parentage show great variation and I hesitate to specify names, for locality or intensive cultivation have so great an influence. The widely scattered readers of the GARDEN MAGAZINE should be able to make comments of value on the point of locality, and also should have notes far more valuable on what relation, if any, there may be between foliage character and the difference in the length of the blooming season of certain varieties. This is very marked in California, for example.

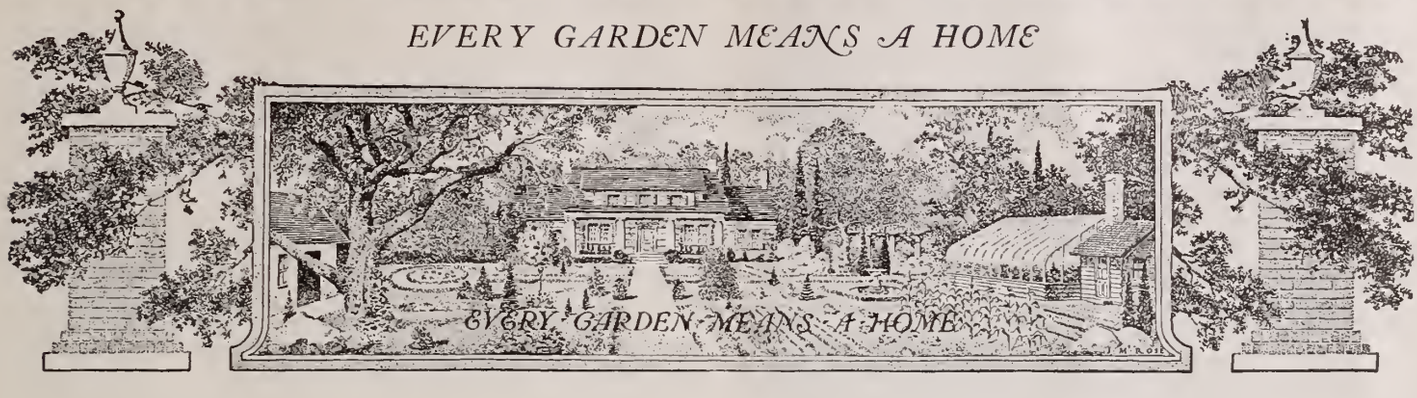
Now to what aim is all this talk? Firstly, there is an ever increasing appreciation of gardening when you open your eyes to the fascinations of detail, whether it is in the pleasing manner of growth in the plant itself or in its location in relation to its neighbors; secondly, it is grounds for an appeal to grow only the worth-while varieties including the finer of the new hybrids; and lastly, who can resist writing of a hobby?

A DELIGHTFULLY SILHOUETTED MASS OF FOLIAGE

Which convinces one that the Iris, at any season, is a valuable asset, furnishing as it does a vertical note of decided character among lesser, broken greens

AMONG OUR GARDEN NEIGHBORS

EVERY GARDEN MEANS A HOME



THE practical advantages of fall planting are obvious—in the first place there is an abundant leisure, as compared to the feverish rush of spring which brings with it such a multitude of duties that are insistent for attention. Indeed there is much that comes with the spring that cannot possibly be attempted now, so that it is but the part of wisdom to accomplish now, in the month of October, anything and everything that can be taken out of the spring activities. Naturally any transplanting about one's own garden is the first necessity; but, in addition, all kinds of deciduous stock—trees and shrubs, including fruits of practically every kind—may be handled now from the nurseries. And the great practical point in favor of handling nursery stock now is that the fall dies into winter much more gradually than the winter awakens into spring. The gardener who leaves all his work till spring never accomplishes as much as he plans to do.

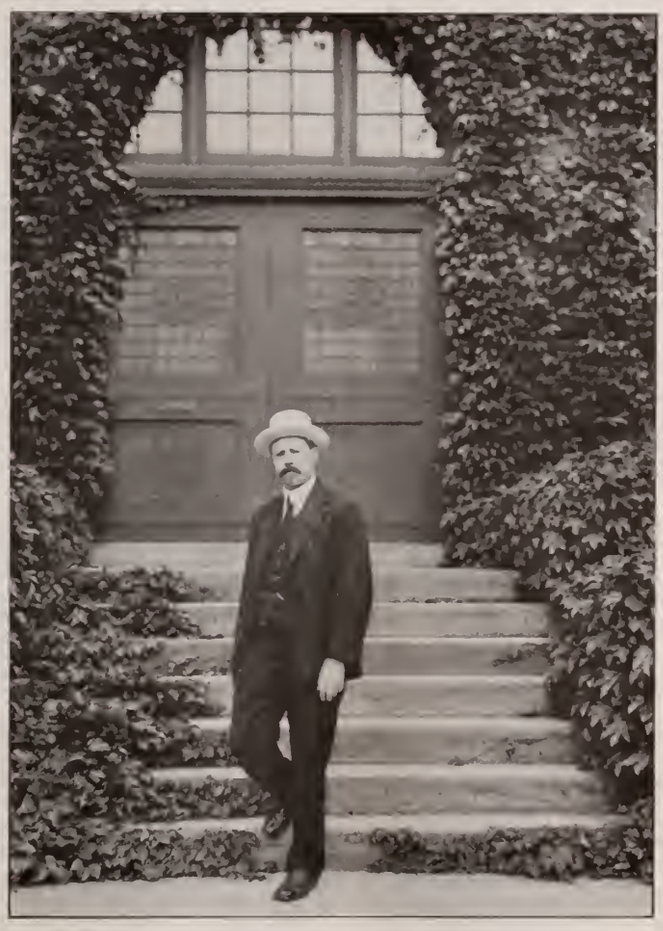
Now, all this is not to be accepted as an argument against spring planting. Far from it, indeed, for taking into consideration all plants in all parts of the country, spring planting is perhaps generally most successful. In spring the planter is favored by the fact that the awakening growth of the plant itself is an active factor in its taking hold of the ground and establishing itself in the new location. In fall the planter must be more careful to be an actual planter and must take steps to make the roots snug and comfortable for the long winter rest. The actual work of planting on heavy soil needs care to see that the hole made for the reception of the roots is sufficiently large so as not to form a sort of catch basin that will collect and hold water where it will freeze and so "heave" the entire plant out of contact with the soil.

Mulching is the great insurance against this risk, and during a severe winter—such as that of 1919-1920—the neglect to plant *and mulch* properly is the reason for the appalling death list when the count is taken in the spring.

Water *during the winter*, may be a necessity to newly set out plants especially if there be no snow mantle, and artificial irrigation may be called for. All plants do not behave equally in respect to the winter water demand, and it is the experience of years that plants having spongy roots, or having very thin bark, and those with a sparsely branched but wide reaching root system are only riskily planted in the fall. Again, exposure to wind and snow is to be considered and it is often essential to provide adequate shelter for late planted material.

But, quite apart from those somewhat difficult subjects there is an abundance of material that may be handled at this time, and in most sections of the country. This includes nearly all the usual ornamental flowering trees and shrubs, and orchard and small fruits excepting, for example, Magnolia, Birch, Peach, and Cherry.

Finally, since gardening is not what may be termed an "exact science" the wise gardener will listen to and be guided by the experiences of local practice; and he may also feel assured that no reliable nurseryman will accept orders for immediate delivery if in his judgment and experience conditions are not propitious, whether from his own standpoint or that of his customer. But whatever the decision as to this fall's planting there is no question whatever as to the advantage of having the order on file, for later delivery. First come, first served.



MR. ERNEST H. WILSON, M. A., V. M. H.
Assistant Director, Arnold Arboretum, Harvard University

His writings in THE GARDEN MAGAZINE have done much to popularize exact knowledge about the best trees and shrubs for our gardens. Now on a world wide tour to the most famous botanical gardens

IT IS a great pleasure to introduce personally to our readers Mr. Ernest H. Wilson—"Chinese" Wilson—even though, in doing so, we, and they, are simultaneously bidding him goodbye, for a long time. The "Romance of the Trees" series from his pen was concluded in last month's issue. These articles revised and extended are shortly to appear in book form. As Mr. Wilson descended the steps of the Administration Building of the Arnold Arboretum, on the day this picture of him was made, he was actually beginning another of his great journeys into remote

places, a journey that will last two years and take him into every country of the Eastern Hemisphere that he has not already visited. His travels will cover India, Australasia, and possibly South Africa, and it is hoped that letters of observation in these countries will from time to time appear in our pages.

Of present-day gardening in England he will first tell us, however, since he has found there much to interest him that he knew would interest GARDEN MAGAZINE people generally.

GARDENING in California is a very different thing from gardening east of the Rockies; and there has been growing up, almost unobserved, a rich style of garden development that is making really beautiful gardens which may be adequately dealt with *as gardens* rather than as purely horticultural curiosities. So in the December issue we hope to give particular attention to this new phase, for it is the California coastal gardens that are offering us here in America to-day a beauty equal to, and of practically the same character as, the distinctive and heretofore unparalleled loveliness of the old gardens of Italy, partly due to the configuration of the land and its relation to the waters of the Pacific, from which it rises much as the Italian heights, where so many of Italy's loveliest gardens lie, rise from the Mare Tirreno; and partly due to similarities of climate and consequent congenial horticultural conditions that are different from those of the East.

Rashness characterizes the man who, in this great broad land of ours, attempts to pronounce definitely and finally upon anything, or any one, of its manifold and complex enterprises or developments. But at the risk of being rash we are constrained to say that California is becoming something definite, different and distinctive in American gardening.

THE OPEN COLUMN

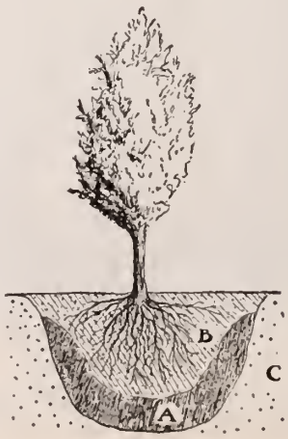
Readers' Interchange of Experience and Comment

Kept-Over Tulip Bulbs

I WANT to relate a little experience with Tulips which I think is out of the ordinary. The bulbs had been taken up at the regular time, and I went to California for the fall and left my gardening in the hands of a handy man with instructions about planting out the Tulips in October. They had been stored away in two separate boxes and the man found only one of them with the result that the other package was not planted. By some mischance the package had been covered up by some rubbish which was not discovered until late summer the next year, and naturally I supposed they were of no account, and was prompted at first to throw them away, but being fond of trying experiments concluded to keep them until the proper season and plant them as usual, which I did. They were kept over in the dry and planted the next October. They bloomed just the same as the others—I could not distinguish them in any way. Can any one match this, or is it a common experience?—A. W. FOREMAN, *Illinois.*

Making Trees Grow in Sandy Soil

TRANSPLANTED from rich bottom lands to light porous or sandy soil multitudes of trees die each year. In the first place it is a mistake to take trees which have grown accustomed to lots of moisture and put them in ground which furnishes them the other extreme conditions. If trees are to be moved from low lands to a higher light soil, such as is often done in the rural districts for shade about the home, they should, if possible, be taken from ground which is as near like that in which they are to be transplanted as possible. And even then, if the soil be of a particularly sandy or porous nature, they will not thrive save with much extra care. In one instance some sixty two-year-old trees were transplanted in a western state from a creek bottom to a vacant lot near a farm house, the idea of the owner being to furnish shade and a windbreak for the cold winter months. The result was that in two years but seven remained. These were in a slight hollow, showing that the important thing lacking in their new quarters was moisture. But though the rest were frequently watered in dry weather, they died. The method shown in the accompanying sketch will save many trees. It calls for a little extra work at the outset, but will give each tree thus provided, a fair fighting chance. The hole in the sand is lined with several inches of clay cupped with the outer edge extending to within a few inches of the top of the ground. On top of this, and completely enveloping the roots, soil is packed as nearly as possible resembling that from which the tree has been taken. This may be slightly depressed about the base of the tree so that when water is poured about the tree, it will not spread and soak into the sand. The clay will not interfere with the growing and spreading of the tree roots, after the plant has recovered from the unavoidable setback of replanting. In the drawing "A" represents the clay lining, "B" the rich soil about the roots, and "C" the sandy soil in which the tree is planted.—DALE R. VAN HORN, *Nebraska.*



Narcissus Odorata Alba Plena

IT IS often remarked that the Double Poet's Narcissus or Gardenia Daffodil is a shy and uncertain bloomer. I send a photograph of mine taken June 1, 1919, to prove the contrary. They are planted along the fence that encloses my field of Currants. Elm trees bordering the road afford shade in the afternoon. The soil is a rich loam underlaid with limestone. The bulbs are set with their necks at the surface of the ground. I keep them fairly free from weeds by an occasional hoeing, but that is all the attention they receive. They require no winter protection even here in northern Iowa. My bulbs are an inheritance. The stock has been multiplying in our family for sixty years. Once in six or seven years, I divide and reset them. They almost always bud profusely, but sometimes part of the buds blight. I have not been able to account for the blighting, but feel that a partial disappointment occasionally is offset a thousand fold by the abundant bloom of other years. The bulbs are rapid multipliers, absolutely hardy, and free from disease. The flowers are exquisitely beautiful and delightfully fragrant. They are ideal for cutting. This bulb should be a general favorite.—ETHEL WALKER, *Charles City, Ia.*

Practicable Late Yellow Perennial

I HAVE yet to find a practicable late yellow perennial. The obvious first choice, Coreopsis, is impossible! The blooms go to seed faster than you can cut them, and, do what you will, they seed themselves everywhere. Anthemis Kelwayi is a vast improvement on Coreopsis, especially in its first feathery growth; but by midsummer it has flattened itself out on the ground! Left to itself it will reclothe its naked stalks to be sure, but the interval is unsightly. The Evening Primrose (Oenothera Youngii) is effective for a fortnight, though frail—but is later consumed by worms with invariable regularity. The Helianthus are well enough in their season despite their rampant spreading—but are too late. Heliopsis doesn't sucker out, but in some gardens it seeds itself, though I have never had a self-sown seedling in mine. The common species, Heliopsis Pitcheriana grows about six feet tall. There is, however, a H. scabra zinneaflora, a double form that does not exceed three feet, on which the flowers remain till they turn black. They are rather coarse but something might be done to develop an improved variety, and I am inclined to think that this will be the plant that will eventually fill the requirements for a good summer yellow perennial.—JULIAN HINCKLEY, *Long Island.*

Tomatoes and Pruning

SINCE writing on the new pruning theory of Prof. Chandler (See page 27) I have noted a condition in my garden that leads me to wonder whether it is an example of the application of Professor Chandler's principles. In my vegetable garden are about thirty Tomato plants set two and a half feet apart in two rows about three feet asunder. They were all set out the same day, and the soil, fertilizer used, subsequent treatment etc., have been identical with the following exception: the plants in one row I began to prune to a single stem and tie to a stake when they were about ten inches high. In the second row I left every alternate plant unpruned, intending to build a rough trellis around it and let it develop and sprawl as it would. None of the plants has been sprayed or dusted and all are,

nevertheless apparently free from any pest or disease. I have cultivated conscientiously after each rain. At the present writing (about six weeks after setting out the plants) during which time the single-stem ones have had the axillary shoots nipped out perhaps thrice—the leaves of every pruned plant show a distinct tendency to curl, while the plants that have not been touched have rich, healthy-looking, widespread foliage. There is no sign of blight, wilt, or other disease in the curled leaves, simply a tendency to curl up from the sides. Now my question is: Can this be due to the pruning which has reduced the leaf area, caused in the last few weeks a corresponding reduction in root development (as noted by Professor Chandler in his fruit trees) and thus, with the approach of hot, summer weather, made necessary a reduction of the transpiration of the plant to balance the reduced moisture supply sent up by the reduced root system? In other words, has the plant, finding its roots unable to pump up enough water (on account of their having become smaller as a result of the pruning) taken to curling up its leaves so that they will not give off as much moisture as they otherwise would? Or did the handling of the pruned plants shock them? Or the treading down of the earth around them, hasten evaporation from it and lessen the moisture supply in the soil? Or what? I pause for reply.—E. L. D. Seymour.

A Good Raspberry Indeed!

I WAS greatly interested in E. I. F.'s statement concerning Latham No. 4 Raspberry as related in the August issue of the Garden Magazine. It is a great pleasure indeed to coöperate with E. I. F.'s opinion. In my very extensive trials embracing all known varieties of Raspberries I found that Latham No. 4 tops them all, with the exception of La France which is its superior in that it is everbearing and has larger individual berries.—John Scheepers, *New York.*

A Tree With Four Legs

ONE of the oddest of freak tree forms ever produced is a four-legged tree standing at the entrance to a home at Bridgewater, Mass. This has all the appearance of a single trunk with four spreading legs, but as a matter of fact is the combined trunks of four White Elm saplings planted in a group and bound closely together about twelve feet from the ground a good many years ago. In time the trunks grew into one, and this strange arboreal quadruped is now a large and sturdy tree. It is known locally as the "wishing tree."—R. H. Moulton, *Ill.*

WHEN MAN LENDS NATURE A HAND

Four Elms tied together in youth make this four-post gateway. They have completely united

TYPICALLY ORIENTAL IN BEAUTY

The Roof-Iris of Japan, comes to ground as a practical garden plant in Pacific Coast gardens

Iris tectorum in California

I HAVE found this Iris very easy to grow and have by the side of a pond a well-established little group which has grown and prospered for five years with no more attention than an occasional weeding and one division of the roots. The group forms a wonderfully beautiful picture for about three weeks.—Leila B. Stapleton, *Oroville, Calif.*

Growing Tulips from Offsets

I HAD this spring about five hundred Tulips in bloom at the same time or nearly so. At least ninety per cent. of them were select named Darwins and a great many people came to see them, and many were amazed at their gorgeous beauty. Amongst them was a visiting lady of great wealth from a large city. After looking them over for some time she approached me and said: "I have at home a professional gardener, and he has a bed of Tulips. But when I go home I shall tell him he knows nothing about Tulips." This is certainly a compliment to the Darwins. That gardener was like most other people who have at most a few dozen Tulips, and think a Tulip is a Tulip and that that tells the whole story. What a mistake! I have not been in the habit of disturbing my Tulips for several years, but circumstances have compelled me to take up all this fall. On June 18th, I sorted them over and found a great many small bulbs which I wish to grow into blooming bulbs. My ground is good Illinois black soil such as would in good seasons produce seventy-five bushels of corn per acre. But what fertilizer can I use, and how much, in order to develop those small bulbs into large blooming bulbs in the shortest time? I want to make the soil still better.—A. W. Foreman, *Ill.*

—Plant the offsets in a normally fertile well-drained soil (not too sandy) early this month, if not already done, so as to give them all possible opportunity to grow naturally. We do not believe you can help matters by forcing growth. Give lime, and perhaps bone-meal if the soil is evidently poor. Plant about two to three inches deep and give a winter mulch. Remember the foremost purpose is to develop a good solid bulb, mere size is nothing. A good bulb will in its due season produce a good flower. On a sandy soil put a layer of cow manure a few inches *below* the bulblets; to a very heavy soil add something like leaf mold, or spent manure from an old hot-bed. Be sure to have the soil dug deep. The following season lift with the other bulbs, select out any that have attained flowering size that season, replanting the rest and growing them on in the same way.—Ed.

Planting Peas in the Fall

LAST November when I had my fall plowing done the soil was in such a mellow condition I decided I'd try some fall planting of Peas. I had the man run some deep furrows; into these I put a thick layer of well decayed manure, adding some to the soil above, letting the soil in the trenches come level with the surface of the ground just before the ground began to freeze so the Peas would swell and start root growth but not show above ground. I planted the seed (an early round-seed variety) thicker than for spring planting. Just as freezing weather set in I dug furrows six inches deep on either side, throwing the soil on top of the rows thus placing the seed well below the surface and preventing excessive moisture on top of the plants. In the furrows dead straw manure was put to prevent too early thawing. In the spring as soon as the ground began to thaw I drew the top soil back into the furrows so the plants were about two inches below the surface. When later the plants were well above the ground, they were thinned. They grew finely in the cool moist soil, and came into bearing two weeks earlier than my spring planting and continued bearing quite as long; the yield was also heavier. The work of preparing the ground and planting was done at a time when regular work in the garden was practically over for the season.—MRS. E. L. A., *Kansas City, Mo.*

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of the THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in a *normal season* is taken as standard; but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

OCTOBER—THE MONTH OF BUNDLING UP AND TUCKING IN

WHETHER plants go to sleep in the dark or not, there is no doubt about their going to sleep—hibernating indeed—in the winter. And some of them undoubtedly rest better if they are covered; just as folks do, seemingly. No one enjoys a thorough rest if there is a dearth of blankets on a cold night, though he may sleep fitfully; and perhaps it is the same with flowers. At all events even the hardiest seem to awaken in the spring with vigor astonishingly renewed by a slight covering through the winter. And of course the things that are not hardy must have it—and it must be ready at hand to put in place, if not actually spread over them, now. And the gardener must be prepared to put it in place a little at a time after the ground has frozen for the hardy plants, a little at a time before freezing but as it threatens for the tender ones.

General

Keep on picking flower heads from the late blooming plants and thus prolong bloom to the very last minute. And do not neglect to destroy all the rubbish gathered to the very last minute also, thus making everything a finished job as you go along.

Greenhouse and Frame

Bring tender material into the house as rapidly as possible, but do not start fires until as late as safety will permit, and then keep them low.

Watch ventilation carefully and watch for insects, which are likely to come in with the plants as well as to breed in the greenhouse.

Allow the greenhouse vines to ripen their wood now and have their period of rest over the requisite number of weeks before they are started into growth again. Withhold water to a sufficient degree to accomplish this, but not enough to make them drop their foliage.

Palms also require a resting period beginning now, and their section of the greenhouse should be allowed to dry considerably. Too much heat and water causes poor color and a generally sick look.

Ripen up all summer bulbous plants and then store the pots on their sides under the benches of the coolhouse.

Bench Mignonette, Stocks, Snapdragon and such plants for the winter forcing, using a rich soil. Do not give too much water as they do not require much until they are rooted and begin active growth.

Sow Pansies for wintering in the coldframe and setting out in spring.

Plant Violets in the benches early in the month, choosing a dark day for doing it and not giving much water afterward. Give them lime water occasionally to keep the soil sweet.

Shade the Chrysanthemums, keep the house fairly dry at night and watch continually for the black fly. Discontinue all feeding of the plants save for a light application of soot to improve the color.

Sow successions of Beans, Cauliflower, Lettuce, and Radishes, the first in a warm temperature, the others in the section maintaining a temperature of 50° or less at night.

Arrange for stock Chrysanthemum plants now by selecting the most vigorous and storing them in a coldframe or dormant fruit house in a consistently low temperature.

Watch for rust on Carnations and keep them dry at night. Pick and burn infected leaves and spray with copper solution.

Give Roses light doses of liquid food, alternating each dose with an application of lime water to prevent the soil from souring.

Flower Garden

Pull up dead annuals and biennials that have finished flowering, rake the last of the weeds from the borders and clean up the earth's surface even though you intend mulching afterward.

After frost has killed the tops of Dahlias, Cannas and other tender bulbous plants, cut them off close to the ground, take the roots up and store them in a frost proof cellar that is dry, or under the greenhouse benches.

Cut "everlastings" before frost and let them dry out somewhat in the sunlight out of doors before bringing them in to use as decoration.

Disconnect the irrigating system and drain the pipes carefully.

Plant all "Dutch" bulbs as soon as they are obtained.

Vegetable Garden

Gather Squash and Pumpkins before a heavy frost as this is likely to spot them and thus invite decay.

Jerusalem Artichokes are ready for use as soon as they have flowered, and they may be brought in when the tops die and stored the same as Potatoes.

Hill up the late Celery, being very careful not to injure the stems in doing so as this will cause them to rust.

Pick all Tomatoes before frost as they also will spot and decay if they are subjected to it.

Fruit

Prune Grapes any time after the leaves fall.

Clean the Strawberry bed and get ready for the winter mulch. Do not apply it until next month however.

Gather stocks for grafting just as soon as the leaves fall and bury them in sand away from any chance of freezing until grafting in spring.

Cut back slightly Blackberries and Raspberries and tie them to their trellises now, to prevent breakage of the canes by weight of snow during the winter.

Brush the trunks of old trees with a wire brush to destroy insect eggs and cocoons and paint them with limewater.

Do not pick winter Pears until the last thing and just before freezing, and store them in a cool dark place.

Dress the land with manure around fruit trees and always remember to mulch all material planted in the fall to prevent its heaving during the alternate thawing and freezing of winter. But do not apply mulch anywhere (save over tender things) until the ground has actually frozen.

If It's a Worth-while Fern, *you'll find it at* GILLETT'S

Most of the ferns mentioned in the Theiss article in September Garden Magazine, and many others, are available here. Hardy Plants and Ferns, especially the wild races, are our one big specialty. Those contemplating the making of Rock Gardens will find a wealth of plant material at our nursery.

Time to plant Early Flowering Bulbs

Kindly remember that such bulbs as Trilliums and Mertensia *must* be planted this month. Please refer again to page 55, September Garden Magazine and page 348, August Garden Magazine for timely offers.

Dicksonia punctilobula

shown above should be planted with sod which will insure results the first year. Fine for embankments. Price:—$5.00 per dozen square feet; $30.00 per 100 square feet.

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Giant Everbearing Raspberry

A Fruit of Surpassing Quality

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Actual size

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The following ten varieties, if planted in the order named, will give a good color scheme.

Loveliness. One of great merit for bedding as well as borders. Soft carmine-rose. Borne on stems 21 inches long.
10 bulbs, 70c; 100 bulbs, $6.00

Clara Butt. Beautiful clear salmon-pink. No other variety offered by us has the same distinctive and pleasing color. Borne on stems 22 inches long. **10 bulbs, 60c.; 100 bulbs, $5.00**

The Sultan. Rich maroon-black; a flower of attractive and distinctive coloring. Grow to height of 25 inches.
10 bulbs, 60c.; 100 bulbs, $5.00

Reverend Ewbank. Soft lavender-violet, slightly shaded silver-gray. Borne on stems 23 inches long. **10 bulbs, 70c.; 100 bulbs, $6.00**

Massachusetts. A long and beautiful flower, clear carmine-rose at midrib, toning off to soft pink at edges. Borne on stems 26 inches long.
10 bulbs, 70c.; 100 bulbs, $6.00

Pride of Haarlem. Magnificently formed flower of immense size, of a brilliant deep rose, shaded scarlet, with light-blue base. Sometimes attaining height of 3 feet.
10 bulbs, 70c.; 100 bulbs, $6.00

Purple Perfection. Bright glossy purple, large in size of wonderful substance. Grows to a height of 26 inches.
10 bulbs, 85c.; 100 bulbs, $7.50

White Queen. A splendid white variety; when first opening pale rose, but quickly turns white.
10 bulbs, 60c.; 100 bulbs, $5.00

Europe. Deep, fiery crimson, with white base. Flowers large and erect. Height 20 inches.
10 bulbs, 70c.; 100 bulbs, $6.00

Glow. The deepest shade of crimson scarlet; a color of wonderful brilliance, not unlike that of the Oriental poppy. Borne on stems 20 inches long. **10 bulbs, 70 c.; 100 bulbs, $6.00**

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NEW ROSES IN EUROPE

CHARLES H. TOTTY REPORTS ON THE TESTS IN ROSE GARDENS OF BAGATELLE—ELEMENTS OF UNCERTAINTY IN NOVELTY RAISING

ONE of the last things the Editor of the GARDEN MAGAZINE said to me on the eve of sailing was—"If you see anything in Europe, new or worth while, in the horticultural line, I want you to let the readers of the GARDEN MAGAZINE know about it." Naturally, Europe has other problems to-day outside of Horticulture. The problem of mere existence still presses somewhat heavily on the French people, particularly in the devastated sections, so it is only natural that horticulture has not yet been adequately reëstablished.

One of the wonders of the war was the way the French people carried along their different professions in addition to prosecuting the war—the Rose Test Gardens at Bagatelle for example. Some people ascribe this characteristic of the French people to indifference. Personally, I attribute it to the Frenchman's ideals of life and beauty, and his refusal to let such a sordid thing as war interfere with these ideals, any more than he was compelled to.

The Rose Gardens at Bagatelle where new varieties are tested are so well known internationally that it is hardly necessary at this time to discuss their purposes and aims. An area of about five acres of ground in the forty acre Park of Bagatelle are devoted to Rose culture. The original collection was given by M. Graveraux, to form a Rose Garden. Of the original collection some very fine Standards six feet or more in height still remain and are twenty to twenty-five years old. The varieties are old-fashioned kinds like "Aimeé Vibert," and "Euphrosene." There are also some very fine plants arranged on arches and columns. Horticultural visitors to Paris are well advised to go to Bagatelle. It is quite accessible from the city and one is always more than likely to find in flower something that is interesting and which will repay him for the journey. A yellow taxicab will take one to Port Maillot, from the American Express office, on the Place de l'Opera, whence all good Americans gravitate. A tramway runs from Port Maillot to the Park along the Bois de Boulogne.

I was not in time for the official scoring. The weather was very mild in the early spring and the Roses came along much more rapidly than usual with the consequence that they were scored the second week in June. The first prize was awarded to a variety called "Souv. de Claudius Pernet." This is a very fine yellow, deeper in color than Constance, and the color persists right to the edge of the petals. Whether this same condition will prevail with us in America, is, of course, a question, but we sincerely hope it will. The petals on this new Rose, are very heavy and the plant seemed to be a good grower. When I saw the plant on July 5th, there were six flowers open on it. Mr. Pernet, the originator of this variety has given us some of our finest yellow Roses, including Sunburst; Mrs. Aaron Ward; Mdm. Collette Martinette and in addition to these in yellow, was also the originator of the ever-popular Mdm. Edouard Herriott. "Souv. de Claudius Pernet," is not nearly so thorny as Herriott, and seems to be getting

(Continued on page 112)

Have a "Fleur de Lis" Iris Garden

Is there a little nook in your garden where you can rest and "chum" with the glorious flowers named after the Goddess of the Rainbow? Truly, every color of the rainbow may be found in the hardy Iris, or Fleur de Lis, a flower whose fascinating beauty must have been meant to bring peace and rest to humanity. Learn to know Irises at their best by planting

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10 best named Japan Iris, all different, for $1.50
In superfine mixture, 20 Garden or 10 Japan, $1.25

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(Continued from page 110)

away from this feature of its class, which is known as Pernetiana.

All rosarians will regret to know that Mr Pernet lost two of his sons in the recent war—one of whom is honored in this Rose—and much of the incentive he had to carry on his work for the future has left him.

Mr. Pernet also received a certificate for "Benedicte Seguin." The bud of this is almost scarlet but the developed flowers are pale tan and fawn. This is a very distinct type and undoubtedly will make a much better showing another season. Several other seedlings were in the same test by this same grower, including "Severine," a Pernetiana type of much the same color as Mme. Edouard Herriott; "Elegante," a beautiful yellow, which was not scored to an award at the time of the Judges' visit. A certificate was awarded "President Parmentier," which seemed to be of Herriott blood, but much better in growth, exhibited by Sauvageot. A certificate was also given "Comtesse D'Gassagne," a very light pink with a suffusion at the base of the petal, familiar to us now in Ophelia and its sports. This was from Guillot. "La France Victorieuse," exhibited by Hay had very large flowers with full flat petals like Lady Alice Stanley, the only apparent difference being that it is a shade lighter in color. My informant told me if France had not been victorious in the war, this Rose would have been called "France Eternelle."

Holland was represented in the display by Leenders, who gave us Johnkeer K. L. Mock, with the varieties "Madam Arrette Aynard," and "Burgomeester Sandbert Van Possen," the latter apparently an improved Lady Alice Stanley, which looked very well at the time of my visit, and had it been scored that day, would most certainly have received a certificate. "Hortulanus Fiat," also exhibited by this grower, was a large light pink but seemed to lack petalage. "No. 2702," ivory white, was another Rose from this same grower, that looked very good.

America was represented in the seedling classes by Howard & Smith; "No. 2," seemed to be a Los Angeles color and "No. 252-121," was not in bloom, so unfortunately, I could not get any idea of its merits.

Several Polyanthas came from Aug. Nonin, of Paris, "No. 156" being a very large headed variety of bright, rosy-pink color. Turbat, who makes a specialty of Polyanthas, and Guillot, both had several seedlings, but they were not seen in condition for intelligent criticism.

VARIETIES to be scored in 1921 are already on the ground and growing. The redoubtable Pernet is represented by "Capt. Georges Dessirier," a scarlet; by "Aspirant Marcel Bouyer," a lovely shade of apricot, and by "Souv. de Georges Pernet," named in memory of the other son lost in the war. This is a handsome rose-pink.

Chambard has, for 1921, a seedling marked "5 and 38," a very floriferous pink on the La Tosca order; also "Huguette Vincent," a light red shading to pink. Bernaix has "M. Alfred Pommier," a blush-white which looked very promising to me; La Perrie a very free-flowering, rosy-red called "M. Gina Demonstier."

Garden Surprises

are easily and quickly planned if native Californian flowers are used. Their peculiar markings and shapes make them most attractive and they grow fully as well in the East as here.

Catalogue A describes and illustrates the native Californian plants and flowers.

The splendid plate of Erythroniums in color hints at the beauty of our Mariposa Tulips, Trilliums, and Lilies.

Catalogue B contains hardy plants, including special material for rock gardens.

Either catalogue sent free upon request.

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Ornamentals exclusively, distinctive in quality and variety, for street, park and all civic planting

We cater to the most discriminating trade.

ANDORRA NURSERIES Chestnut Hill, Pa.

Have you seen ANDORRA?

The Lawns of THE NATION *Kept Green*

Showing Installation of Underground Lawn Sprinklers on the lawn in front of the United States Capitol.

W. G. CORNELL CO.

Engineers and Contractors

for Plumbing, Heating, Lighting, Automatic Fire Sprinklers, Water Supply Systems

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National Bank of Commerce, Norfolk, Va.
86 Park Place, Newark, N. J. Colonial Trust Bldg., Philadelphia, Pa.

Timmerman's representative was a very good looking shell pink, "Johnkeer M. J. Ruys Beerinbrouck." This variety has a heavy name to struggle under, but let us hope it won't succumb in the process.

Ireland was represented by Hugh Dickson, Ltd., of Belfast, the only British grower represented. This firm had "Mrs. J. R. Allen," a rosy-pink; "Mrs. M. J. Spencer," yellow; "Mrs. Thos. Paul," a light-pink.

It must not be inferred that Roses are the only things to be seen at Bagatelle. There are many other objects of interest, including pictures in a fair-sized art gallery, and quite a little bedding of various plants in the rest of the park.

CUT FLOWERS IN PARIS

THE two Roses that seemed to be the most largely used in the Paris markets and shops were the old well-known light pink variety "Her Majesty" and "Juliet," another established and popular kind. These blooms were, of course, grown and cut from outdoors. They had some mildew on the foliage but the flowers themselves were quite good. "Her Majesty," of course, is always a good color, but "Juliet" would hardly be considered in New York a flower for the retail trade, though I must confess the French florists had most attractively made these up into baskets with variegated foliage and different shrubs of golden yellow and Purple Beech.

Our American varieties, such as Columbia, Premier, and Ophelia, were not represented in the Paris markets at all. Doubtless, the war is responsible for this and possibly the next year or two will see a change. The Carnations shown in the Paris shops are all Malmaisons, although I did see a few of the American variety "Pocahontas." Before the war Paris depended entirely on London for Carnations. Now the embargo on so-called luxuries, which prohibits all imports from foreign countries, has cut off that supply.

VISIT TO A ROSE FACTORY

I HAD occasion later before leaving Europe to take a trip to Ireland and had a very interesting visit with Hugh Dickson, some of whose seedlings I had previously seen under test at Bagatelle.

In the course of a very interesting conversation Mr. Dickson told me that his firm raises about one thousand new seedlings every year and that 80,000 plants of novelties are always under test. As rapidly as they are tested and found wanting in any degree, they are torn out with a ruthless hand. From these thousands of seedlings every year there are never more than twelve to fifteen retained, and of these possibly not more than six in any one year see final distribution. When the amateur is inclined to question the high price of Rose novelties, he should think of the trouble and time that is given to producing the variety before it is finally sold to him. Hybridizers only get a small percentage like this after working along with pedigreed stock on given lines for generations, so it will be readily seen that the path of the Rose enthusiast in the search of new varieties is not one strewn with financial gain. I saw at Mr. Dickson's establishment a variety called "J. G.

(Continued on page 114)

Ten Weeks of Bulb Bloom Next Spring From a Single Planting Now!

Gay little crocuses; daring daffodils, brilliant hyacinths, and gloriously colored tulips. Of course, you love them all, and want them all. And here's the way to have them all, with less trouble than you ever had before.

One order, that you can make out in half a minute; one planting, and weeks of bloom next Spring. That's what our "Succession Set of Spring Blooming Bulbs" means to you!

We've selected the bulbs to give a continuous succession of bloom.

All are named varieties, and first quality bulbs from our regular stock.

They will give you more bulb joy for your money, than you have ever had.

Remember, *each* set contains *all* of the bulbs mentioned above—tulips, daffodils, jonquils, hyacinths, and crocuses.

And a leaflet of full planting instructions accompanies each order.

Succession Set of Spring Blooming Bulbs

Set No. 1.	10 Varieties	100 bulbs	$ 6.50
Set No. 2.	23 Varieties	500 bulbs	27.75
Set No. 3.	30 Varieties	1000 bulbs	53.00

(If wanted *prepaid* add 10%. Any balance over cost, we will promptly return)

That Ten-Ten Fall Book—Not Many Left!

Despite our asking you Garden Magazine readers to keep it dark about that new "Ten-Ten" Book;—somebody must have told! Now looks like the edition wouldn't hold out. If you want to be sure of a copy, better send for it *to-day*. Its full of just the sort of information about *Fall Planting* that you've always wanted. It tells about bulbs, perennials, shrubs, evergreens, roses, and fruits for Fall planting. *Remember, you can save a year by planting this Fall! Send to-day for the Ten-Ten Book.*

Trustworthy Trees & Plants
Members American Association of Nurserymen

Julius Roehrs Co
At The Sign of The Tree
Box 10, Rutherford N.J.

WAGNER Flowers
FREE BOOK

THE opportunity is yours to make your home more enjoyable and more valuable by beautifying its surroundings, whether you own spacious grounds or a modest city lot. Our Landscape Service Department will be glad to advise with you on appropriate plans and planting for your grounds.

Write today for our large, illustrated fall catalog No. 197. It will suggest hundreds of plants and shrubs suitable for gardens and grounds of all sizes.

THE WAGNER PARK NURSERIES COMPANY
Box 96 Sydney, Ohio
Florists Nurserymen Landscape Gardeners

Dreer's Reliable Spring-Blooming Bulbs

DO NOT miss the joy of having a bed or border of Bulbs next Spring. Plant them this Fall as early as you can and success is certain.

We import the very highest grades of the finest varieties and offer in our Autumn Catalogue splendid collections of Hyacinths, Tulips, Narcissus, Crocus, Lilies, etc., etc.

The Fall is also the time to set out Roses, Hardy Perennial Plants, Vines, Shrubs, etc. Our Autumn Catalogue also gives a complete list of seasonable seeds, plants and bulbs for out-doors, window-garden and conservatory.

Mailed free to any one mentioning this magazine

Henry A. Dreer, 714-16 Chestnut St. Philadelphia, Pa.

NARCISSUS BULBS

Biflorus, "The Primrose Peerless," very late	$2.80
Campernelle Rugulosus, golden yellow	2.80
Poetaz, Elvira, white, bunch-flowered	4.00
Poeticus, Pheasant Eye, very late white	2.80
" Grandiflorus, largest poeticus	3.60
" King Edward, early white	4.00
Barrii, John Bain, primrose-white, early	2.80
" , Conspicuus, "Yellow Poeticus"	3.60
" , Albatross, white, large and tall	5.00
Incomparabilis, Fireflame, yellow, red eye	3.60
" , Stella Superba, white, yellow cup	4.00
" , Sir Watkin, big yellow	4.40
Leedsii, Polestar, white and yellow, wheel shape	3.60
" , Ariadne, white, refined and dainty	4.00
" , White Lady, very tall	4.00
Ajax Bicolor, J. B. M. Kamm, cream and white	4.00

TULIP BULBS

Mixed Late-flowering, all colors	$2.40
Wedding Veil, blue-white	2.40
Clara Butt, richest pink	2.80
Kate Greenaway, lilac-white	2.80
White Queen, tall and dainty	3.20
Farncombe Sanders, rose-red	4.00

Price is per 100 postpaid. 25 of a kind at 100 rate, provided order totals 100 bulbs or more.

Peonies: Ten varieties in mixtures, 100 plants for $20.00, 50 for $11.00, 25 for $6.00. Twelve plants, all different, not labeled, for $3.00, seven for $2.00, three for $1.00. Prices include delivery.

Oronogo Flower Gardens, Carterville, Mo.

Do You Garden The Gilson Way?

The Gilson Way of Gardening provides the proper tool for every job and person.

The Gilson Weeder kills weeds. A child can handle it perfectly.

The Liberty Cultivator pulverizes the soil, saves moisture, uproots weeds. As easily handled as a rake.

The Gilson Triplex is a 100% efficient combination of both above—a *man's* cultivator.

Learn all about the remarkable Gilson Line of Garden Tools by writing for Free Booklet.

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Consultant in
Practical and Decorative Gardening
Naturalistic Plantings
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The charm of little gardens and the balance and beauty of larger gardens are due to careful thought and consideration
STUDIO 22M 119 East 19th Street, New York City

HOLLAND BULBS

Darwin, Cottage, and Early Tulips, Hyacinths, Narcissi, Crocuses, etc., of exceptionally fine quality. *Order early while assortment is complete.*

PEONIES

Best varieties in strong clumps.

PHLOX and IRIS

in Vigorous, Field-Grown plants. New and choice sorts.

It is planting time now. Send to-day for our Catalogue.

FRANKEN BROTHERS Deerfield, Ill.

(Continued from page 113)

Glassford," a wonderful crimson which seemed to be destined in the future to occupy a large place in American gardens.

Many Americans who have traveled in Europe, have come back enthusiastic over the wonderful Roses they have seen there. They forget that in a large measure this wonderful success is due to a difference in climatic conditions. Many of the Roses I saw in Ireland for instance on August 6th were then hardly in their swing for a first crop! As compared with our conditions the climate is milder and intense heat almost unknown, and the moisture in the atmosphere and at the roots makes the plants grow larger and better. In this country the same variety would grow to only half the European size. An uninformed amateur American Rose grower standing with me looking over the Dickson trial grounds would bankrupt himself buying all the varieties that then and there appealed to him. And possibly the next year in this country he would be inclined to say he did not in any case receive the varieties ordered. Such are the handicaps under which the Rose creators labor.

COMFORT, CALORIES, AND THE KITCHEN SINK

ANY country woman—or any city woman either—who has occasionally (or oftener) to wash dishes, fix vegetables, make preserves, concoct candy or do any other kind of kitchen work at a table or sink, knows from painful experience the cost of having that table or sink too high or too low. She may not realize that its altitude is the cause of her discomfort, and she may not be able to say just how high it should be for best results and the greatest ease and convenience, but she knows that "something is wrong." If she happens to be short and the sink high the remedy is comparatively simple; a stout box or heavy board sawed to size will furnish the required height If, however, the reverse be true, more than mere ingenuity is needed.

Well, to get at the bottom of the matter, specialists of the Home Economics Division of the U. S. Department of Agriculture undertook some technical but also very practical investigations. They found, for instance, that in washing dishes at a sink or table over which she has to bend because of its insufficient height, a woman expends an average of thirty calories or heat units of energy per hour. Working at a sink a little too high, she uses up twenty-five calories in the same time, which indicates that there is less effort involved in lifting the arms and working with them in that position than in maintaining a bent-back position. However, when the sink or table is at just the right height, the expenditure of energy in the same time is only twenty-one calories, or nearly a third less than when the support is too low. Probably, too, more work could be done in an hour under such conditions than when the extra effort was expended. Of course the "right height" for a table is an individual matter to be determined for and by the person who is going to do the work. But whatever it is, it means a good deal to any one, housewife or servant, who attends to the homely but necessary task of washing dishes day after day, and the other related activities in the culinary life of a household.

Fancy EVERGREENS in Large Sizes for Quick Effects

A close-up view of some specimen Cedars, perfect to the ground, just like the nursery-grown product

Native Cedars, like those shown in accompanying photos, are but a few specimens of the thousands we have to offer. For screens, distance effects, avenues, and formal settings they are unexcelled, and as hardy as anything.

The rough and unshapely ones are cut for Cedar posts and fillers in the use of rustic fence building, summer houses, pergolas, etc. The specimens are like nursery-grown trees, and are moved with entire safety.

We are authorities on all kinds of forestry and tree surgery work. Our methods are as good as the best, and less expensive. An examination of your shade and fruit trees may be the salvation of your beloved trees.

Among other things we can offer you Fields of Mountain Laurel. They are wonderful all the year round.

May We Serve YOU?—We can successfully execute orders within a radius of 300 miles. Transportation by auto and truck makes near neighbors of us all, is quick, and safe. No rough handling of stock on freight trains. No delays in delivery. Price is a very large factor these days. We believe that we can make this attractive. We also have made special studies on forestry. A crew of skilled men is at your disposal for the purpose of executing any pruning, tree surgery, or any special garden work requiring experience and skill.

Field of Cedars, from 10 to 30 feet high, dug with a large ball, readily transplanted

Please afford us an opportunity to serve you and kindly refer again to our advertisement on page 52, September Garden Magazine

NEW LONDON COUNTY NURSERIES

W. J. SCHOONMAN, Proprietor

NEW LONDON CONNECTICUT

Luscious Raspberries

Readily Raised from Plants Set this Fall

You need not wait two years or more for fruit—*Get it next Summer* from these strong two-year field-grown fruiting canes. Set the plants this fall, any time before the ground freezes. You will want at least a dozen—maybe more—so write us for prices.

Tree Currants

Good standard red variety, trained in tree form; and already bearing fruit.

Grape Vines

We have a few extra fine four-year vines grown for those who want the best.

Write us for descriptive circular and prices. Our reputation has been built on the quality of the plants we supply.

T. S. Hubbard Company

Box 18, Fredonia, New York

YELLOW FREE STONE

RIPE IN AUGUST

ROCHESTER PEACH

BEARS FIRST YEAR

TREES planted in Spring, 1918, bearing 150 to 200 peaches this season.

THE EARLIEST FREESTONE PEACH KNOWN

Originated in Rochester, New York, tree is a strong, upright grower, has stood sixteen degrees below zero and produced a full crop, while the Elberta and Crawford, under the same conditions in the same orchard, produced no blossoms and consequently no fruit.

Mr. Yarker, Greece, N. Y., who has an orchard of 500 trees reports 17 peaches picked in August from a tree planted the previous spring.

Mr. C. M. Thomas, 215 W. 40th St., Savannah, Ga., purchased a Rochester Peach from us last February, and picked the first fruit in July.

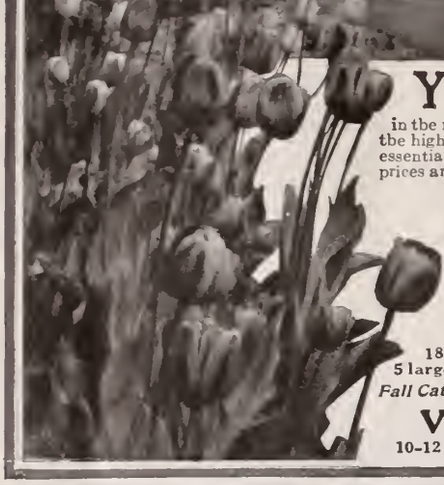
For dessert, for canning, it is the best and greatest peach in the world to-day.

Our stock is limited, the demand is tremendous, order at once.

IMPORTANT—For descriptions and prices of a complete list of Glenwood products, send for a copy of our 1921 catalogue of Dependable Trees and Plants—it's free.

GLEN BROS., Inc., Glenwood Nursery, Established 1866,
2007 E. Main Street, Rochester, N. Y.

Vaughan's Stately Darwin Tulips.



YEARS of experience as America's largest importers of all flowering bulbs have equipped us with an intimate knowledge of these fragile wares, of which our customers get the benefit. Our bulbs are grown in the most favorable sections, of vigorous strains, by experts who maintain the highest quality. They are packed and shipped with all the care that is essential to bring them to your garden unimpaired. At the same time, our prices are the fairest.

Special Bargain Collections

IN the early Spring we obtained from a Dutch specialist in Darwins, a large percentage of his crop of twelve better class sorts at prices which enable us to quote much under ordinary rates for these wonderfully decorative bloomers. In the grounds of all fine homes they are indispensable. *Postpaid*

D No. 1, 12 Bulbs of 12 Varieties of merit $1.00
D No. 2, 30 " " 12 " " " 2.00
D No. 3, 100 " " 12 " " " 5.00
18 French Narcissus Bulbs for growing in gravel 1.00
5 large Chinese Narcissus Bulbs for growing in water 1.00

Fall Catalogue of Seeds, Bulbs, Plants and Nursery Stock mailed FREE

VAUGHAN'S SEED STORE
10-12 W. Randolph St., Chicago 41-43 Barclay St. New York

Hyacinths, Tulips, Iris
Best Holland Bulbs
Doz. 75 cts. 100 $4.00 delivered
Direct Importation
NAMED VARIETIES ALL COLORS
VALLEY FARMS CO., Newburgh, N. Y.

"No library complete without Kipling complete"

FOR SALE

Boxwood hedge Suffruticosa 5' high, 200' long; another 4½' high, 100' long. Also 100,000 Boxwood Edging 5 to 6 in. high. I contract to remove hedges with the Taylor moving apparatus.

ROBERT H. BENDER, Boxly, Chestnut Hill, Phila., Pa.

Over 800 Acres of Specimen
SHRUBS and SHADE TREES
In Infinite Variety

Cultivated, dug up, packed and shipped, by scientific methods made perfect through over a century's successful operation, our specimen shrubs and shade trees come to you in as near a state of perfection for transplanting as is humanly possible

No matter what variety your plans call for, we probably have them in abundance.

What's more, our prices are consistently low.

SPECIAL OFFERING!!
Extra fine Lawn, Street or Avenue Trees
SALISBURIA ADIANTIFOLIA
(Ginko or Maiden Hair Fern Tree)
$2. to $6. each—according to size

"Successful for over a century"
AMERICAN NURSERIES
Singer Building
New York

Unusual Hardy Plants are Our Hobby

We specialize in very choice varieties of **Hardy Plants,** unobtainable elsewhere in this country, for both the **Hardy Garden** and **Rockery.**

A very choice strain of **Japanese Primrose** is available. Rich crimson blossoms, in whorls, on stems nearly three feet high. The effect is extremely gorgeous. Large, field grown plants, $2.50 per dozen. *Catalogue free.*

Wolcott's for Hardy Plants

WOLCOTT NURSERIES
Clinton Road Jackson, Mich.

Morris Nurseries

Our latest catalogue shows a most attractive variety of hardy plants — evergreens, sturdy shrubs, shade trees, large and small fruits, climbers, roses, and hedge plants. Write for this serviceable catalogue to-day, and do not delay sending us your order.

THE MORRIS NURSERIES
Box 804 West Chester, Pa.

WHY THE STORAGE CELLAR SHOULD BE VENTILATED

PROBABLY you have often come across apples that have been stored and that show discolored, brown skins. Perhaps you have realized that the condition was a case of "apple scald"; but the chances are that you did not realize that the scale and the fact that the fruit had been in storage were related. Indeed, it is only recently that scientists, who have been working on the problem or puzzling over it for years, have discovered the apparent cause of scald and methods of storage whereby it may be prevented, or at least greatly reduced.

The modern belief is that stored apples are, in effect, dormant or sleeping—like a hibernating woodchuck—and that in that condition they constantly give off injurious gases, just as sleeping animals exhale poisonous carbon dioxide, though of course in much smaller quantities. But whereas, in the case of animals or people, sleeping in an atmosphere charged with waste gases—such as a room with closed windows—causes "dopiness" and, ultimately, suffocation, in the case of apples the corresponding condition causes the ugly scald marks.

Obviously one solution of the problem is better ventilation of storage houses, rooms and cellars and even containers holding fruit. That this *is* effective has been proved by noting the consistently lessened proportion of scald on apples stored along the aisles of storage cellars or in positions where a slight but continuous air current dissipated the exhaled vapors.

Since it isn't easy to ventilate packed boxes and barrels so that the fruit in the centre can "breathe" comfortably, the investigators went a little farther with their experiments and discovered that a special kind of paper impregnated with certain oils and fats has the power of absorbing and neutralizing the harmful gases. Whereupon they wrapped each apple in their test packages in paper so prepared and were rewarded with fruit that kept perfectly and remained entirely free from scald. Of course, until the discovery is commercialized and the paper made available on the market, the information is merely interesting, not useful; but we can all give our stored fruit more ventilation which means the same thing as to results.

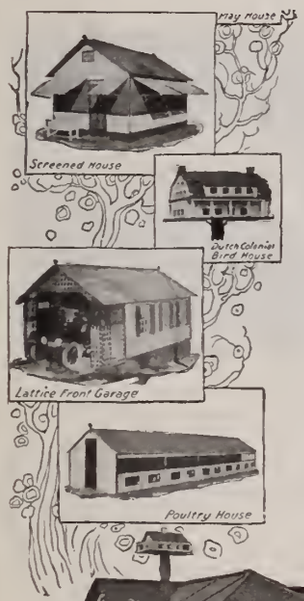
GETTING THE BEST OF POISON-IVY

CONSTANT vigilance and repeated cutting back of every vine and shoot make up the essential features of a slow and conservative but usually successful campaign against Poison-ivy (which is botanically of the same species as the lanky but attractive, wooly-flowered Sumac) But sometimes more speedy results are desired, in which case late fall, when plant growth has ceased for the year, is a good time to get busy. At this time the supply of volatile sap which contains the poisonous agent is present to the least extent, and the plants, being dry, burn up more promptly and produce less of the acrid smoke which often causes cases of the familiar poisoning.

At this time, too, whether or not the vines

(Continued on page 118)

HODGSON *Portable* HOUSES



For All Purposes—In All Climates

For the two-room week-end cottage or the home of ten or more rooms. From small garage to school, hospital, or barrack. For screen-house, bird-house, or dog kennel.

Hodgson Portable Houses are carefully designed and built of well seasoned red cedar with Oregon pine frames. They are shipped to you in plainly marked sections that can be firmly bolted in place without the aid of skilled workmen.

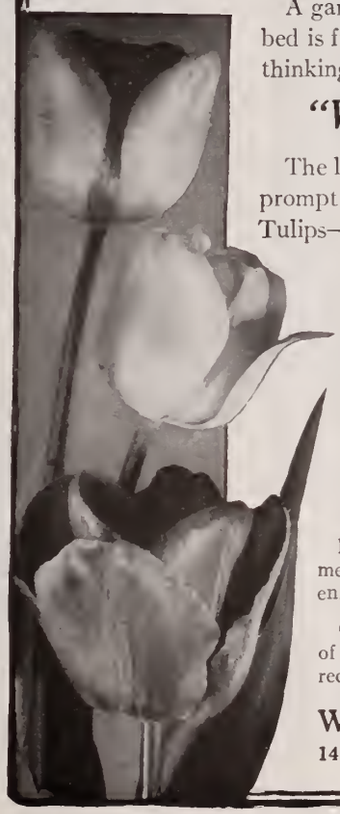
Hodgson Portable Houses will withstand all climates. They can be enlarged as necessity dictates. They can be easily moved.

Hodgson Portable Houses lend themselves to decoration. Trained on Hodgson lattice—artistically designed—vines, shrubs and flowers can be made a valuable addition to the permanent beauty of the whole.

Write to-day for catalogue.

E. F. HODGSON COMPANY
Room 228, 71-73 Federal St., Boston, Mass.
6 East 39th St., New York City

For That New Tulip Bed



A gardener who wishes to start a tulip bed is frequently in doubt—he can't help thinking

"What Sorts Are Best?"

The likes and dislikes of our customers prompt us to recommend these Darwin Tulips—no professional could select more popular kinds:

Baronne De La Tonnaye, Blush Rose.
Mr. Farncombe Sanders, Scarlet.
Madame Krelage, Rosy-pink.
Mrs. Potter Palmer, Glowing purple.
Pride of Haarlem, Old-rose.
Clara Butt, Salmon-rose.

We will furnish **six each** of these **six varieties for $3.00; or twelve each** for **$5.75.**

Mixed Darwin Tulips in a splendid assortment can be supplied for 75 cents per dozen. $5.00 per hundred.

Our catalogue H describes a large number of desirable sorts and gives full cultural directions; send for a copy before you forget.

William M. Hunt & Co.
148 Chambers St., New York City

An Exceptional Bargain at Roselle, N. J.

Owner will sell at sacrifice, this beautiful stucco, old English residence, having every modern improvement, including Ruud automatic system of hot water supply; 12 rooms, 4 baths, 4 open fireplaces, large porches, enclosed sun parlor.

On corner lot 200′ x 180′, with trees, shrubbery, flowers, vegetable gardens, brick summer house, 3 car garage. Location on Main Street, in the most select section of historic Roselle, N. J., good water supply and finest of schools; 8 minutes from station; half mile from golf and country club; 35 minutes (14 miles) from Liberty St., N. Y.

Price $35,000, which is less than pre-war building price. Write for photographs, or appointment to inspect. **P. O. Box 33, Roselle, N. J.**

Moss Aztec Pottery

Offers a wide choice of objects, from simple fern dishes and bud vases to impressive jardinieres and plant stands. Its predominating characteristic is refined elegance in designs and colors. A post card request will bring you the "Moss Aztec" catalogue and name of nearest dealer.

PETERS & REED POTTERY COMPANY
So. Zanesville, O.

Up In a Jiffy—Waters 2500 Square Feet

Here's a rain-machine ready to use the moment you attach your hose and turn on the water. It's 50 feet long, and waters 25 feet on each side—2500 square feet in all.

One watering ample for a week.

Takes but a few minutes to shift to another part of grounds.

Send for our new book—Irrigation for Home Grounds. Tells about our watering systems for lawns, gardens and grounds of all kinds and sizes.

The Skinner Irrigation Co.

219 Water St. Troy Ohio

SKINNER SYSTEM OF IRRIGATION.

The Autumn Planting Season is Here

No better time than early autumn for planting Iris, Peonies and Evergreens, a little later, most kinds of nursery stock.

Your catalogue awaits your call.

B. F. BARR & CO.

Keystone Nurseries Office 116 Barr Bldg., Lancaster, Pa.

Irises, Peonies, Gladioli

Importers and growers of choice varieties. 600 varieties of Irises—Catalogue free.

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(Continued from page 116)

are cut down and removed, there are other measures that can facilitate the work of elimination and increase its chances of success, among them the treatment of the vines—through the roots—with caustic or otherwise destructive substances.

One of these is kerosene which, according to the Cornell Forestry Department, is effective but suitable for use only where there are no nearby shrubs or trees that might be injured by the treatment. Arsenate of soda can be used to kill Ivy on trees more than six inches in diameter without hurting them, or Ivy on walls.

From Ohio come suggestions recommending common salt at the rate of three pounds to a gallon of water, iron sulphate, or calcium chloride, either one to be applied, however, as a spray in June and again in midsummer.

What might be called the most heroic method, since it offers the greatest danger of becoming infected or poisoned, is that of grubbing out the entire plant and as much of the root as possible. This is the job for which the present is *the* time. Of course, the wise grubber or sprayer at any time protects his hands with heavy gloves and his body with overalls or other old clothes that can be promptly cleaned afterward. In addition prompt washing of the hands, face or any exposed parts with plenty of soap and water, and thorough rinsing, usually prevent poisoning except in the case of the occasional supersensitive people—and for them, the only safe course is to keep away from all Poison-ivy.

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A CURIOUS thing to do with a growing pumpkin, marrow, or gourd is shown in the photograph. These fruits develop very fast and although they seem so soft and juicy yet they are really quite strong.

When the fruit is quite small, and while it is still on the plant, put a glass jar over it. The pumpkin will keep on growing in the bottle and soon will fill it right out. Still, the fruit swells and you wonder what will happen. Well, do you know eventually the force of growth is so great that the pumpkin breaks the bottle just as you see in the picture. You would not think that a pumpkin could crack a thick glass jar, but this is what really happens. Try and see. The great thing is to get the whole of the fruit into the bottle with a little bit of the stalk. If any of the fruit is left outside the growth will mostly be out that way, and the jar is not so likely to be cracked.

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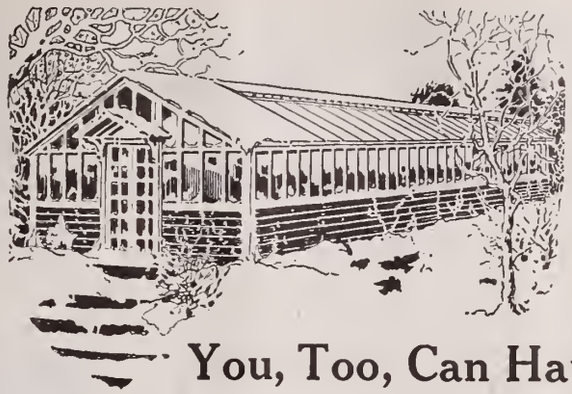

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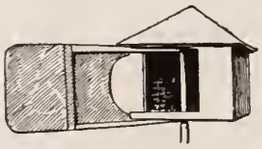

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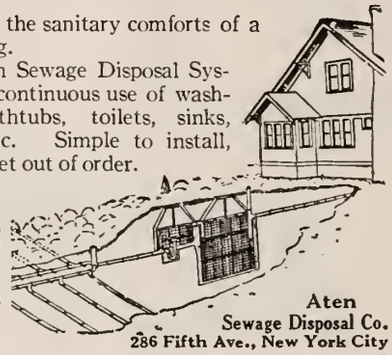

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Sow fall lettuce when wheat is sown. For most latitudes this means sometime during September or early October according to the character of the season. The ground should be carefully prepared so that the seed-bed will be sufficiently mellow to enable the little plants to plunge their roots deeply. The situation should be sheltered and sunny; and it should always be well-drained. Ice forming in winter about the plants will make them rot off at the level of the ground. Whether the plants will need any actual protection from cold will depend on the severity of the winter. South of Pennsylvania, lettuce will usually stand out safely all winter; and even in that state I have frequently known it to come successfully through an ordinary winter. It is surprising how much protection both from cold and from the ravages of English sparrows some peavine brush affords. I recommend this for all middle latitudes. Sow the seed rather thinly so that the individual plants will develop well. About the first of December, place the brush lightly over the bed, and keep it there until March, or even the first of April. Then as soon as the ground is prepared, the plants should be transplanted to the place where the lettuce is to head. It will be found that the roots are so well formed that instant and surprising growth will follow transplanting.

In those latitudes where the weather is liable to be extremely severe, winter lettuce started outside should be transplanted to a coldframe in mid-November. The glass, however, need not be put on until winter really sets in. In a moderate-sized coldframe, several hundred plants can be set if the spacing is taken care of. In this work it should be remembered that, since the plants are not to develop in the frame, they may be set as close as an inch and a half each way. Throughout the winter they will do little more than root themselves, and their advance in the spring may be retarded by removing the sash. They will therefore not develop too much before the garden is ready to receive them. I never use manure under the plants in a winter frame. The soil is a mixture of sandy loam and woods-earth. Before lifting the plants for transplanting, the bed should be soaked with a sprinkler; then much of the woods-earth will cling to the roots of the plants, making their establishment after transplanting quick and sure. I may add that much garden space may be conserved if the grower will put his lettuce of the earlier varieties between rows of peas, cabbages, tomatoes, and the like. The lettuce comes out so soon that it interferes in no way with the other crops.

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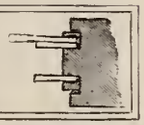

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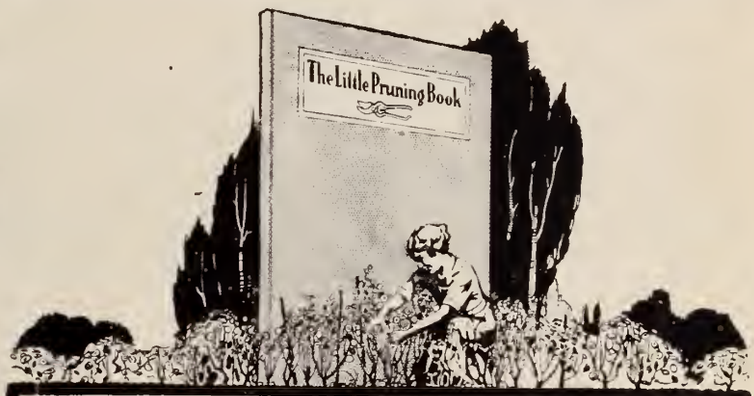

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NOVEMBER 1920

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LEONARD BARRON, Editor

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Entered as second-class matter at Garden City, New York, under the Act of Congress, March 3, 1879

Weeber & Don
Christmas Flowers

Yes, a vase like that shown here may grace your Christmas table, at one-half the florist's price, if you start NOW. This is the month to start Paper White Narcissi, and other bulbous plants, in either soil, fibre or water. To acquaint G. M. readers with superlative quality in Bulbs and W. & D. Service, we will mail

One dozen Jumbo Bulbs

Giant Paper White Narcissi

and 4 lbs. Fibre all for

$2.00 postpaid

The Imported Holland Fibre takes the place of soil. Simply put it in pots or vases, plant the bulbs barely covering the crowns, and water. Put away in a dark, cool place for five or six weeks and bring to light and moderate warmth about middle of November. Four weeks later should see you rewarded with a bouquet of fragrance and beauty. Other flowers that may be grown this way are fully described in our

Fall Catalogue—Upon Request

Let our modest messenger suggesting Fall activity around the garden home, acquaint you further with flower growing possibilities during Fall. Winter and very early Spring.

TRADE MARK WEEBER & DON REG. U.S. PAT. OFF.

Weeber & Don, *"Sturdy Seeds"* 114 Chambers Street New York City

A Garden Full of Darwin Tulips

for $2.00

In anticipation of again placing before our customers a collection of Darwin Tulips we have had a sufficient quantity grown so that we can offer

50 Giant Darwin Tulip Bulbs, Finest Mixed, for $2.00

Selected from fifteen named varieties

Few Spring flowering plants rival the Darwin Tulip for brilliancy of bloom. With flowers as large as the Oriental Poppy, in a wide range of colors and shades, borne on strong stems often exceeding three feet, they are a wonderful addition to the flower garden.

Plant any time before ground becomes frozen and they will bloom during May

Mail this advertisement, or present at our store, with check, money order, cash or stamps and secure this exceptional collection, sent prepaid to any point in the U. S. east of the Mississippi. **For points west and Canada add 25c ($2.25.)**

For those desiring Darwin Tulips in separate varieties, so the colors may be studied, we offer a collection of 10 each 10 varieties separately labeled for $6.00

Stumpp & Walter Co 30-32 Barclay Street New York City

Make Some Girl Happy!

Everywhere throughout this broad land of ours are healthy, happy girls that revel in outdoor exercise. These outdoor girls think of others like them, in unusual ways. What happened in one instance, in connection with a most appropriate gift, is related here:—

Here is an actual letter sent us by a grateful customer and enthusiastic Gilsonite—

Huntington, Long Island,
June 17, 1920.

Dear Ruth:—

Of course, I thanked you at Christmas time, when the Gilson Weeder came, for the gift—but that is now to be regarded as a purely academic thank you! For to-day I have been using the tool—it is the first chance I have had this summer—and upon my word, I wonder how I ever lived without it. It's perfectly fascinating to watch the way it decapitates the weeds, and cuts off the top half-inch of soil like frosting from a cake! Of course you know nothing about gardening (?) consequently you do not know how important it is to do just this; but take my word, my dear, it was my good fairy if not yours, that sent this Gilson Weeder idea your way in time to be my Christmas present. (And of course I think of you every time I use it—so you see how abundantly you are rewarded!)

Yours ever,
Grace.

We will not let you wonder who "Grace" is—

We commit no indiscretion when we state that Miss Grace Tabor, well-known landscape architect and editorial writer for Garden Magazine, is the author of above letter, as sent to us by the recipient. We are sure there are thousands among Garden Magazine readers who will appreciate the Gilson Weeder Gift idea as much as Miss Tabor did.

Now, then, get pen and paper and favor us with your Order

We will gladly send a six inch *Gilson Weeder* neatly packed in a box, easily attached to any rake handle you may have (we recommend a 6 foot rake handle for most efficient work), *for $1.35 postpaid*, to any address, in time to arrive at Christmas.

A descriptive booklet showing other Gilson Garden Tools, may give you more ideas on how to make others happy. Gladly mailed free on request.

J. E. Gilson Company 101 Valley Street Port Washington, Wisconsin

Glorious Days You Can't Forget!

Tulip Time in Your Own Garden

IS there anything more beautiful —anything that brings more joy to the heart of the flower-lover than a bed, border, or edging of Tulips in full bloom in early spring?

Single and double, early and late, all are perfectly charming in the garden—and just think, you can have Tulips in bloom from April until June if you plant our special selections offered below.

Plant Bulbs Now—and Generously—

as many as you can possibly afford—and Tulip time in your garden next spring will be a period of unbounded joy and happiness—days and weeks never to be forgotten.

To encourage extensive planting we make the following very special offers to Garden Magazine readers. All bulbs are guaranteed top size and of the very best quality.

100 Single Early Tulips in 10 named varieties (*Bloom in April and early May*)	$4.00
100 Double Early Tulips in 5 named varieties (*Bloom in April and early May*)	4.00
100 Darwin Tulips in 10 named varieties (*Immense flowers on stems 2½ feet tall*)	4.50
100 Cottage Tulips in 10 named varieties (*The tulips of Grandmother's garden, improved and more beautiful than ever. Bloom May and June*)	4.00
100 Breeder or Art Tulips in 5 named varieties (*Tall and stately like the Darwins. In wonderful shades of Bronze, Orange, Buff and Apricot*)	5.00
100 Rembrandt Tulips in 5 named varieties (*Striped, flamed and feathered. Bloom in May and June*)	6.00
100 Parrot or Orchid Tulips in 4 named varieties (*Bloom May and June*)	5.00
Special Combination Offer: One hundred each of above seven types—seven hundred bulbs in all, in fifty-five separate varieties,	**$30.00**

The most wonderful offer ever made.

One-half above Combination Offer: Fifty each of above seven types—350 bulbs in all, in fifty-five named varieties	**$16.00**

Selection of varieties to be made by us, guaranteed to contain only the most modern sorts and many new varieties.

Delivered at your door at prices quoted.

Cut out this ad. at once. Mark the collections you desire and return with your remittance so you may receive your supply while the bulbs last. You cannot duplicate this offer!

MAX Schling's SEEDSMEN, INC.
24 West 59th St., New York

The Road to a perfect Garden of perfect Dahlias

leads through my catalogue of my favorite flower! Twenty-five years ago, I started with a few roots of less than a dozen varieties in my homegarden. As the Dahlias grew, my love for them grew. The backyard garden soon proved utterly inadequate to hold my evergrowing collection.

I moved on a farm, added acre after acre, until to-day, my Dahlia farms produce the millions of roots that are necessary to fill the ever increasing demand for Alexander Dahlias. That the volume of business now done at my Dahlia farms does not keep me from steadily evolving grander hybrids and better seedlings, the recent Dahlia Show has proven.

Send me your address for free catalogue NOW

Right now, while the memory of the Show still lingers, drop me a line giving name and address and mention Garden Magazine. My new catalogue of Dahlias will be ready soon after the New Year. A Fall catalogue offering Bulbs and Hardy Plants for present planting, will be sent at once.

"The Dahlia King"

J. K. Alexander
27-29 Central Street
East Bridgewater, Mass.

Edith Ripley Kennaday
Consultant in
Practical and Decorative Gardening
Naturalistic Plantings
Perennial Plantings Shrubbery Plantings
The charm of little gardens and the balance and beauty of larger gardens are due to careful thought and consideration
STUDIO 22M 119 East 19th Street, New York City

HAND MADE FLOWER HOLDERS

No Flowers Too Delicate, No Stem Too Long

Just the thing to double the life of your cut flowers These holders are absolutely unique, but thoroughly practical.
Prices from $1.50 up.
Odd sizes and shapes can be made to order for special containers.
Every holder guaranteed to last for many years.
A demonstration will surprise you.

WALTER S. DANIELS, 872 Lexington Ave., New York

LANDSCAPE DESIGNS

We solicit your correspondence relative to the beautifying of home grounds. Designs drawn by experts familiar with every phase of this work. Planting plans furnished free under conditions which we shall be pleased to explain on request.

Write for sample plan and full particulars

GUARANTY NURSERY COMPANY
Landscape Department
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Mobilla Gardens

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Peonies, Iris and Phlox

All the newest European and American Introductions

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Vol. XXXII, No. 3

The Garden MAGAZINE

November, 1920

NOV 1 - 1920

WHEN AUTUMN REIGNS

The Chrysanthemum in linking together the garden of outdoors and the garden under glass, sheds its lustre of subdued color tones in perfect harmony with nature's mood, a final glorious crowning of a twelve months' care

The achievement of flower on a seedling Cattleya five-and-a-half years after the date of sowing and nearly seven years from the time of making the cross, is a reward of watchful, yet never weary, waiting, inspired ever by the unknown possibilities that lurk within. This plant (C. intermedia alba x C. Mossiae alba) is now in a five-inch pot. (See also page 149.)

THE REWARD OF WATCHFUL PATIENCE

IT LURES THE GUEST TO FOLLOW

This bit of planting with its suggestion of mystery admirably accomplishes just what planting always should, giving rein to the imagination and enticing one to explore the unknown beyond

THE FEAST OF THE DAHLIAS

Real Triumph for the American Dahlia Society In Its First Independent Exhibition in New York

LEONARD BARRON

TABLE DECORATION WITH THE REFINED TRUE CACTUS TYPE

Pink Cactus Dahlia and Belladonna Delphinium with Maiden-hair Fern (Alling)

FOR three days in the last week of September the crowds came, and saw, and were conquered. True, the season had been unusually favorable for the perfection of exhibition blooms of this magnificent flower of the fall garden; not too hot; sufficient rainfall pretty well distributed over the season; and no devastating "cold snap" to nip the blooms on the eve of the opening of the big show. It was a bold venture for this comparatively little known organization to open up, all on its own account, on the roof-garden of one of the big hotels of the metropolis, but the success of the effort, looked at both from within and without, was justifyingly sufficient. Following the lead of some other bodies, which also took their annual exhibitions into a commodious hotel in a central city, the American Dahlia Society demonstrated to those who were fearsome—and they were not a few—that the one way to get an attendance of the public at a floral meeting is to go where they, the people, are already wont to go. Is there not a lesson here for the management of other floral associations?

At all events there gathered together during those days (September 27, 28, and 29) as great and as representative a lot of horticulturists as might be expected at any national gathering. Garden Club members, amateurs with a general love of the garden and its products, pure Dahlia enthusiasts, Rose men, Iris and Peony men, as well as dealers and commercial and professional horticulturists from a wide area foregathered at the festival of the Dahlia. Now indeed it may well be said, "The Dahlia has arrived"—not that it ever has been very far in the background! It is a flower of wonderful allure for the amateur with only a few feet of ground to use; its gorgeous coloring, its multiple form, and its lavish profusion of bloom captivate all who once pause to give it concern. It is not a hardy plant in that the roots need caring for over the winter, but that is perhaps an added attraction, requiring a minimum of personal attention. And it yields so much for so little effort. The blooms may be cut freely, almost with abandon, and still more and more come along. Even the element of tenderness and the chance injury (or in an occasional year, complete loss of the bloom) by an early frost is oftentimes an incentive to the gardener to try his luck once more. Its color range is practically everything the floral world has to offer, except blue, and in addition some strange shadings of almost metallic lustre, or like the fire from precious jewels, that none of the other garden plants will yield. They may be raised from seed to flower in a season, and the variety then to be had by one's own efforts will surprise any who have not yet entered into that fascinating field. Well, indeed, was it named Dahlia variabilis, for it is without doubt the one most

WHAT THE MODERN GROWER MEANS BY A "FANCY" FLOWER

Discarding the older strict subdivisions of "show" and "fancy", according to color distribution, the term is loosely applied to anything fantastically variegated. Right, John Lewis Childs' variegated crimson on orange with occasional white tips; left, a new Stillman seedling, crimson and white

JUDGE MAREAN, Decorative

Representative of a highly selected strain of Decoratives of large size, yet not coarse (Scheepers)

PATRICK O'MARA, True Decorative

Tawny orange, and named after a well known horticulturist, a sturdy flower on a good stem (Vincent)

MRS. WARNAAR, Hybrid Cactus

Representing a type that is effective in the garden and useful as a furnishing flower indoors (Alexander)

CLIMAX, Collarette

Deep red with white "collar" this variety marks the present advantage in size of this type; reduced one-third (Totty)

variable plant of all the hosts that are grown in gardens. It never "comes true" from seed, but its seedlings are likely to be just as good as some others of the ten thousand or more which have been given names and been listed in the catalogues.

Most exhibitors, be it noted, had their blooms carefully labeled, which was very helpful to the visitor, but one large grower, whose display was one of the attractive spectacles of the show, had not followed this rule, which should be insisted upon by the Society for its own benefit. One other thing to be given attention at future exhibitions is the method of displaying the blooms. Instead of covering the tables with, as in this case, a light colored wrapping paper, something darker and neutral in tone should be chosen; green, the color of the foliage, or an earth-brown would be a suitable foil against which the flower colors would stand out in a natural way. One exhibitor used deep purple velvet which very successfully diminished the brilliancy of some of his best varieties while enhancing others. Another, achieved good results by backing the bloom with Dahlia foliage, and some others of the trade growers, like Burpee, and Totty made really artistic displays.

NEW DUPLEX-PEONY DAHLIA, ETENDARD
Pure white with orange disk and here shown about half size (Totty)

As to types, while everything except the old fashioned Single was seen, yet the show demonstrated the overwhelming popularity of the Decorative and Peony-flowered forms, in about equal weight. Next came the Cactus flowered but with a decided tendency away from the dainty, fragile looking, purest forms towards what is strangely called Hybrid Cactus. There were some really good displays of the old globular Show into which the Fancy of the old-time florists is now merged.

The individual color classes did not make much of an impression on the whole exhibition, partly because there were not many contestants and partly because the management had not grouped them together, and the winning exhibits had to be hunted out. Winning varieties were: (red) Pride of California; (white) Madame H. Scalabre; (yellow) Yellow King; (pink) Attraction; (fancy) John Lewis Childs. Be it noted that the term "fancy" as here used evidently means variegated, and not the "Fancy" of the old time growers. The variety named is in fact a variegated and variable Decorative. In "any other color" Miss Edith Slocum, a large deep claret colored flower won, and in Decorative an unnamed seedling of the Geisha type. Stillman's Millionaire won as the largest bloom on display.

Seeing the display in retrospect there remain in mind certain varieties of compelling individuality; for example the splendid strain of large but not coarse Decoratives developed by Judge Marean, as exhibited by Scheepers. These are quite numerous and have a general likeness of form and size, and seemingly are to be had in almost any shadings and hues. Equally individual are those of the late Mr. Slocum which are now grown by his daughter.

Actual novelties of real merit were few, but among them was one by R. Vincent & Sons named Patrick O'Mara, in memory of the much honored horticulturist of that name (of the firm of Peter Henderson) recently deceased. This is a Decorative of tawny-orange color borne on a good stout and long stem that seems to mark it at once as a useful practical variety. Moreover it scored 91 per cent. (almost perfection) at the Storrs trial grounds this season.

Mrs. Stout, whose earlier seedling J. Harrison Dick was named in memory of the former secretary of the Dahlia Society, had this year a seedling from that variety fertilized by itself, the result being a Decorative of improved color, but somewhat in the same range as the parents, and seeming to promise well for the future.

Among others worthy of record were: Edith Ward, a port-wine colored true Decorative with twisted petals showing a lighter reverse, from W. Ward, Trenton, N. J.; an unnamed yellow seedling also from Mrs. Stout (Short Hills, N. J.) which may be described as a Hybrid Show; Tropic Bird, a large Single, deep rose on yellow ground with a central cross bar of yellow on each ray (John Lewis Childs); Anna Lorenz, a Duplex, pink with what Ridgeway calls "sea foam yellow" disk; Lilian Smeenk, Duplex-peony, yellow running to pink equally divided on each ray (in the trial grounds this has shown unusual keeping qualities); F. P. Quimby, white Decorative; White Pearl, Peony-flowered.

In Charles H. Totty's display, in addition to the little Tom Thumb or Star Dahlias were two kinds, and by reason of their contrast specially striking: Etendard, a Duplex-peony, pure white eight or nine inches across and carried on a long stiff stem; and a yellow companion variety, Jovaine. Here also was the largest Collarette variety yet observed and well named Climax, deep red with white collar. Of the Marean strain already referred to, the varieties Mephistopheles, deep wine red; Judge Marean, dull orange-yellow; Mrs. I. de Ver Warner, mauve-pink, were specially striking. Lilac Giant (of Burpee) touched a color described by its name that is unusual, and others of this strain have merit as serviceable flowers with good stems for cutting, Jean Kerr, a white Decorative (which scored 85 points in the trial grounds), is also a very good cut flower. The decorative possibilities of the

Dahlia were but lightly demonstrated, yet Mr. Alling's prize arrangement shown in our opening illustration was a charming conception.

Of course the old standbys like Hortulanus Fiet, Mina Burgle, Pierrot, Wotan, etc., etc., in nameless profusion were there for renewed acquaintance; of course in the comprehensive displays of such redoubtable champions as J. K. Alexander, Geo. L. Stillman, and John Lewis Childs, with C. Louis Alling, Emily Slocum, W. D. Hathaway, Walker Bros., and Alfred E. Doty, the popular general leaders as well as the specialties of each were to be seen, but enumeration of any such at this time would be but a weariness to the flesh—and then catalogues tell the stories anyhow.

Next year the Dahlia festival, it is rumored, will again be in New York, and the executive officers who so successfully carried through this year's venture were re-elected at the annual meeting held Sept. 28th: R. Vincent, Jr, White Marsh, Md., President; E. C. Vick, New York, Secretary. One change in the boards brings John Davies, San Francisco, Cal., as Vice President.

A GARDEN STRAIN FOR POPULAR USE

Jean Kerr is a representation of a free flowering moderate-size flowered strain as a cut flower for the million (Burpee)

THE MIGRATORY APHID AND THE LANDSCAPE GARDENER

EDITH M. PATCH
State Entomologist, Maine

Strange Partnership of the Alder and Soft Maple as Alternating Hosts of a Pest That Disfigures One of Our Most Popular Shade Trees, Which Gives Two Opportunities for Winter Control by Spraying and Cleaning

"DO YOU not think a Cut-leaved Maple would feature well at the left of that opening?" asked Mr. Countryman of Mr. Landscape Gardener.

"Yes," replied Mr. L. Gardener cordially, "the Maple would grow into that vista very well, and be an ornament, too, if it were not for your Alders."

Mr. Countryman frowned. The Alders lined the stream the other side of a little hill and were not in sight from where the men were standing. In fact, the proposed Maple and the Alder fringe could not be seen at the same time from any spot except the top of the rise. Besides, suppose they could? What was there inharmonious in a landscape harboring both these trees if they were placed in a becoming setting?

He had requested that a capable man be sent to him, both practical and aesthetic, and the candidate was telling him not to plant a Maple because there were Alders off somewhere the other side of a hill!

Mr. Countryman turned, his frown deepened by these reflections, to take a keen look at his adviser. He had not previously noticed that he seemed stupid.

Mr. Gardener met the glance with a frank smile. "If you will walk over to those rocks with me," he said, "I'll tell you what I mean."

A few rods brought them to the spot indicated where there was a clump of native Silver Maples.

"What is the matter with those leaves?" asked Mr. Countryman, sharply, as they paused beside the trees.

Mr. Gardener pulled down a low branch. The usually graceful leaves were drawn and saggy and thickly lined beneath with a mass of some substance that looked like a tangle of sticky white threads. Poking into this, they found hidden under it numbers of small dark bodied insects, some already with wings and others with swollen "shoulders" indicating that they had not long to wait for the means of flight.

"These are aphids," explained Mr. Gardener, "about ready for their migration. The damage to the Maples is already done. These leaves tapped of their sap, will not regain a healthy appearance all summer."

They continued their walk, and Mr. Countryman noticed with increasing interest that he was being led to the Alder fringe.

"This is the destination of the migrants from the Maple leaves," said Mr. Gardener as they stopped a second time. "Flying to the Alder, they come to rest on the underside of the leaves and there produce the young which go to the stem and make the fluff covered colonies which are sometimes known as alder blight."

Mr. Countryman's frown appeared again. "This is late June," he said, tersely. "The 'migrants' are just leaving the Maples. Alder blight has been present on these bushes since early May."

"Yes," responded Mr. Gardener, quietly, "I was about to mention the fact that this aphid has one of those life histories complicated by two methods of wintering over. One is in the egg on the Maple from which hatches the first spring generation on that tree, and the other is the hibernating young produced on the Alder in the fall and lurking under the fallen leaves until spring. It is these over-wintering young which begin to feed on the Alder early in the spring and start colonies that are augmented later by their sisters from the Maple. Winter sprays on the Maple and clearing up the refuse about the Alder will help to control the aphid, however."

Mr. Countryman laughed. "You make me want to take up entomology for a pastime just for the fun of knowing stories like that."

"Improbable, but true, as some one has put it," returned Mr. Gardener with a smile.

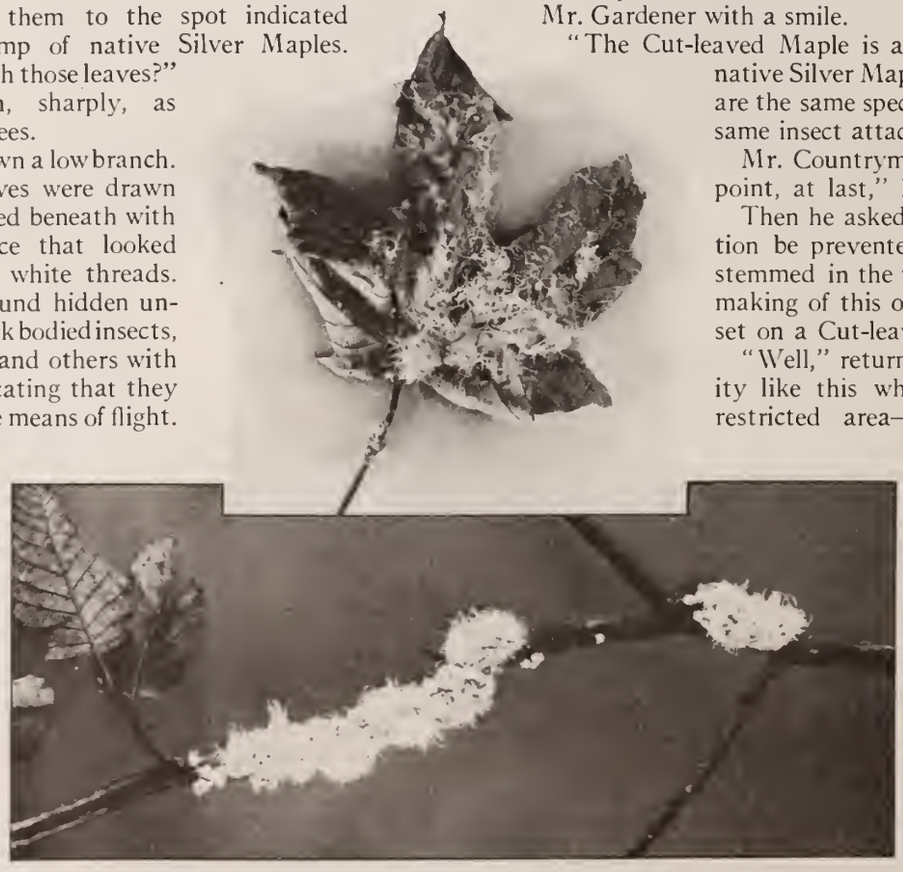
"The Cut-leaved Maple is a cultivated variety of the native Silver Maple," he continued. "They are the same species and susceptible to the same insect attacks."

Mr. Countryman nodded. "I get your point, at last," he said.

Then he asked: "But can't this migration be prevented? These Alders, purple stemmed in the winter and spring, are the making of this outlook, and I'd my heart set on a Cut-leaved Maple."

"Well," returned the other, "in a locality like this where the Alders are in a restricted area—your farmer neighbors keeping theirs cut down for pasture reasons—I do not see why you could not get rid of the Alder blight during the summer by the simple process of wiping and crushing the conspicuous colonies from the stems. In that case there would be no fall migration to the Maple and therefore no leaf trouble there in the spring."

"Ah-h," was Mr. Countryman's comment. His frown had disappeared.



THE APHID HAS TAKEN POSSESSION

The aggressive quality of this blight (Prociphibus tesselata) is abundantly evident. The Maple leaf (photographed July 26th) shows the havoc wrought by the spring forms before their migration to the unfortunate Alder, upon which the summer colonies prey. (Branch of Alder photographed Sept. 1st)

OUR OWN EVERGREEN GARDEN

LEONARD BARRON

Here the ever welcome visitor may easily compare the various attractions of a hundred or more ornamental evergreens

A GARDEN of evergreens may be composed of two quite distinct classes of plants, generally spoken of as "Coniferous" and "Broad-leafed." This description is an easy way of general distinction, but it is not strictly exact; because some evergreens that are *not* broad-leafed do not bear their fruit in "cones," and some cone-bearers are not evergreen. But for horticultural purposes these divisions have a certain convenience.

Regarded as garden material, plants that are "evergreen" are especially valuable because the persistent foliage lends color all the year round and gives life to the picture in winter; and moreover these evergreen trees are particularly useful as screens and as wind breaks. If evergreen screens were more largely planted it would be a great help, by reason of the shelter thus provided, to increasing the number of available plants for seasonal effect in the borders. From a landscape point of view, too, the evergreen is important in affording a suitable background against which the flowering merits of many shrubs, trees, and herbaceous plants can be seen to best advantage. And quite apart from these secondary considerations of their value the evergreens appeal strongly for their individual characteristics—their diversity of leaf form, their rich range of coloring, and their "texture" of the mass.

The evergreen garden recently planted in the GARDEN MAGAZINE grounds at the Country Life Press, Garden City, is chiefly a collection of the cone bearers—which is the general popular conception of an "evergreen"—but it has also a few examples of other things, for illustration and comparison. As originally planted this collection of evergreen conifers numbered about 150 species, varieties and garden forms, as offered ordinarily in the nursery catalogues. A number of these have not proved hardy in the climate and conditions of Garden City, and quite recently there have been added a number of the newest introductions of Mr. E. H. Wilson, from China—some of these we are glad to say promise to be among the best examples of their kinds in this country. The soil at Garden City is of a sandy nature, dry, and not deep—hence the Pines are favored more than the Spruces, etc.

The coniferous evergreens are generally native of the cooler regions of the earth, inhabiting in greatest variety the northern climes or, as we proceed southward, the elevations of the mountains. They include some of the most gigantic trees on the face of the earth, and some of its oldest living occupants as seen in the Big Tree of California. The gardener, however, is perhaps quite as much interested in the multitude of dwarf forms that lend themselves so well to ground of small dimensions. And to him these are quite familiar, while only travelers into their native regions can have any knowledge of the adult forms which may be giant trees.

Coming down to this age from the most remote era, the conifers furnish a direct connection with the vegetation that gave us the coal measures, perhaps hundreds of millions of years ago. Some of the trees that we know as living things to-day are, indeed, almost, if not quite, identical with some among these ancient forests; and, identical or not, as we know them are the direct descendants of a very, very ancient vegetation, which occupied the earth long before the majority of our present-day deciduous trees appeared.

To the botanist the cone bearing trees thus are of absorbing interest, in which the gardener may well share. May it not be that certain uncertainties among these plants are related to the struggle for existence that has gone on, and still is going on? In the evolution of the present day forms, in the effort to adapt themselves to the changing conditions, plants have undergone many changes. The marked tendency in some species or groups to variation, especially in the stage of youth, is curiously interesting in this association—for example the so-called Retinisporas, which are juvenile forms of two species, and which in due season, as they age, assume a very different character. The range of variation observed in the several forms of Yew may also be nothing more than the geographical adaptation of forms of one common origin over long ages.

Considered with the coniferous evergreens are the Yews, although they do not bear cones; and this group includes the curious Maidenhair-tree, which however is deciduous—i. e., it sheds all its foliage annually, as does the Larch which does

bear cones. The Ginkgo or Maidenhair-tree has a curious interest because of its recognized antiquity—being seen in the coal measures even in our own land—but is nowhere known to exist in a wild state to-day! "It stands alone, a perfect stranger in the midst of recent vegetable forms." It has been preserved to us by the priests of the Orient and is common as a cultivated tree about the Temples of China and Japan.

The common Larch is another bridge across the channels of life groups in that, while it does bear cones, it is not evergreen and has been facetiously referred to as the "deciduous evergreen"—because the cone bearing feature is so generally associated with persistent leafage. It should be understood of, course, that the term "persistent" is only relative. The leaves endure from various periods ranging from three to fifteen years. All evergreens eventually do shed their old leaves; and in our native White Pine the shedding in early summer often causes alarm to the novice.

Much might be said of the economic importance of the Cone-bearing trees. Their timber is of universal use in building, being the cheapest and the most easily obtained. The resinous content of the wood of some kinds yields gums, turpentine, pitch, tar, amber, Kauri gum, Canada balsam, etc., of great value in the arts and industries. And the coniferous forests are the greatest source of paper pulp for the printing industry.

This brief survey of some of the points of interest in the evergreens, may help to interpret these remarkable and useful plants so that there shall be a new understanding and appreciation of them. Serving us in our everyday needs of the moment, as ornaments about our grounds they also carry us back in retrospect through the long ages spanned by geology to the primeval forest forms of this earth and lead us speculatively to wonder of the future of tree life.

This collection of ornamental evergreens has been made with the active coöperation of Mr. E. H. Wilson and the Arnold Arboretum and a number of nurserymen including Bobbink and Atkins, Wm. H. Moon & Co., I. Hicks & Son, Cottage Gardens, R. & J. Farquhar & Co., American Forestry Co., and D. Hill & Co.

LIST OF PLANTS IN THE EVERGREEN GARDEN

The names here given are those under which the plants are listed in the catalogues generally and under which they were acquired

Abies cephalonica—Grecian Fir
Abies concolor—Colorado White Fir
Abies Fargesi—New Chinese Fir
Abies homolepis (brachyphylla)—Japanese Fir
Abies montigena—Japanese Mountain Fir (New)
Abies recurvata—New Chinese Fir
Abies Reginae Ameliae—Grecian Fir (variety)
Abies Veitchii—Veitch's Fir
Andromeda floribunda—Andromeda
Andromeda japonica—Andromeda
Azalea Hinodigiri—Japanese Azalea

Berberis Aquifolium—Crepe Berry
Biota elegans—Arborvitae

Calluna vulgaris—Scotch Heather
Cotoneaster microphylla—Small-leaved Rock-spray
Cryptomeria japonica—Japanese Cedar
Cryptomeria Lobbii—Lobb's Japanese Cypress
Cryptomeria Tamasuzi—Japanese Cedar

Evonymus radicans; vegetus—Large-leaved Evergreen Climbing Spindlebush

Ginkgo biloba—Maidenhair Tree

Ilex crenata—Japanese Holly
Ilex glabra—Ink-berry
Ilex opaca—American Holly

Juniperus canadensis aurea—Golden Canadian Juniper
Juniperus canadensis nana—Dwarf Canadian Juniper
Juniperus chinensis—Chinese Juniper
Juniperus chinensis erecta—Erect Chinese Juniper
Juniperus chinensis Japonica—Japanese Juniper
Juniperus communis hibernica—Irish Juniper
Juniperus excelsa stricta—Greek Juniper
Juniperus foetidissima—Red Cedar
Juniperus japonica aurea—Yellow Japanese Juniper
Juniperus Kosteri—Grey Juniper
Juniperus rigida—Stiff Juniper
Juniperus Sabina—Sabin's Juniper
Juniperus Schotti—Schott's Red Cedar
Juniperus squamata—Prostrate Juniper
Juniperus squamata Fargesi—New Chinese Juniper
Juniperus squamata Wilsoni—New Chinese Juniper
Juniperus tamariscolia—Spreading Juniper
Juniperus tripartita—Three-way Juniper
Juniperus virginiana—Red Cedar

Kalmia angustifolia—Sheep Laurel
Kalmia latifolia—Mountain Laurel

Leucothoë Catesbaei—Lily-of-the-Valley Shrub

Picea alba—White Fir
Picea asperata—Sharp-leaved Japanese Spruce
Picea asperata Balfouriana—Chinese Spruce
Picea asperata notabilis—Chinese Spruce
Picea asperata ponderosa—Chinese Spruce with big cones
Picea Clanbrasiliana—A supposed sterile form of Common Spruce
Picea Engelmanni—Engelmann Spruce
Picea excelsa—Spruce, Norway Spruce
Picea excelsa dumosa—Bushy Spruce
Picea excelsa inversa—Weeping Spruce
Picea excelsa Maxwelli—Maxwell's Dwarf Spruce
Picea excelsa nana—Dwarf Spruce
Picea excelsa pendula—Drooping Spruce
Picea excelsa pygmaea—Pygmy Spruce
Picea nigra—Black Spruce
Picea ormorika—Servian Spruce
Picea orientalis—Eastern Spruce
Picea orientalis nana—Dwarf Oriental Spruce
Picea polita—Shiny Spruce
Picea pungens—Blue Spruce
Picea pungens Kosteri—Koster's Blue Spruce
Picea reflexa—Backward leafed Spruce
Pinus Banksiana—Scrub Pine
Pinus Cembra—Dwarf Swiss Pine
Pinus montana—Mountain Pine
Pinus montana Mughus—Mugho Pine
Pinus ponderosa—Pitch Pine
Pinus resinosa—Red Pine
Pinus densiflora umbraculifera (Tanyosho).—Japanese Table Pine
Pinus Thunbergi—Japanese Black Pine
Pseudotsuga taxifolia (Douglasi)—Douglas Spruce
Pyracanthus Lalandi—Evergreen Thorn

Retinispora filifera—Thread-like Cypress
Retinispora filifera aurea—Golden Japan Cypress
Retinispora filifera aurea pendula—Drooping Japan Cypress
Retinispora obtusa erecta—Japanese Cypress, Upright
Retinispora obtusa filicoides—Thread-leaved Japan Cypress
Retinispora obtusa globosa—Round Japan Cypress
Retinispora obtusa gracilis—Japanese Cypress, Graceful
Retinispora obtusa gracilis aurea—Golden Japan Cypress
Retinispora obtusa gracilis compacta—Graceful Dense Arborvitae
Retinispora obtusa lycopodioides—Japanese Cypress
Retinispora obtusa nana—Dwarf Japan Cypress
Retinispora obtusa nana pygmea compacta—Dwarf Japanese Cypress
Retinispora obtusa Youngi—Young's Japanese Cypress
Retinispora pisifera aurea—Japanese Golden Cypress
Retinispora plumosa—Plumed Cypress
Retinispora plumosa aurea—Japanese Golden Plumed Cypress

Sciadopitys verticillata—Japanese Umbrella Pine

Taxus adpressa—Small-leaved Yew
Taxus baccata—English Yew
Taxus baccata fructu-luteo—Yellow-fruited Yew
Taxus baccata Ouverardi—English Yew (form of)
Taxus canadensis—Ground Hemlock
Taxus cuspidata—Japanese Yew
Taxus cuspidata brevifolia—Japanese Dwarf Yew
Taxus Dovastoni—Pendant English Yew
Taxus hibernica—Irish Yew
Taxus hibernica aurea —Golden Irish Yew
Taxus repandens—Form of English Yew
Taxus tardiva—Form of English Yew
Taxus tardiva aurea—Golden Yew
Taxus Washingtoniana—Washington Yew
Thujopsis Standishi—Standish's Thujopsis
Thuya Geo. Peabody—Round Dwarf Arborvitae
Thuya globosa—Globe Biota or Arborvitae
Thuya globosa nana—Dwarf Arborvitae
Thuya occidentalis pyramidalis—Upright Arborvitae
Thuya occidentalis spiralis—Eastern Spiral Arborvitae
Thuya orientalis—Eastern Arborvitae
Tsuga canadensis—Hemlock
Tsuga canadensis Hicksii—Hick's Hemlock
Tsuga Sieboldi—Siebold's Hemlock

Viburnum rhitidophyllum—Evergreen Viburnum

INDULGING ONE'S FANCY
Even a small conservatory affords opportunity for creating a little Palm world in which a semblance of the tropics will defy the winter

DOMESTICATING THE PALM

CAMILLE HART IRVINE

If You Cannot Go to the Tropics Bring Some of the Plants of the Tropics Into Your Dwelling. Both Greenhouse and Living-room Offer a Home to the Palm

PALMS are beautiful at all seasons of the year, and lend charm to the home, giving a tropical atmosphere to the house in winter, and making the porch and grounds attractive in summer. They are among the most decorative and satisfactory of all house plants.

Of course no greenhouse is complete without them, and they adapt themselves to any shelf or corner there, requiring little care.

Palms need so few things, but they must have: good light; good soil; good drainage; good air; water. They cannot stand: coal gas; poor drainage; hot, fetid air; frost or freezing; wet, soggy soil; being dry in the bottom of the pot. They will thrive in sun or shade, just so there is plenty of light; and if kept moist they will flourish at the northern end of the greenhouse, or in its sunniest corner. Though a Palm misses the luscious, moist atmosphere of the greenhouse when transferred to the dwelling, it soon adjusts itself and shows no marked change if kept properly watered and drained. It should be given enough water to reach every tiny root and run through the bottom of the pot, or the tips of the leaves will turn brown; but it is more easily killed by over-watering than through lack of it. After each watering the saucer or jardiniere must be emptied, otherwise the leaves are apt to lose their fresh green tone and become a dull yellow because of the absence of air. All dust should be removed by sprinkling or washing the leaves.

The two currently given objections to Palms: first, that they are hard to raise without a greenhouse; secondly, that they are expensive, are really no objections at all. Palms are as easy to raise in the home as Ferns, if one observes the few things they need, and the few things to avoid. To recapitulate: they must have good, fresh air (but not cold air), and will not tolerate gas from a furnace; they will not flourish in a dark corner of the room, but demand light and plenty of water. Once a year they must be repotted, preferably in August, and usually changed to a bigger pot, with good drainage in the bottom and fine rich earth. They throw long, deep roots, not wide-spreading ones; and require deep pots, not broad ones, and thrive better when the pot is not too big for them. Large Palms are usually put in cedar kegs to get depth without width.

Palms of various kinds and sizes may be grown in the house in a bay window with southern exposure in winter, and put out on the lawn in summer. They do not grow so fast or so luxuriantly as in a greenhouse, but given a very little care they certainly are not hard to raise, and readily become strong, sturdy plants.

Scale on the leaves and stems is their worst foe. It comes in several forms, little round specks the size of fly specks is the most common. It has to be scrubbed off with a good stiff scrubbing brush and whale oil soap, particularly from the wrong side of the leaves.

As to expense: if one has a greenhouse, Palms can be raised from seed but they are very slow in germinating, some not for a year or even two. It is therefore better to get the small plants from some good dealer who makes a specialty of raising Palms from seed. These will be of small cost and are easily shipped, packed in moss and sent by parcel post.

All Palms throw up two long slender leaves at first, and all look alike, and that is the time to buy them for the greenhouse, —before the character leaves appear. Some develop their own character leaves earlier than others, but usually in from six months to a year after the seed leaves. Seedling plants which are to be grown under ordinary house conditions should have their roots soaked in tepid water for half an hour before potting. Small pots are preferable; 4-inch pots for plants 10 to 15 inches high, and 6-inch pots for plants 20 to 24 inches high.

The favorite among Palms, and one which every one knows and loves, is the big Chinese fan-leaved Livistona chinensis, or Latania borbonica of many dealers, as it is one of the most tropical looking, and of the easiest culture.

All of the Phoenix Palms are most decorative and have the additional rare virtue of cheerfully enduring neglect. Phoenix pumila is a rich blue-green, sturdy and desirable, and forms character plants very early, but they are spiny, and better for the lawn than the house. The very popular Phoenix reclinata is more drooping, with longer fronds, and develops into a larger plant. Phoenix filifera and P. Roebelenii have finer leaves but are less robust.

The popular yellow-stemmed Areca lutescens, or properly Chrysalidocarpus lutescens, is one of the most feathery and beautiful kind for the house, and does not grow so big and unwieldy, but sprouts from the root making a lovely plant.

The Howeas are the handsomest and most graceful of all Palms, with long slender fronds, but are very slow in growth and should be bought after the character leaves have appeared. The two most familiar species are generally known under the titles of Kentia Belmoreana and Kentia Forsteriana.

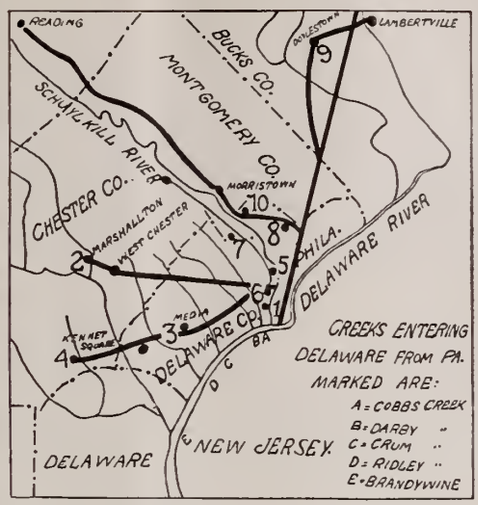
These are the four best Palms for the home grower, easily cultivated and suitable for decorating at a wedding or other function; equally suitable in the less formal atmosphere of living-room, porch, or lawn. They group beautifully with other plants or with cut flowers.

There are others which would be desirable in a big collection, such as the Cocos Weddelliana with its fine pinnate foliage, largely used by florists for fern dishes for the table; and Corypha australis, which grows so slowly one fears it is petrified; and many more, but the four standard favorites are the Latania, Phoenix, Areca, and Kentia, and everybody if possible should have at least these.

SOME PALM FAVORITES

These sturdy, house-grown specimens conclusively prove the possibility of successful domestication. The two large Fan-palms (Livistona chinensis) on right and left have reached their quarter century mark

THE OLD GARDENS OF PENNSYLVANIA



II.—HUMPHRY MARSHALL'S

JOHN W. HARSHBERGER
Professor of Botany, University of Pennsylvania

One of our Earliest Arboretums Founded in 1773 by Humphry Marshall, Author of the First American Botany, and Cousin of that other Distinguished Pioneer Horticulturist, John Bartram

[EDITOR'S NOTE.—*This series of pilgrimages to the sites of the early gardens will be continued in subsequent numbers and will cover the region shown in the accompanying map, each location being numbered in the order of its treatment. The heavy lines show the available automobile roads.*]

HUMPHRY MARSHALL, whose descendants still live in Chester County, Pennsylvania, was a cousin of John Bartram. (See October GARDEN MAGAZINE, p. 78). He had similar tastes and his garden was almost as celebrated as the one at Kingsessing. Humphry Marshall was born October 10, 1722, of English ancestry, who came to Pennsylvania about the year 1697. He lived first on a farm near the west branch of Brandywine Creek, but after his father's death (1767) he removed to his newly erected house on a tract of land which he had purchased near the Bradford meeting-house, adjoining the site of the present village of Marshallton. The arboretum was founded in the year 1773.

Prior to the establishment of the garden at Marshallton, he had been engaged in collecting native plants and seeds for shipment to Europe, but subsequently, with the assistance of his nephew, Dr. Moses Marshall, he began to plant his botanic treasures at home. In 1849 when Dr. William Darlington wrote his "Memorials of John Bartram and Humphry Marshall," he stated that a large number of the trees still survived, although the garden from neglect, had become a wilderness; while a number of our noble forest trees, such as the Oaks, Pines, and Magnolias (Magnolia acuminata), all planted by the hands of the founder, had now attained a majestic size. A writer in 1893, and one in 1894, describe the garden, as it appeared to them. The house was embowered in trees, among which was a large and perfect specimen of the Bartram Oak (Quercus heterophylla) raised from an acorn brought from Bartram's garden. Nearby was a splendid Cucumber-tree (Magnolia acuminata). There were then several large Black Birches, a tall Hackberry, some Buckeyes, a European Larch, several Rhododendrons and Box-trees.

THE OLD HOUSE

West end (right) and rear (below) as the place is today, some of the old trees etc., that had overgrown having been cut away in recent years

INTERESTING OLD STONES

This enlarged portion of the adjoining photograph shows the inscribed stones between the lower windows on the east end

The best of these trees and some of the shrubbery were cut down by Mr. Lilley, the owner, about that time, as he considered the shade too dense about the house. Many large trees were standing when I first visited the garden on May 22, 1896 and again in 1904, and on September 27, 1913, to make an address at a memorial meeting of the Chester County Historical Society in memory of Humphry Marshall and William Darlington.

The photographs which accompany this account of the Marshall Arboretum were taken on the fourth visit to the place on May 23, 1919, and in September, 1920. The noteworthy trees of the planted ground in front of the substantial stone house were the Cucumber-tree (Magnolia acuminata), Kentucky Coffee-tree (Gymnocladus canadensis), Sweet-gum (Liquidambar styraciflua), Hackberry (Celtis occidentalis), Black-locust (Robinia pseudacacia), Honey locust (Gleditsia triacanthos), Tree-of-heaven (Ailanthus glandulosus), White Pine (Pinus Strobus), Hemlock (Tsuga canadensis), Chestnut (Castanea dentata), Black Walnut (Juglans nigra), Black Birch (Betula lenta), and the White Poplar (Populus alba).

The Maple trees were represented by the Norway Maple (Acer platanoides), and Sycamore Maple (Acer pseudoplatanus). A large Horsechestnut (Aesculus Hippocastanum), full of flowers on the day of one visit, and the Buckeye (Aesculus octandra) were noteworthy. The secondary trees consisted of Box (Buxus sempervirens), Papaw (Asimina triloba) in full flower with its chocolate colored petals, Mountain Magnolia (Magnolia Fraseri) and Catalpa. On the ground the following herbaceous plants lent an interest to the stroll about the place; Winter Aconite (Eranthis hyemalis) in fruit, Star-of-Bethlehem (Ornithogalum umbellatum) in beautiful white flower, False-mermaid-weed (Floerkea proserpinacoides), Mayapple (Podophyllum peltatum). The Winter Aconite was probably introduced originally from Bartram's garden, as at one time it grew plentifully on the lawn there. All of the trees noted above on the days of the last visit of the writer were in a vigorous condition of health.

The old stone house built by Humphry Marshall and shown in the illustrations is in an excellent state of preservation. In Darlington's time, a projecting bay-window was in evidence on the southwest corner of the second floor, and it is said was used by Marshall in his observation of the stars. This bay-window remained until a date subsequent to 1884, when a photograph of the house was taken by R. S. Redfield. Some time between 1884 and 1893, it was removed and the open space walled in, as the house at present stands. The house abounds in oddly shaped rooms, cupboards and closets. A grandfather clock formerly occupied a nook built for it in the old house. In the kitchen is the old fireplace with its swinging crane before which doubtless Marshall sat on winter evenings while writing his famous book on trees. Several stones on the east wall of the house are marked by rough inscriptions as shown in the accompanying photograph.

In 1780 Humphry Marshall began to prepare an account of the forest trees and shrubs of this country which was completed and printed at the end of the year 1785 under title "Arbustum Americanum: the American Grove, or an Alphabetical Catalogue of the Trees and Shrubs, natives of the American United States." It is a duodecimo volume of one hundred and sixtynine pages. The arrangement is alphabetical and the descriptions are in accordance with the Linnaean system, and are for the most part faithful and satisfactory. The book is dedicated to the officers and members of the American Philosophical Society of which Marshall was a member and was for that day, and under the circumstances of its production, a useful and highly creditable work. He also wrote an essay on the relation between botany and agriculture publicly read at a meeting of the Philadelphia Society for Promoting Agriculture, February 14, 1786. In it he points out the science of botany in relation to other sciences, but emphasizes the fact that "of all others Agriculture certainly claims the strictest relation."

Humphry Marshall was invited by Dr. Casper Wistar in a letter dated May 27, 1792, to explore the country west of the Mississippi, subsequently visited by Lewis and Clark in 1803, but for some reason did not accept.

He was a big man, mentally and physically. Tall, erect, robust, possessing great muscular strength, his strong character was written in every feature. Toward the close of his life, he was much troubled with an affliction of the eyes and was finally compelled to give up his work because of failing sight. But he retained sufficient vision to enable him to find his way about among his beloved trees, and to point them out to his friends. He died November 5, 1801 at the age of 79 years and his body was laid to rest among his relatives and friends in the grounds at the Bradford meeting-house.

LARGE KENTUCKY COFFEE TREE

Across the road from the old Marshall house to-day stands this fine specimen of Gymnocladus canadensis, one of the best of its kind

MEMORIAL TABLET TO HUMPHRY MARSHALL

Erected 1913 by The Chester County Historical Society. The large trees in the background were planted by Marshall together with the old Box in front of the house seen to the right

The Chester County Historical Society erected a memorial stone in front of the main entrance to the arboretum with this inscription:

The Home and Arboretum of
Humphry Marshall
Early American Botanist
1722–1801
Marked by the Chester County
Historical Society 1913

There are a few other extant memorials of this botanist beside the house, his arboretum, and the bronze tablet. Descendants of his are in possession of his eyeglasses, his knee buckles, his porringers, and the tankard of his first wife. A microscope of antique form presented to him by Dr. John Fothergill is in existence. The tube of the microscope and its stage are raised on a tripod. Of his library the following books are in the possession of the members of the Marshall family: Mystogigus Poeticus or The Muses Interpreter, MDCXLVIII; A New and Literal Translation of all the Books of the Old and New Testament, 1764; Directions for Bringing over Seeds and Plants from the East Indies and other Distant Countries in a State of Vegetation, London MDCCXXI; Astrologia Gallica, 1661; Manuscript List of Trees sent by Humphry Marshall to West Chester.

EXPERIENCES WITH TOMATOES

ADOLPH KRUHM

Some Observations on the Behavior of Standard Varieties in Regard to Methods of Cultivation—The Matter of Blight Resistance and Pruning

THE curling of the leaves of Tomato plants can, I believe, be explained on an entirely different basis from that suggested in the October GARDEN MAGAZINE (page 27). In trials covering a period of ten years under widely varying conditions of soil and climate, I have never found the pruning of a plant to have any effect upon the root system. My observations have led me to the conclusion that the curling of the foliage is an automatic movement for protection on its part, an endeavor to present the smallest possible surface to the hot, moist air arising from the soil which it particularly seems to resent. Years ago when this peculiar leaf-action first came to my notice, I tried spraying—but without result; on the other hand a few days of cloudy or cool weather generally remedied the trouble; this rather conclusively indicated that blight was not its cause. The trials embraced nearly one hundred distinct varieties and strains of Tomato, part staked and pruned, and part permitted to spread on the ground; the reaction of the plants to weather conditions was the same in both cases.

Pruning and Training

TO LET a Tomato plant spread on the ground and grow as it will is wasteful. During the past ten years perhaps a dozen different methods of growing pruned plants have been tried out. The fruit produced under such natural conditions is inferior in size to that of the pruned plant, is frequently ill-shaped and of uneven ripening; and the fruit that does develop normally is subject to rot and attack by insects. My records over a number of seasons show the average loss of fruits from such causes to be about 25 per cent. of the whole.

The Tomato is an exceedingly rank grower, and unless its tendency to make a big plant is checked and directed into other channels, it will make about ten times as much herbage as is necessary. Different methods of growth, of course, necessitate different methods of staking.

Under truck-growing conditions it is not practical to tie the individual plant to an individual stake. The most widely practical way is to drive a stout post every fifteen feet along the row, and to stretch three lines of wire twelve to eighteen inches apart between the posts. The plants are generally reduced to the main stem, and the strongest branches. Setting the plants about two feet apart in the row with three-and-a-half feet between the rows allows for the maximum crop with horse cultivation. After the plants have reached the top wire cultivation stops. Strawy manure spread between the rows prevents the evaporation of moisture and the hardening of the soil. At Livingston's extensive trial grounds, where part of the plants are handled in this fashion, it was demonstrated that late cultivation among rows of staked Tomatoes so severely pruned the ever spreading roots that the crop was affected.

Under home garden conditions the general practice is to provide a six foot stake for each plant and to reduce that plant early in its life to the three strongest branches. This is all right with most varieties but there are exceptions. For example, Ponderosa, the strongest and rankest growing of any, should not be allowed more than two branches for the simple reason that the plant is not strong enough to support all the fruit that three branches would bear. I have seen heavy clusters of Ponderosa ripped down the stems, because the weight was too great for the branches to support. On the other hand, the smaller fruited varieties (Manyfold, for example) may have four branches trained up the stake.

THE HOME GARDENER FEELS CONTENT

When he has raised a crop like this! Bonny Best has again proved itself a successful blight-resister; its scarlet fruit, medium in size, is excellent for table use and for canning

MANYFOLD, PRUNED TO FOUR STALKS

Displays a vigorous response to proper treatment, which varies, of course, according to the requirements of different Tomatoes. The heavy-fruited Ponderosa, for example, must be much more rigorously pruned as the weight of fruitage any one plant can sustain is of necessity limited

About Blight Resistance

THIS summer (with its great contrasts of very cool weather, followed by short hot spells, and long wet spells followed by intensely cool dry spells) brought an excellent opportunity to study the relative blight resistance of what I consider the best and most distinct types. In order of their merit, they are: Globe, purple; Bonny Best, bright red; Manyfold, bright red; John Baer, bright red; Stone, bright red; Coreless, scarlet; Beauty, purple; Magnus, purple; Ponderosa, purple; Earliana, scarlet.

This would seem to indicate that on the whole, the scarlet varieties are more blight-resistant than the purple ones, with the exception of Livingston's Globe which, as a blight resister, is in a class of its own. Globe is really the variety that has made Florida famous as a producer of perfect tomatoes in recent years —growers in that state some fifteen years ago were about ready to give up growing tomatoes for northern markets. Wherever blight affects the home tomato crop this variety should be given a thorough trial. Incidentally it may be added that Ponderosa proved to be a most susceptible variety—but it has size!

Milliners and members of the artificial flower trade at all events will be glad to learn that the "red Poppy of France" has been selected by the American Legion as its official emblem *to be worn on Armistice Day*, November eleventh!—A pretty bit of sentiment but Papaver Rhoeas has the unfortunate habit of flowering in midsummer!

FLORAL CHEER THE WINTER THROUGH

FLORENCE SPRING

House Plants and Friendly Flowers for Window Garden All Winter. Problems of Watering and Feeding. Management and Control of Insect Pests

FEW can resist the temptation of at least a small number of growing and blossoming plants in the house during the winter. Sometimes all— or the best—of the sunny windows are pre-empted for this purpose by over zealous flower lovers, but there must be a golden mean, and most of us are willing to spare a really good window or two to afford us the enjoyment of a few blossoms and the beauty of thrifty foliage.

The best exposures for our house plants are south, south-east, and east. The south windows of our dining-room, through which the sun pours all day long, I devote to blossoming plants, which add greatly to our pleasure as we gather at meal time. I know nothing more cheery than to enter a sunny dining room on a winter morning and receive the greeting of the bright blossoms, and would advise devoting at least a window or two in this room—of whatever exposure—to the house plants. If sunny, you may enjoy a blaze of color. If semi-sunny, grow Begonias, Geraniums—which will blossom reasonably—many foliage plants, Callas, Ferns, and green-and-white Myrtle (variegated Vinca) and Tradescantia for the ends of your shelves. If practically sunless, Ferns, tiny Pines, Cedars, and Junipers from outdoors, Moss gardens, small Palms, and the vines above mentioned, will afford grace and beauty.

Begonias, particularly the different varieties of the semperflorens type, will do fairly well in such windows, especially if shifted into the sunshine occasionally, for a vacation; so do not be discouraged if the only place which can be devoted to plants seems unfavorable; but acquaint yourself with what will flourish despite apparently depressing surroundings.

THE FEATHERY FERN AS AN ACCENT

Growing things accent the feeling of companionableness, which is the key note of every living room worthy of its name

BY NOVEMBER the house plants have recovered from their change from the open, which, by the way, if accomplished scientifically—so to speak—should scarcely affect them, and have entered upon their winter career. Our problem now is to stimulate them to luxuriant bloom with the accompaniment of thrifty foliage, to keep them free from the pests and diseases (which are often the result of dust, too little fresh air and moisture, and over heated rooms), and to care for them otherwise in the most efficient way. Also the nutritive elements of the comparatively small amount of soil in the pots become exhausted before spring and must necessarily be renewed. It is taken for granted that rich soil, well balanced as to the constituents, and well pulverized and mixed has been provided, and healthy young slips well started, by this time.

We take in from the garden, for immediate bloom, handsome, well-grown specimens of many annuals in full blossom, which I have never happened to see in any windows except my own. It may not be too late to suggest such to others. Sturdy, stocky plants of African Marigolds will fill a dark window with the appearance of sunshine for some weeks, and, if carefully taken in from the garden, hardly a leaf will wilt. Use good sized pots, drench with water when the pots are only half full of earth, fill and firm, and set in the shade for two or three days. Symmetrical plants of double Balsam are easily transplanted into the house and are almost as lovely as Azaleas; and Sweet Alyssum, late seedlings of Phlox Drummondi, Calendulas and Petunias just coming into bloom (it is not too late to take in the two latter at the end of October or early November) Annual Larkspur, etc., may, with care and an abundance of water, be cheated into finishing out a long season of bloom after making the journey indoors. Throw them all away when they begin to get shabby; by that time the "regulars" will have become well established.

WATERING is the serious detail with house plants. It must always be done regularly and with judgment. Don't start off somewhere in a hurry some sunny morning thinking the plants can wait until you come home in the afternoon. One real drying off of the delicate rootlets and consequent wilting and drooping of the tender shoots will often cause more damage to the plant than weeks of care can repair. Use tepid water and plenty of it and water in the morning before the sun is too hot. Give a good drenching but never allow the water to stand permanently in the saucers except with Callas and the old time Spirea (Astilbe).

Over-watering is nearly as bad as under-watering. Once a week or oftener, spray or sprinkle well to keep the leaves free from dust and their breathing pores open. If they are placed so that sprinkling is impossible without moving them, take a convenient hour or two once a week and move them to sink or bath tub and give them a thorough spraying; a whisk broom is a good utensil for this purpose.

A LITTLE GARDEN IN ITS OWN RIGHT

This is surely more than a few plants on a window ledge! Here are all the elements of effective grouping for which the full-size, out-doors garden strives. The Sweet-scented Tobacco, Nicotiana alata (right), tipped with a shower of delicate blossoms, the energetic, blue-flowered Lobelia (centre) and the varied pinks of Begonia rubra (left), each contribute their individual bit toward the harmony of the massed whole

A SUMMERY CORNER

Where Primroses, Campanulas, Gloxinias, Spirea, and other plant favorites, all play their part in this delightful deception of one's own creating

We cover our plant shelves with enamel cloth or paint them with a hard, glossy finish, and spray the plants where they live without fear of damage to shelf or the hard wood floor underneath, if wiped up immediately when dampened. An enthusiastic and most successful flower lover of my acquaintance has a bay window fitted with a shelf and zinc tray at the height of the sill, filled with small uniform sized pebbles, in which the pots are placed; this makes an ornamental and practical setting. Another window, which reaches to the floor affords space for an oblong box (ten inches or so wide and deep, and in length the same as the window), into which pots of Begonias, foliage plants, etc., are set, the space between them filled with earth, in which grow luxuriantly Tradescantia and variegated Myrtle, covering the outside of the box and reaching to the floor. The box is mounted on castors and can be rolled about and turned around.

After the plants have been in the house a few weeks it is time to stimulate and nourish them with some good plant food, which may be applied according to directions once in one or two weeks. This usually works rapidly and effectively, producing darker, richer green foliage and more abundant bloom. It is also very important to carefully stir and loosen the soil to the depth of an inch or two; an old kitchen fork is the best utensil I know of for this purpose. Later on if leaves begin to turn yellow and the plant to look unhealthy for no apparent reason, turn the pot upside down, holding the left hand over the earth, and remove the plant from the pot by giving the pot rim a smart tap or two against a table or chair. If the roots form a close, matted network the plant needs shifting to a pot one size larger. Earth should be saved in the cellar for this purpose before winter sets in. Loosen the roots carefully, remove what earth comes off easily, and place the ball of roots in the new pot and fill with fresh earth. This re-potting is not often necessary if healthy young plants, prepared for winter blooming, are brought in, well taken care of, and fertilized; but it will often resuscitate a "sick" plant when other means fail. Water thoroughly at first and then more sparingly until new growth begins. Drainage (bits of broken flower pots) should of course be placed in the bottom.

As to the temperature. It is not often that we can make our house plants the main consideration or attune the thermometer to their needs. Fortunately they flourish best in conditions most favorable to the family. In general the temperature should be from 45 to 55 degrees at night and from 65 to 70 degrees in the daytime. Often it is impossible to wholly control temperature conditions, especially during a cold "snap." A serious chill, even if no freeze, is a great disadvantage to house plants, and it often takes some time for them to recover from it. We put thick layers of newspapers between our plants and the windowpanes next them (our south windows being single) when conditions threaten a freeze. This newspaper prevention is easier than cure. Of course it is not difficult enough

to regulate a too hot air in the day time, especially as house plants—like humans—need fresh air and plenty of it. See that they get it!

A moist air is an essential for healthy plants. Too dry an air, besides being a disadvantage in other respects, is the direct inducement and exciting cause of many pests—particularly the red spider. A daily spraying with a rubber bulb hand sprayer works wonderfully, and we always use such a sprayer freely; as it almost atomizes the water it does not harm windows, shelf, or floor. It is an excellent idea to evaporate water freely on the radiators and it benefits the lungs of the family as well as those of the plants.

IT IS always a question whether to turn plants or not. If not, buds, leaves, and blossoms naturally grow towards the sun and the result is a misshapen plant, showing the best bloom and foliage to the outside. They can be turned most ornamentally for "occasions" and some window gardeners prefer this method. If you do turn them, however, do it every day or two, and don't wait until the leaves, bent irrevocably toward the sun, get an ugly twist, whenever the plant presents its company side inward.

In arranging a shelf of plants, do not crowd them. Perfect, beautiful specimens are only obtained when there is plenty of room and air in which to expand and grow regularly and symmetrically. As the plants get larger occasionally withdraw one to another situation.

Shelves of plants are more graceful and attractive if vines are placed at the ends. Striped Vinca, Tradescantia, German Ivy, are all pretty used in this way. We also set pots of the lovely, freely blooming, small pink Begonias, which do not need much sun, at the ends. By occasionally placing in full sunlight the bright pink color of the blossoms is preserved. These symmetrical, luxuriantly blossoming favorites make charming dining table ornaments.

AS WITH outdoor plants and vegetables, pests are a problem for the window-gardener! It is most important to keep a lynx eye for beginnings and dispose of any bugs which may appear, before they have a chance to increase, which they do with lightning rapidity. The green aphis is among the worst of these pests, and is such a nuisance that I find it best, in selecting plants for window gardening, to avoid as far as possible those varieties which it infests. Geraniums, Primulas, and Begonias are free from this, and nearly all other pests; Heliotropes, Verbenas, and Roses are nearly always attacked by it. If one can obtain tobacco stems—refuse from cigar makers—and steep them until the water is the color of strong tea, and with that spray the plants liberally, the aphis is usually disposed of. Or sprinkle the plants with tobacco dust after spraying with water. We sometimes find that we can get the few infested plants into good order by making a strong solution of soap suds and dipping the plants, branch by branch, in it, shaking them up and down and perhaps brushing gently with a soft paint brush.

Red spider is a real menace. This usually appears when the air is too hot and dry and is best combatted by frequent spraying with water and by reducing the heat. Brush leaves and sprigs gently with the soft brush, not neglecting the under sides.

Mealy bug is an almost natural associate of certain plants; it is a disagreeable, powdery bug which hides at the base of the leaf. I have usually fought these successfully by removing with a wooden toothpick. Spraying with fir tree oil (one cup to five gallons of water is recommended) is a certain cure.

"KNOCKING OUT" BEFORE REPOTTING

The plant rests on the palm and is held by two fingers. The pot is given a sharp rap

We are much annoyed by a sort of thrip, like a minute white moth, which will not sit still long enough to be fought. This always attacks our Nasturtiums so inevitably as to make us decide to give up our trellis of the running type with which we used to surround our "system" of three adjoining plant windows in our dining room. [This is the white fly, unquestionably, which must be treated and fought like a scale. Fumigation is the only sure means.—Ed.] Nasturtiums are, however, a "must have" and we compromise by keeping one pot of them, training the vines up, down, and around a trellis, not too high to watch. Hand picking is the only remedy I know for these wretched creatures. Although the list of pests, however short, seems appalling, one must remember that, with intelligent care, pests rarely become a real nuisance. We congratulated ourselves, on entire immunity last winter.

Once in a while earthworms become too numerous. Remove the pot from any suspected plant and investigate, and repot if necessary. A small amount of soil may always be obtained from a florist, if one has not been forehanded enough to prepare a reserve supply from the garden before winter sets in.

Lastly, take good care of the general appearance of your house plants. Even healthy, freely blooming plants may look untidy and not as ornamental as they should. Pick off any yellow leaves, seed vessels, and withered flowers. Wash the outside of the pot occasionally, keep the windows polished, and the shelves clean. Group effectively, with due regard to harmony in coloring. Allow plenty of space between the plants and remove misshapen and unhealthy specimens to your plant hospital, or discard entirely. Occasionally buy a plant in full flower to give variety or supply a loss.

FERTILIZERS FOR POTTED PLANTS

NOTHING better than weak cow manure liquid has been found—made at the rate of two bushels of manure in 50 gallons (or one barrel) of water. There is positively no danger of "burning" the roots when this material is used. Horse manure and sheep manure which are stronger may be used instead, but in proportion of not more than one bushel and one half bushel respectively to be safe. More convenient and cleaner are the prepared chemical preparations to be had in the seed stores. These are safe if used according to the instructions on the package. On the principle that "a little more" will get bigger and quicker results the dose is sometimes increased and the result is disastrous. Better by far an under supply than to give an overdose that may easily be fatal. Remember that there is really very little soil contained in a flower pot that holds a growing plant with its roots spreading all through the ball.

A formula for home mixing that has been fully tested is as follows:

Nitrate of soda	8 ounces
Monobasic calcium phosphate	16 "
Sulphate of potash	10 "
Water	1 gallon

For use: One part to 30 parts water, applied to the plants not more than once a week.

WHAT A GARDENER WOULD LIKE FOR CHRISTMAS

GRACE TABOR

THINGS to be given away at Christmas time are so often rather haphazardly acquired instead of being selected with the pleasure of the individual recipient definitely in mind—to the hurried this seems an easy way to shop.

But if there happens to be a gardener on one's list of "friends-to-be-remembered," the selective way is really the easier; for there is probably no one in the world who wants anything more fiercely than a gardener wants some coveted convenience, or garden accessory. It may be the merest trifle, or it may be a whole greenhouse or other feature not by any means so mere! Such is the nature of the gardener that once his mind is set upon an object, its value, for him, is fixed by the keenness of his desire and not at all by its intrinsic worth. The costliest of fountains does not interest him if just then he lacks a packet of some particular seed. Take a gardener's word for it, if you do not garden yourself!

Of the many things that may be given to a gardener, however, there are usually many kinds; and the layman is rarely discriminating enough to choose wisely, since he does not know the particular necessity under which they find their use. It is my purpose therefore to go through the list of possible gifts and offer suggestions as to the best selections, holding in mind continually the practical garden requirements as well as the garden possibilities of all kinds.

And first of all let us recognize that there are three distinct kinds of garden gift: first the kind that is preëminently utilitarian and practical, second the kind that is wholly ornamental, and third the kind that actually makes a garden—otherwise the horticultural kind, or plants themselves. In the first class come all of the garden implements and tools—the things to garden with; in the second there are arbors, seats, fountains, bird houses and bird basins, fish bowls, statues, dials and everything of this character; and in the third are plants themselves and seeds, bulbs and books.

This fanciful flower holder in bronze, designed by Edith Barrett Parsons, transforms a pottery dish into a sumptuous affair worthy of the gardener's choicest blossoms

This ingenious no-drip hanging basket solves the indoor watering problem for the gardener who cherishes carpets as well as greenery

Suppose we consider these things in the order named. The spade, spading fork, rake, and hoe will be in every gardener's equipment of course; but the best in design and style and quality of these primitive necessities is not always acquired in the early days of one's gardening, at any rate. So even one of these or a set of the four may be a very welcome remembrance. Choose with this in mind:—that on all tools intended to be used with a prying motion in the soil, the union of the metal with the wood of the handle, as well as the quality of the steel at this point, is of the greatest importance. Yet this is the part most likely to be weak and unsound in such articles, especially in the so-called ladies' sets.

Be very sure that sex differentiation in garden tools is a mistake, save possibly in the size of things. For a woman who wants really to garden will of necessity put as much strength against the handle of a trowel in performing an operation as a man would use; otherwise the operation cannot be accomplished. Accept only well cast steel implements, whoever they may be for, with the metal of the handles carried well up in a widening, cone-shaped socket into which the wood handle extends, fitting closely. This insures the full diameter of the wood handle where the metal stops, and at the same time binds the wood fibres together so that it is practically impossible to split the metal away from the wood. On the larger tools like spades or shovels the metal is still farther advanced along the handle in the form of a strap-piece back and front.

A complete gardening outfit will consist of the four tools mentioned and a hand cultivator, a trowel, a dibble, pruning shears, clipping scissors, pruning saw—with teeth on one side only, preferably—an edging knife, a good jack-knife, a hammer, a fifty foot tape-line, at least fifty feet of garden line on a reel, and one of the long handled weeders or cultivators which have been developed to meet the modern demand for something better than the hoe in any of its forms, as well as lighter and easier to operate.

Further extremely practical helps that make gardening a de-

light and that are yet a little outside the list of tools, are a "Garden Notes" loose-leaf book with a permanent binder for keeping such of these as may be of permanent value, boxes of labels large and small, and especially those made for attachment to stakes, raffia for tying up plants, a pair of long, flat baskets for gathering flowers and fruits (likewise the seed heads as these are snipped off daily), a set of the metal hangers commonly used in broom closets, for hanging each tool separately on the toolhouse or toolroom wall, an oilcan for oiling tools, a file for sharpening them, and a small gaily painted garden barrow in which to wheel all the small things about. This is more practical than a carrying basket, for the latter is always crowded and heavy too; and the barrow affords a convenient place to stop and rest a moment as well as a step from which to reach things otherwise just out of reach, providing of course that it is a well balanced little barrow. If not, add a low step to its contents.

Of greenhouses, frames and forcing devices generally it is not necessary to speak, more than to suggest that they are highly desirable as garden gifts, since always warmly welcomed by a gardener. So now we come to the purely ornamental accessories, of which I wish to say at once that they must be chosen with care, and with understanding of their proper situation and surroundings quite as much as of their recipient's taste and garden uses. While a bit of ornamental sculpture well placed and suitably led up to, as well as suitable in spirit and significance in relation to its surroundings, is forever a thing of beauty and a joy, the whole effect may be distorted into an offense against reason and good taste if this suitability is lacking. No degree of merit in the sculpture itself will permit of its wrong use. Do not undertake to offer a garden ornament, therefore, unless you know beyond a doubt all the factors that will enter into its disposal, as well as the gardener's preferences.

Similarly, the introduction of an arbor or a seat or any other feature, as a matter of fact, should be decided by the garden's requirements. For nothing is more disconcerting or embarrassing to a garden design than such an element thrust into it without its invitation or intention. Garden furniture indeed requires more restraint in its choice and disposal than furniture indoors—and that is saying a very great deal!

Plants, bulbs, or seeds as gifts are something we all like to contemplate for the pretty sentiment involved and, personally, I think there is nothing nicer. Yet even here selection should be governed by discretion, and the gardener's floral taste as well as his gardening opportunities should guide the choosing. The living Christmas tree is a delightful idea; but many a garden cannot entertain another one of these without crowding out some already established and prized specimen. And a Rose in bloom, which may go into the garden in springtime, may be just one Rose too many for that particular garden, as likely as not.

WEEDING MADE EASY

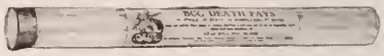
Recent improvements in garden tools have shown greatest results in the modern hand weeders. The "9-tooth adjustable" and the "Rocker hoe models" make duty a real pleasure

Of bulbs offered at the late season of holiday wares we all know that very little can be expected. They are like children out of bed at midnight; so if you wish to give bulbs, plant them in pots now—ornamental ones if you like—and give them a chance to do you credit when the proper time comes by having prevented them from drying up completely.

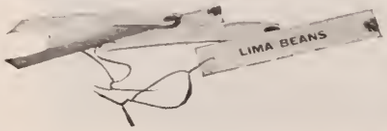
Seeds seem to offer the surest and perhaps the most interesting horticultural material that there is; for of novelties it is possible to send something, as well as of old and well-known favorites. And the gardener is not distracted by the sense of responsibility, which all gardeners feel toward a living plant, when it is just a packet of seeds that awaits his, or her, attention. If a novelty is not desired, choice may fall on a plant having special significance for both giver and recipient perhaps, and seeds representing a complete assortment of this in all its variations will be a most interesting gift.

And, finally, there are the books—some scientific and dry, others gay and entertaining, and a goodly number that are scientific enough to be helpful, gay enough to be entertaining, and practical enough to be actual manuals of garden work, all in one. The writings of recognized authorities in their respective branches are always good reading to the real gardener, whose garden is an ever-present interest no matter what the season. He finds in the long winter evening the coveted opportunity to gather fresh information and impetus. There is so much always to be learned and planned! That is why when once the garden has gripped us, it never lets us go; last summer's successes and failures alike seem to have the power of spurring us on. So, toasting our toes before the open fire, with some good new garden book as a companion, we mull and dream over what we shall do next spring.

Two small hand cultivators effective in use



A sifter for the various insect powders is a great aid to the ever-vigilant gardener in his death-dealing campaign. It comes also in upright canister form with a handle by which it is easily carried about



Tags of this sort are a great help to the systematic gardener who likes to keep his plant family in order

The indispensable trowel and secateurs

MORE GIFTS FOR THE GARDENER

WHOSE TASTE MAY RANGE FROM THE ESSENTIALLY PRACTICAL TO THE PURELY ORNAMENTAL

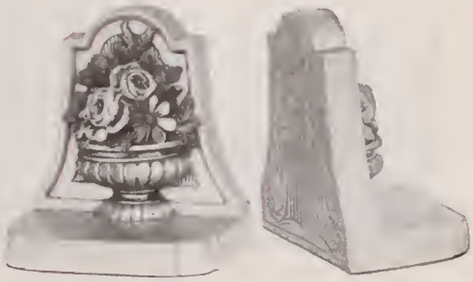
The gazing globe, here properly placed to catch and imprison delightful far-away bits of vista, makes a sure appeal to the gardener of sedentary habit and an inquisitive turn of mind

This quaintly designed bird-bath and sun-dial combined is a novel idea. Most of us welcome the birds to our gardens where the hours slip by so quickly that the warning finger of reminder may be acceptable

It would thrill a gardener to come upon this "Piping Pan" in some sequestered nook with the dew gleaming on his vigorous young shoulders. In him Mr. Edward McCartan has successfully embodied the spirit of the garden and its lure in the fresh morning hours

This flexible torch, wired to a stout handle and soaked in kerosene, works havoc with any worm-nest!

When my lady gardens she will find such a basket indispensable. It is fashioned for endurance and equipped with all sorts of useful small implements



The long winter evenings give the gardener ample time to mull over his plans for the spring. These decorative book ends with their floral suggestion may suitably support his special garden books of which he is always glad to have more

RAISING UP AN ORCHID

Raising from Seed Tropical Jewels that are the Aristocracy of the Greenhouse. Tax on Time and Patience Demanded by the Miniature Plantlets for Years before the Reward of a Bloom is Won. Kinds that are Easy to Grow

THOSE children of the tropics, the Orchids, so captivating in our greenhouses are not equally striking in their native haunts as they do not grow massed for great display, but each in its own region occupies its out-of-the-way niche, perhaps on the top of some tall tree, unseen by the casual traveler.

There are hundreds of species, not all equally gorgeous. The bark of the trees serves the plants only as a place upon which to grow. Food is not taken from it, but derived from decaying humus by means of their especially adapted roots which also gather moisture from the air. These epiphytic Orchids have peculiarly thickened parts (pseudobulbs) that are in fact water reservoirs against the dry season. In the soil-growing Orchids there is not the same degree of specialized structure.

FERTILIZATION OF THE FLOWER

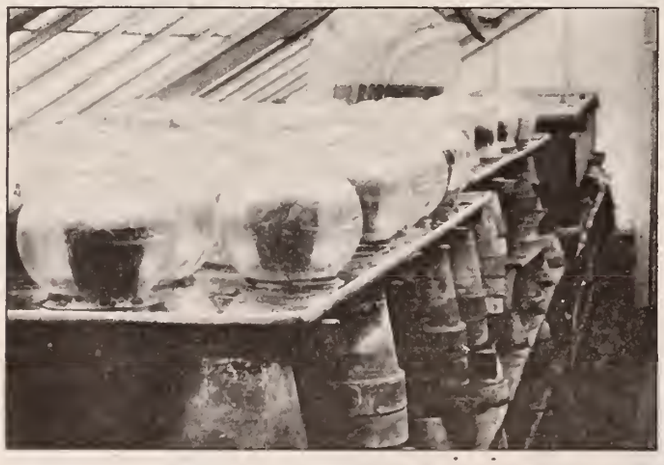
The pollen is massed for economy. It may be transferred by means of a pencil to another bloom, after which the grower waits a year or more for the pod to ripen

Now one difference between a gardener and a botanist is that the latter takes plants as they are, and delights to locate them in their homes, while the gardener is impelled to try his skill in cultivation, propagation, and improvement. Quite naturally the fantastic Orchid challenges his skill and hybridizing of Orchids has become a highly specialized branch of craftsmanship. Hybridizing and raising from seed holds large allurements in the development of new combinations. The great handicap is the time required for the seedling Orchid to reach maturity—years of waiting for the first flower to unfold. Yet to-day hybrid Orchids are produced in appreciable quantities.

Fertilization of Orchids in the greenhouse must be carried out artificially. As a rule each flower develops only one anther having two pollen masses (pollinia) which can be easily removed. These are borne on a central "column" which also has at its end an adhesive disc or cavity—the stigma. If a sharp pointed pencil be introduced into the flower and a slight pressure exerted toward the anthers, the club, by means of an adhesive disk, will have attached itself to the pencil point and can be removed. After a short time the stalk of the club will bend and through this movement the pollen mass will be turned forward so that when the pencil is brought into another flower its stigma receives the pollen. This fertilizes the flower. Slowly the fruit or pod ripens—often a year passes before the seeds are formed sufficiently for shedding. The seed itself is so tiny, so minute, that it is easily scattered by a slight breath of air. Moreover these seeds have to complete their own development after being shed. The seed finds its first food supplies through a fungus that makes its home on the young plant and which is ultimately consumed by its host.

Sowing the seeds is a delicate piece of work; it is accomplished with the aid of a fine brush to take them up and deposit them in the prepared flower pots. Germination is under bell jars, where a humid atmosphere can be maintained. Under the most favorable conditions and with the best of care the plants of Cattleya will flower in the fifth or sixth year, while Cypripedium does not take so long. When Orchids were first introduced, as children of the tropics, they were presumed to demand stuffy heat and moisture-laden air, and enormous quantities of imported plants have been the victims of this misconception. Since they nearly all live in tree tops or at a similar elevation, they desire air and light, which the modern cultivator is sufficiently enlightened to give them. As a consequence the plants are far less expensive than formerly.

Many can be cultivated in the living rooms without difficulty. The most important thing to be remembered is that they do require fresh air and light. Although the low winter sun does not injure them in the least, direct rays of the hot summer sun are injurious to most, so that a diffused light is best. A few thrive in a cool atmosphere. Cleanliness is another important con-



LIKE A SCIENTIST'S LABORATORY IS THIS SEED BED

The minute seed, light as dust, is carefully laid on prepared live moss, etc., in a flower pot and the whole given protection by a bell-glass, conditions inside being under absolute control

INDIVIDUAL EXISTENCE BEGINS

The young plantlets are subsequently transplanted to a glass-covered box on the greenhouse bench where air can circulate freely and where ventilation is ample

sideration. Anything that influences the plant unfavorably should be kept at a distance.

Comparatively few Orchids may be grown in ordinary flower pots; the greater part of them do best in porous flat dishes, or latticed boxes or baskets, or on fragments of bark. Epiphytic Orchids are sometimes grown in a small flower pot inverted in a larger one with good drainage provided. A mixture of fibrous meadow humus or the root masses of various Ferns torn and loosened, or Sphagnum moss, is used as a soil with charcoal, cleaned potsherds, and well washed river sand; this base is modified also for the terrestrial kinds. Orchid pots are made with holes in the sides so that air can reach the roots. The bottom of the pot is covered with potsherds to about one-quarter its height, Sphagnum placed on it, and this layer covered with a loose, rich soil.

If it becomes necessary to shift or repot, do the work just after their period of rest when they begin to form new roots. As a rule, soil Orchids may be transplanted every second or third year, the Epiphytes less often, and always with the greatest care; under no circumstances should the roots be injured. If they can not be loosened from the pot, the pot must be broken, and the fragments of the pot to which the roots cling, must also be put into a larger pot.

Among the great hosts of known Orchids in cultivation there are a few that stand out in popular esteem because of their general adaptability. The rest are for the connoisseur.

A selection for general use would embrace: the largest winter flower, Cattleya Trianae; the largest spring flower, Cattleya Mossiae; the largest summer flower Cattleya gigas; the largest autumn flower, Cattleya labiata; the "Baby Orchid" Odontoglossum grande; the Amateur's Orchid, Lycaste Skinneri; the most popular Lady-slipper, Cypripedium insigne; the best white Orchid, Coelogyne cristata; the largest Laelia, L. purpurata; the best winter-blooming Laelia, L. anceps.

AFTER SIX MONTHS (actual size)

Here in actual size the half-year old Orchid plants are seen growing on the surface of the seed bed

NINE MONTHS AND A YEAR! (half size)

The young plants are now getting along well as these half size portraits show

EIGHTEEN MONTHS OLD AND FOUR INCHES HIGH (half size)

The grower is well satisfied as these youngsters are still developing vigorously. He has only a few more years to wait now for definite results!

THREE AND A HALF YEARS AND STILL WAITING

This seedling Cattleya now in a three-inch pot is still quite a juvenile and has not as yet made any approach to flowering. (For later stage see the illustration on page 126)

Some of the best Orchids recommended for general cultivation in a night winter temperature of fifty to fifty-five degrees are as follows, their flowering period being indicated also: Cypripedium insigne (Nov.-Dec.); Coelogyne cristata (Feb.-March); Lycaste Skinneri (spring); Odontoglossum grande (Sept.-Dec.); Vanda caerulea (late autumn); O. odoratum (winter and spring); Oncidium crispum (April-June); O. Marshallianum; O. tigrinum (Nov.-Dec.); O. varicosum Rogersii (Oct.-Dec.); Dendrobium nobile; Odontoglossum Rossii (Jan.-March); O. pulchellum (spring); Oncidium ornithorrhyncum (Oct.); Ada aurantiaca (any time); Cattleya citrina (March-April); Cypripedium spectabile (hardy); Laelia anceps; L. harpophylla (summer); L. Jongheana (summer); Selenipedium Sedeni (winter); Stanhopea insignis (July-Oct.). In such a large group there is so much scope for individual fancy that possibly no two people can agree on more than the first half dozen kinds. That, indeed, is one of the great attractions in Orchid growing—the scope for individual fancy.

A GARDEN-ROOM FULL OF FLOWERS WHEN IT IS DESOLATE OUTSIDE

Half greenhouse, half conservatory this abutment from the dwelling is in fact brought into it as a lounge, where the semblance of spring discounts the late winter

DEFYING THE WINTER

HENRY GIBSON

A Feast of Flowers for the Holidays and After, and Many Delicacies for the Table That the Gardener May Have When all Outdoors is in the Grip of Cold

BECAUSE winter is approaching it does not necessarily follow that a farewell for a few months to all garden work shall be said. Far otherwise, indeed, provided the aid of a greenhouse may be had for the period. And in fact can any garden that only functions half its time be said to be efficient? Not only does the greenhouse take up the succession for the winter, but it serves the outdoor garden in just the same way, in its season, as the outdoors serves the "under glass." The complete garden, of necessity, has a greenhouse. To wind out the gardener's year, the scene of action at this time of year moves indoors, where we find plenty to do. Many plants that will flower profusely during the next few months will need to be purchased as established young pot plants to be grown on as such or planted directly into the benches.

Bulbs for Winter and Easter

OF COURSE bulbs are essential, for many of them can be had in bloom in a comparatively short time from planting, and at this season no time should be lost in securing an assortment, and getting them potted or boxed so that they may become well rooted before any attempt is made to force them into flower. Roman Hyacinths, and Paper-white Narcissus are the earliest to bloom. If planted at once, and given four to five weeks to make a mass of roots, they may be had in flower shortly after Christmas. Grand Soleil d'Or (Tazetta Narcissus) is a desirable early flowering yellow variety. The first of the larger Trumpet Daffodils to flower when forced are the French grown Trumpet Major Narcissus. Golden Spur, and Double Van Sion are the best of the trumpet sorts from Holland, and by planting at once, one may enjoy the flowers from the middle of January on, if successive batches are brought into the greenhouse to maintain a supply.

Tulips also occupy a useful place among early flowering bulbs and La Reine is still the "Queen" of the early forcers. It is reasonable in price, easy to grow, and useful for almost any decorative purpose. Use Yellow Prince and Chrysolora for yellows; and among the reds Belle Alliance and Artus are reliable. Proserpine is the best of the forcing pinks and the most expensive! Rose Luisante has a fine rose color and is an excellent forcer. Pink Beauty and Cottage Maid are both beautiful. Keizerskroon should be added because of its very showy character; it is scarlet edged with yellow. White Hawk is the best of the whites.

Of the double varieties adapted for forcing Couronne d'Or

is perhaps the best and most charming, a pure yellow when it first opens, later on covered with bronze and brownish tints. Murillo is among the doubles what La Reine is among the singles, an excellent variety for either indoor or outdoor culture. It forces best during March. When well rooted fine long stems may be had with large flowers coming white at first, afterward changing to a charming pink.

While Darwin Tulips are usually considered in connection with outdoor planting, yet many of them are splendid when forced under glass. Such excellent sorts as Pride of Haarlem, red; Psyche, light rose; Gretchen, soft pink; Clara Butt, salmon pink; Farncombe Saunders, red; and White Queen are quite amenable and may be grown in pans and brought into flower during March and April.

For flowering at Easter the giganteum and formosum Lilies should be secured and potted up at once. Place under the bench after watering well and covering with excelsior, and keep there until they have made two or three inches of growth; then put into a light position on the bench.

Other bulbs not to be overlooked are Gladiolus and Freesias which will supply a long season of bloom if succession plantings are made. Either may be planted directly into the benches, the Gladiolus making a fine combination crop with Pansies, or Calendulas.

Flowers for Cutting in Early Spring

PLANTED now, Pansies will not prove very floriferous during the depth of winter, but once the influence of the sun's increasing power is felt during the early days of February and March a veritable feast of blooms will open up. For early flowers Calendulas are better purchased in pots and planted into the benches, but seeds sown at this time will afford material to further extend the period of bloom. Snapdragons out of small pots make the best of succession crops to follow the Chrysanthemums, and few plants will give a greater return.

If your greenhouse is a really cold one with a temperature around forty-five degrees at night, you have an ideal place in which to raise a crop of single Violets and early November is not too late to plant and still secure fair results. Plants still "in the field," or lifted plants from the frames are in the very best condition for planting at this time. A few clumps of Dielytra

SPRING-TIME INDOORS AHEAD OF TIME

All the host of bloom in such variety of color, form, and fragrance is easily had through the use of a greenhouse to overcome winter's cold. Astilbe, Primula, Azalea, Cyclamen, Narcissus, are featured

spectabilis and Spanish Iris may be planted at the same time; they will lie dormant until February, when they will throw up young growths which will furnish material for cutting long before those out doors have started to grow.

The Geranium must never be forgotten. It is one of the most satisfactory flowering plants to brighten the greenhouse during the dull dark days, grown along in five or six inch pots, with the flower trusses kept pinched off until the Chrysanthemum season is nearly over, and then allowing all flower scapes to develop, will give nice flowering plants at Christmas. They may well be accommodated on light narrow shelves in a temperature of around fifty degrees at night, with a fairly dry atmosphere.

Primulas (*i.e.* malacoides, obconica, sinensis.) Cinerarias, and Calceolarias purchased now in small pots may be potted into larger sizes and grown for decorative purposes.

"Two Birds With One Stone"

WITH steady cold weather, which means more fire heat in the greenhouse, it is just as well to make the most of this extra heat by utilizing the propagating bench to the limit of its capacity. Now is the time to get root cuttings for the big bush Chrysanthemums so that their plants may have the longest possible time in which to develop a vigorous root system. Geraniums and other bedding plants may be propagated continuously as cuttings are available. Marguerites, and Begonias root well with an abundance of bottom heat and there could not be a better time to root Ivy and Vinca. The best substitute for the Azalea as an Easter plant is likely to be the Bougainvillea and plants should be purchased now from the specialists who grow them. They will do nicely in a carnation house temperature, and should be kept somewhat on the dry side so as to allow them to rest after their season of growth. Do not allow them to wilt, however, or the leaves will fall off.

The winter-flowering Begonias which are among the most effective of all indoor bloomers require a long season of growth, and if it is desired to have them during the coming months plants in flowering pots must be purchased as soon as possible. From now on they do not require shading. If early flowers are desired the flower buds should not be removed after this time. It does not benefit them to have the leaves drenched at each watering so be careful to apply the water under the leaves, and not over them. Begonias Glorie de Lorraine and Cincinnati are perhaps the best known of the winter-flowering types and while the former flowers somewhat earlier still the latter will stand, and actually does better in a cooler temperature. Mrs. Petersen is a handsome dark colored form with bronze foliage. Glorie du Chatelaine is the peer of all. Whether in a two-inch or six-inch pot the plants will be in bloom from now on all through the winter. Shift into large pots if they are yet in the smaller sizes. Propagation of these Begonias may be started now from leaf cuttings, but in the case of Chatelaine, the soft shoots from below the flowering stems root most readily.

THE RICH JOY OF VARIETY

With a "range" of several different houses the gardener's fancy may be fed in all directions, and selected plants brought into a show house for their season. An aquarium is seen on the right

The Indoor Vegetable Garden

BUT the material side of things need not be sacrificed to the aesthetic, both may be given attention and space at the same time. For example, in the cool house Lettuce, Radishes, Spinach, green Onions, Parsley, and Beets are all possible. In the same house and under the same conditions we may have Asparagus, Rhubarb, and French Endive under the benches. But for an early crop of Rhubarb, however, it is better to place the roots, after they have been thoroughly frozen, in a warmer house, and if brought in at this time it is quite reasonable to expect a mess of Rhubarb at Christmas.

Roots of French Endive may be planted any time after they have been dug from the garden either directly under the benches, or in successive batches of a dozen or more in tubs, or boxes, and covered with six inches of light soil of sand. In an ordinary cool greenhouse temperature one may cut fine thick heads of snow-white salad in fifteen to twenty days.

In the warm house where a night temperature of sixty to sixty-five degrees can be maintained, sow String Beans, Bush Limas, Forcing Melons, Cucumbers, and Tomatoes. Mustard and Cress may be sown at intervals during the winter as it is required for the table. Roots of Mint and Tarragon useful for seasoning should be lifted before the ground freezes, put in flats and placed in a cool house, where they will soon start into growth.

Mushrooms With or Without a Cellar

MUSHROOMS too are within the range of possibilities and one doesn't need a specially built cellar. They will do as well under the greenhouse bench as elsewhere if other conditions are equal. Start collecting the horse droppings at once, and be sure they do not burn while being collected. Use water in moderate quantities frequently. In making up the bed make it a conical shape and tramp the manure hard—pound it down as hard as possible. After spawning do not be in too much of a hurry to put on the soil. Many failures begin right there. Some of the rank vapors may be retained by the layer of surface soil when it is put on too soon, with the result that when the mycelium of the spawn begins to "run" it is killed. When water is necessary use water that is the same temperature as the air of the house.

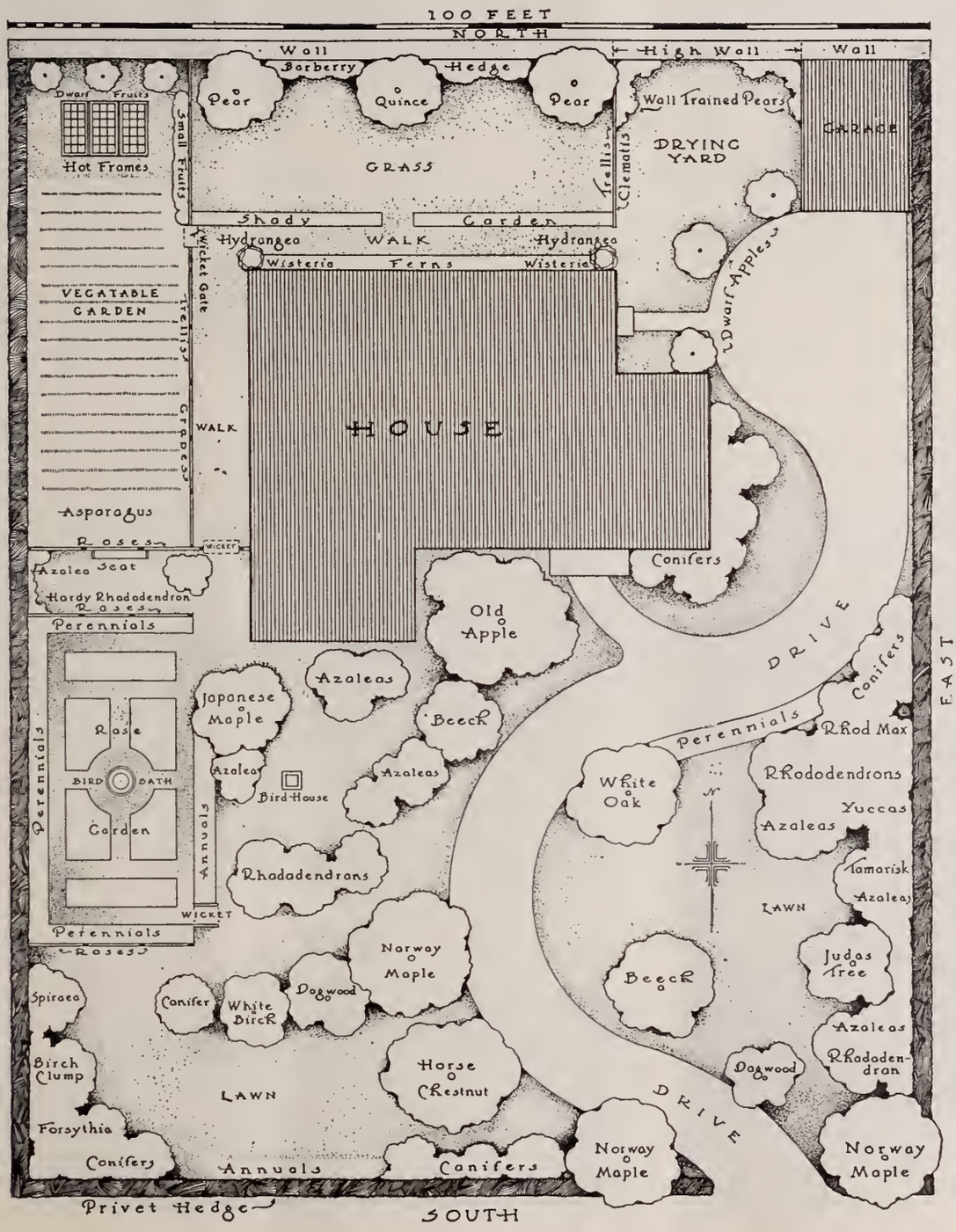
A LANDSCAPE PLAN FOR A COMPLETE PLACE

This is the fourth and last in the series of possible developments of a suburban plot one hundred by one hundred and twenty-five feet in size. To present here general suggestions is all that has been attempted; and it is proposed that these layouts be studied with this in mind, rather than with a view to taking them literally.

AN APPROACH lengthened by making it wind between the trees distinguishes this scheme, the banks of shrubbery concealing it from the rest of the place and making the surprise of flower and rose garden more complete. The general effect planned is that of a wooded plot. At the rear (north side) of the house is a shady garden where all the things that prefer to be out of the sunlight may be grown. Beyond this and close against the wall or fence which marks the rear boundary are fruit trees.

The vegetable garden is set apart with a trellis of Grapes and small fruits along the side, and a lower trellis of Climbing Roses at the end between it and the little flower garden. The latter combines borders of perennials with inner beds of H. T. and H. P. Roses, the whole centering on a stone fountain and bird bath. And to complete this scheme for bird entertainment a bird house tops a lofty post half concealed in the midst of the evergreen shrubbery that hides the driveway.

The position of the house in this scheme throws the greater space in front of it instead of at one side or the rear; to decide which arrangement will be best for a given place of course requires consideration of all of the elements that enter into not only the place itself but its surroundings.



THE HARMONY OF STRAIGHT LINES

In itself not a thing of beauty, yet the greenhouse may be so placed as to become an integral part of the garden picture, as when it appropriately terminates a vista in a harmony of straight lines

WHERE CAN I PUT MY GREENHOUSE?

R. CARLTON FONTAINE

AT LAST one day, driven perhaps by an early devastating frost to sudden realization that another cheerless, gardenless winter is rapidly closing in, you determine to build the long talked of greenhouse. Immediately the matter moves from the conveniently adjustable conditions of mere dream-planning into the limitations of actuality and one's very first decision—where shall the greenhouse go? is beset by all sorts of hampering considerations.

MASKED BY UNUSUAL PLANTING

Introduced into a scheme with sweeping curves some ingenuity in the treatment of the foreground is necessary to subdue formal stiffness, as has been done successfully here

However, sometimes the difficulties of a problem add rather a zest to its solution, and this matter of placing the greenhouse is really quite simple if certain fundamentals are steadily kept in mind.

In selecting a position, first of all consider the greenhouse in its relation to the general scheme of house and grounds. Being of necessity structurally undecorative, it should not be an obtrusive landscape feature, nor should it be placed so close to the house or at such an angle that there will be an annoying glare from the glass. It is essentially a "growing place," quite distinct from a conservatory or "sun parlor." The latter is, of course, directly attached to the house, a glass-enclosed room where plants are brought in the full of their beauty to be enjoyed, a room whose temperature makes lingering agreeable but is too high for much beside subtropical plants to thrive, to say nothing of the atmospheric conditions usually maintained in such abutments of the dwelling—too dry for the majority of cultivated ornamentals.

On the other hand the greenhouse in its character of "growing place" must be readily accessible to both dwelling and general gardens, for one or both of which its varying produce is intended—near enough, too, so that the coldest of winter days need not deter, if one feels inclined to check up the progress of flowers or fruits. If possible such a structure should be worked in as part of the integral plan of the garden. In many cases it can be made a definite feature and be given a certain pictorial value without undue neglect of the practical aspects of placing.

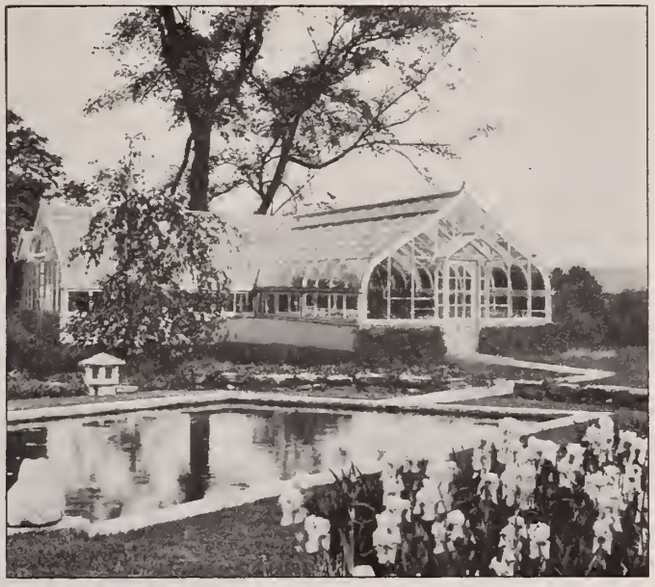
A near-by open roadway is essential for getting in the coal supply and for the gardener's use in heavy weather; he cannot be expected to plough across muddy fields or through the or-

chard where the snow drifts high, in order to reach his fires which must be carefully tended.

When you have selected a spot get-at-able and inconspicuous, be sure that it is quite open to the sun and free from shadows of any sort. This will mean, of course, that adjacent trees and buildings must be to the north and west, not either south or east. Abundant direct sunshine is a prime requisite.

Finally, what are you planning to grow? Is your greenhouse designed for general utility or have you some individual fancy to house therein? If fruit be your preference—and the prospect of Melons, Grapes, Peaches, and Nectarines hanging dead-ripe from one's own trellises in February is a bit exciting—remember that each of these demands special treatment. Grapes and Melons, for instance, thrive best grown close to the glass on wire trellises conforming to the shape of the roof so that the greenhouse designed for these should run north and south, otherwise the side getting the sun, which swings very low during the winter months, will shade the other side. On the contrary, a greenhouse for Peaches and Nectarines should be placed east and west, for these fruits are usually grown on trellises set across the greenhouse. The sun, by this arrangement, will reach between the trees and each will receive its full share of light.

A properly placed greenhouse then must in some measure conform to the four suggested fundamentals: harmony in its relationship with the whole, accessibility, freedom from shadows, and material to be grown. These things decided, any amount of minor variation may obtain to please the individual planner. Your greenhouse may be tucked away at the end of a garden path delightfully come upon as a surprise; it may perhaps serve as a boundary to the walled garden, or divide the formal garden from its humbler kitchen neighbor. It may stand beyond the garage or even close against it, so that both may be heated from the same source, though this is not always an ideal arrangement, for upon a properly located heating plant of sufficient size to be effective, obviously much depends. When the greenhouse is on the elaborate scale of a "range of glass" there will of necessity be a central heating plant serving all the different houses which will be arranged about it with regard to the varying requirements and destined uses of the units, and that is a subject for the greenhouse architect to plan. It requires skill and knowledge. But when the single greenhouse (in one or more sections) is to be erected the heating plant had best be part and parcel. The north end offers all the advantages in not excluding any valuable light, and also in serving as a shelter on the worst exposure. And this pleasure of placing is only the first of a series of pleasures the greenhouse affords!



UNITED BY SIMILARITY OF ANGLES

Here a pleasing union with other garden features is brought about by paralleling and extending the greenhouse structural lines with those of the pool margin and connecting walks, all at right angles.

ALL RIGHT IN SUMMER

When the winter comes the remoteness of a distant greenhouse is a burden on its maintenance. Except for winter inaccessibility this one was ideally placed.

LIGHT IS LIFE

(Below) In placing, all other considerations must give way to the exposure to the sun. According to the purpose the direction may be varied, but no shade by trees, etc., is permissible.

CREATING A NEW FRUIT

ANNA D. WHITE

With Selected Native Types of Blueberry and Experimental Crossing, Establishing a New Industry Which Insures Berries of Superlative Size and Flavor for Garden Use

THE Blueberry has been tamed! The task was not an easy one. For the Blueberry has inherent objections to garden conventionalities. It is a plant of uncompromising character, insistent upon its own conditions of growth, to which the grower, if he wishes success, must conform. Nevertheless, a few patient gardeners have concluded that it pays to humor this capricious berry.

When in some New York hotel, of an August morning, the waiter, with a flourish, sets before you a saucer of lustrous, blue-black berries, some of them as large as Concord Grapes, and on tasting them you find the flesh firm, practically seedless, sweet with an incomparably delicious flavor, you may know that this is no common wild fruit gathered in a tin pail from a jungle of underbrush. You are safe in visualizing neat rows of evenly spaced bushes, their roots plunged deep into the peaty sand of the New Jersey pine district, their crowns blessed by the unbroken radiance of a New Jersey sky. Nearby, fringed with Calopogon, Sun-dew, Pitcher-plants, and Ferns, flows a cedar-brown stream. The color of the water comes, not as popularly supposed, from the roots of the swamp Cedar, but is dissolved from the earth by the acid reaction of the humus which is in the soil. Acid quality of soil is the first demand of the Blueberry.

The stream is confined in an artificial ditch, fed from a lake-like reservoir that gleams at a distance with white Water-lilies. The sand in which the Blueberries are set is cool and moist below; though on the surface dry and hot enough in the scorching July sun. Sand loose and moist is also an imperative condition of successful Blueberry culture.

In every direction you may see Cranberry bogs with their thick, springy mattresses of creeping vines, and beyond, against the sky, the picturesque outlines of the scrub of the misnamed New Jersey "barrens."

This twenty-acre field of your imagination is, in fact, a reality. Near New Lisbon, in Burlington County, New Jersey, where cranberries are produced by the fifty thousand bushels a year, the pioneer blueberry grower, Miss Elizabeth C. White, is developing a new industry. For nine years she has been experimenting with the High-bush Swamp Blue, or Huckleberry (Vaccinium corymbosum).

Any one who has wandered over New England hills or through the swamps of New Jersey and the Pennsylvania Poconos, has noticed the wide variation in size, flavor and color on different bushes of this species. It naturally occurs to the horticulturist that by selection and breeding the most desirable characteristics may be developed and permanently fixed in commercially valuable strains. So far, so good—but the difficulty commences when the ambitious grower tries to subject the capricious Blueberry to the ordinary restraints of cultivation. As dozens of disappointed gardeners can testify, it will not grow in an ordinary garden with ordinary treatment. Miss White approached the Blueberry problem from the root, instead of the fruit, end. The way had already been pointed for her by Mr. Frederick V. Coville in a publication of the United States Department of Agriculture, "Experiments in Blueberry Culture," wherein are laid down three primary facts:

(1) *Blueberries must grow in acid soil.* Alkaline or limey soils stand at the opposite end of the scale; ordinary garden loam in which Clover flourishes easily, lying midway between the two extremes. Acid soils have a distinct flora all their own, the many species of the Heath family, including Blueberries, Laurels, and Rhododendrons, being very characteristic. The explanation of this, as of some other peculiar phenomena in the vegetable kingdom, lies with microscopic fungi which live on the roots, and, themselves necessary to

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HERE IT IS—JUST LIFE SIZE!

This new Blueberry, product of the crossing of two carefully selected wild varieties, is certainly a marketable prize and an attractive possibility for any garden

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READY FOR CREAM AND A LITTLE—VERY LITTLE—SUGAR

the health of the plants, require acid soil for their perpetuation. Therefore the Blueberry, like many wild plants, will not grow in ordinary neutral or "sweet" garden soil.

(2) *Blueberries must have good drainage and aëration.* That is why they prefer to grow in sand or loose soil through which water slips as through a sieve, and where air can penetrate freely. Some thoughtful person may object that drainage in a swamp is notoriously poor; but if you will notice, the Blueberry under such conditions makes for itself a cushiony hummock of peat and moss, interwoven with fibrous roots, on which it stands above the surrounding wet ground, high and just dry enough.

(3) *Blueberries must be supplied with permanent, though moderate moisture.* The subsoil of that New Jersey field is cool and always moist because of subirrigation from the ditch; the hummock of moss in the swamp is fed from the water around it; so always, where Blueberries flourish, you will find the thirsty roots have penetrated to some deep, inexhaustible supply.

Having these facts established, Miss White found no difficulty in providing a congenial home for the Blueberry.

The Hunt for Bigger Berries

THE next problems were the selection of desirable wild bushes and propagation from them. This undertaking has a flavor of the picturesque. Miss White knew from familiarity with the swamps surrounding the Cranberry bogs, that bushes did exist with remarkably large and delicious berries, and that the native pickers of wild berries, locally known as "pinies," were the best agents by which to locate these. Consequently she issued to these men and women packages containing a gauge of aluminum plate punched with a hole sixteen millimeters ($\frac{5}{8}$ of an inch) in diameter for measuring the berries, three jars to hold samples, and a bottle of preservative, with typewritten directions explaining their use. Rewards were offered to the finders of bushes with a certain number of berries that would not drop through the gauge hole, provided, of course, the finder was able to produce specimens and re-locate the bush. By this simple method, extending over several years, many exceptional bushes have been corralled, six of which have proven of sufficiently permanent worth to form the basis for propagation. The name of the discoverer of each is perpetuated in the stock from his or her bush: though Rube Leek has been softened to *Rubel*, the identities of *Sam* Lemon, Mrs. *Harding*, Russell *Grocer*, Theodore *Dunfee* and Jim *Adams* remain unchanged.

Each of the original bushes had distinct characteristics which are apparent in their offspring. For instance, Rubel excels in size of berries, which are frequently 17 mm. and occasionally 19mm. (or $\frac{3}{4}$ inch); Sam, while not quite as large, is much earlier in ripening and particularly ornamental in autumn foliage and winter twigs; and Harding's flavor is unsurpassed, though the berries are too tender for distant shipment. Combinations of these qualities are secured from cross-pollinated seedlings. Thus, two of the most promising hybrids that have yet come into bearing, known as 620A and 830C, selected from three thousand seedlings of the same parentage, though themselves of inferior pedigree as compared with later seedlings not old enough to test, have nevertheless proved far above the average of selected wild bushes in yield per bush and in size of berry.

The development of propagational methods is too long a story to be written here. It is enough to say that in contrast to the complete ignorance of the subject on the part of propagators a short time ago, the science has been worked out in such detail by the pioneer Blueberry growers that from cuttings of twigs, roots and woody stems of one bush, thousands of young plants can be brought into bearing within three or four years.

As a Practical Plant for Gardens

WHY should all this be of especial interest to those who have not built their houses upon the sands of New England or the rocks of New England pastures—to the owners of just the usual non-acid country places? Because this newly refined Blueberry appeals quite sufficiently to both the gustatorial and artistic sensibilities to warrant a little effort in making it feel at home on any estate. In winter the bark of the young wood of many varieties is bright red, and the bushes glow with warm cheerfulness against a snowy landscape or a mass of evergreens. The new shoots are rich and bronzy in color, like those of Roses. During the early spring the branches are thickly hung with exquisite pink buds opening to bells of spicy fragrance and waxy whiteness, sometimes delicately tinged with color. The bushes are most beautiful just before the fruit is ready to pick in July. The crowded clusters of dark blue or black mature berries, contrasting vividly with the pink and violet of the immature, are borne in some varieties well above the green leaves, in others half hidden among the foliage. When frost finally arrives, the reds flame up again, this time astonishingly brilliant. Bushes planted in the open field in

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PROTECTING THE PARENT BUSHES
Specimens of different strains are protected from over-zealous pickers and from birds by a netting cover, easily set aside when observation and measuring time comes

rows according to their parentage, display their hereditary features to a marked degree, in form of growth — open and graceful or compact and stocky, and in seasonal coloring, as well as in size, flavor, and color of fruit.

GROWING ON A NON-ACID SOIL

The necessary directions for preparing the Blueberry bed are not complicated. The safest method, if the soil is heavy, is to dig a trench four feet wide by one foot deep, lay tile to insure perfect drainage, and fill in with one third sand to two thirds peat. Use no fertilizer at any time, but keep a heavy mulch of hard-wood leaves, such as oak, always around the plants. If the soil is naturally light and well-drained, two or three inches of partly decayed leaves dug into the ground will probably supply the required acidity and be sufficient preparation. Moisture should be maintained, by sub-irrigation or overhead.

For hardiness, ornamental quality, and deliciousness of fruit the improved Blueberry is unsurpassed, and by virtue of its merits should interest every zealous pomiculturist and lover of the beautiful.

AMERICA'S OLDEST GREENHOUSE

E. I. FARRINGTON

Built Nearly a Century and a Half Ago on an Estate Surveyed by George Washington, It Stands To-day Still Giving Its Product of Flowers So Much Enjoyed in the Older Time by America's First President

IF THERE is an older greenhouse anywhere in America than the one on the Lyman estate in Waltham, Mass., there is no record of it. Not only is this unique structure the most ancient greenhouse known on this continent, but what is more, it was so well built that it is in use to-day, practically no change having been made in its appearance or equipment. It was constructed a hundred and thirty years ago, and at that time a brick flue extending three quarters of the length was put in to supply the necessary heat. No other heating apparatus has ever been installed, and this same flue does duty now each winter. The only difference is that whereas the original fuel was wood, coal has now been substituted. So well does this crude heating system do its work that no difficulty is experienced in keeping the temperature up to sixty degrees throughout the winter.

Young gardeners who visit this house find the heating system its most curious feature, and marvel at the amount of labor required by gardeners of Colonial days. It must have been necessary to prepare a big pile of wood to keep a continuous fire from fall until spring, and as a wood fire burns out rapidly, someone must have practically lived with this flue, because the house was built for growing Roses, and the temperature in a rose-house needs to be under thorough control. The fire box is in front of the door at one end of the house, and the flue extends down the middle of the building about two feet above the floor level, to a chimney at the opposite end. This chimney has a damper on the outside, a damper which apparently had to be used constantly when wood was burned. The length of the flue is about thirty feet, and it is about a foot in diameter. Coal gives just as good results as wood, and only about three hods full are burned in twenty-four hours, even in cold weather.

THE HEATING SYSTEM

Built for wood, but now used for coal, this old flue with its chimney at the opposite end of the house is still in operation after a hundred years. The outside "damper" was necessary to check the wood fire

The house itself is forty feet long, by ten feet wide, and has high raised benches. It is of the shed roof type, and at the top are solid board ventilators to be raised or lowered according to the temperature requirements.

Although the house was built for Roses, these flowers have not been growing in it for many years. During the summer the benches are used to grow crops of Melons and Tomatoes, while in the winter they are kept stocked with a miscellaneous lot of plants, making the house a sort of feeder for the other and more modern greenhouses.

THIS ancient greenhouse was built by Mr. Theodore Lyman soon after he established himself at Waltham. The estate, which

BUILT IN WASHINGTON'S TIME FOR GROWING ROSES

On the Lyman estate at Waltham, Mass., this historic greenhouse may still be seen. It is heated by flues, and is, in fact, little more than a gigantic frame

is a large one, has been in the Lyman family ever since, and is unusually interesting in many ways. The first Lyman brought his household goods to his new home in an ox cart, and the place has never been without oxen since. A fine yoke of these animals is even now used for getting in the hay and doing other heavy jobs around the farm.

Mr. Lyman was greatly interested in horticulture, and coming from an English family naturally had many old world ideas. He laid out the estate on ample lines, with a deer park, and erected a long brick wall for growing peaches in the English fashion. He was a warm friend of Gen. George Washington, who personally aided him in laying out the walks on the new estate.

Not many years after constructing the rose-house, Mr. Lyman put up a grape-house, which is also still in existence, and without much doubt is the oldest grapery in the country. Black Hamburgs and Muscats have been growing there for more than a hundred years. The building was heated by an elaborate system of flues, and while the flues themselves have been removed, the fire boxes in the deep basement are still intact. There are a dozen of these fire boxes, which resemble old fashioned Dutch ovens, and the flues connecting them formerly extended all through the rear wall, which was made of brick and stone. Of course wood was the only fuel. Once a day a roaring blaze was made in each of the twelve fire pits, and the heat ascending warmed the entire wall. After a few hours the fires were allowed to go out, but the bricks held the heat until the next day. It is easy to see that the man who had the job of preparing wood for these twelve heaters and keeping the big brick walls hot had no easy task.

I am sure there is no place in the country where so interesting a study can be made of old fashioned methods of greenhouse work, laborious and crude compared with the methods prevailing in modern houses of the approved type.

The present head gardener, Mr. G. F. Stewart, has a great liking for historical matters, finding delight in preserving the old fashioned greenhouses just as they were in the days when Washington picked the Roses and ate the Grapes.

FACTS FOR READY REFERENCE

—The fertilizing value of manure runs in this order: Poultry, sheep, pig, horse, and cow.

The manure of sheep is generally richer and dryer than that from any other domestic animal, except poultry. It early ferments and is quick-acting.

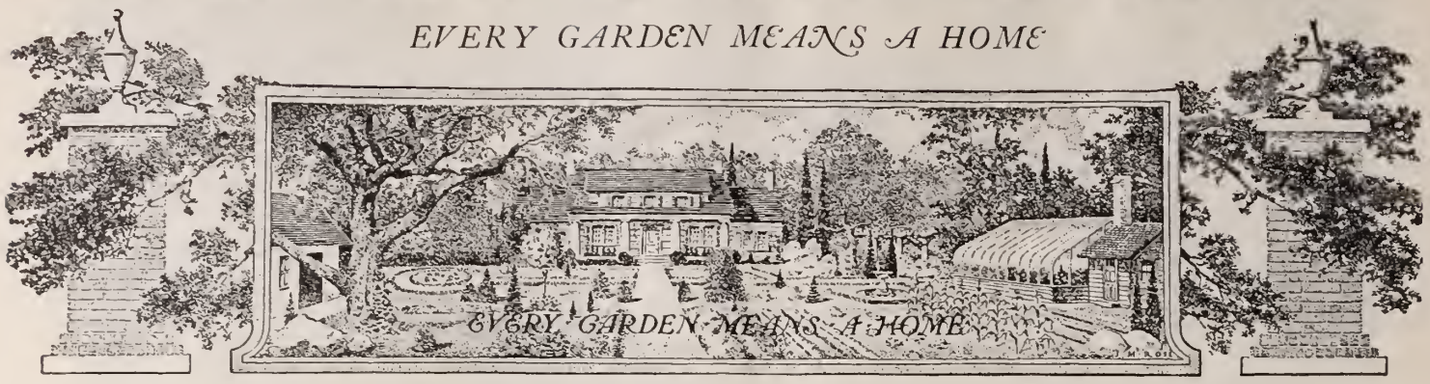
—In sheep and hog manure the excess of nitrogen is greater than in horse manure. The excess in cow manure is little less than it is in horse manure.

—In phosphoric acid and potash, hen manure is three times richer than pig manure, seven times stronger than cow manure, five times better than sheep manure, and twice as rich as stable manure.

—The compost heap is practically the turning of rubbish into a veritable gold mine. Weeds, leaves, lawn mowings, refuse from the house, garbage, feathers, old worn-out shoes, soapy water, bones, woolen rags, wood ashes, lime, plaster, etc., can all be composted and eventually afford one of the best manures.

AMONG OUR GARDEN NEIGHBORS

EVERY GARDEN MEANS A HOME



MONUMENTS to men and to deeds are too usual to excite more than passing comment, but a monument to a fruit is a distinction sufficiently rare to evoke genuine interest! On August eighteenth of this year horticulturists from many sections of the country gathered at Springwood Farm near York, Pennsylvania, to do honor to the "York Imperial" Apple at the site of its origin a hundred years ago. Here a monument was placed with impressive dedicatory exercises conducted by the Pennsylvania State Horticultural Association.

The origin of this Apple, like that of many of our best fruit varieties, seems to have been largely a matter of natural evolution. The schoolboys of the early eighteen-hundreds, apparently afflicted with the same predatory instinct that prevails among schoolboys of to-day, were the first to discover its merits, and it was through their frequent early spring visits to a certain tree on the Johnson farm that attention was directed to this apple. Johnson, aroused by these schoolboy visitations, found fruit in fine condition which had wintered over on the ground with the slight protection of fallen leaves. Specimens were taken by him to a neighboring nurseryman, Jonathan Jessop, who propagated the stock. The apple, for some years known as "Johnson's Fine Winter," has become so popular that now in the state of Pennsylvania alone there are more than eighteen thousand acres of "York Imperial" orchards worth in some cases as high as a thousand dollars an acre. The former yield of this same land when planted in wheat never reached a maximum of more than ninety dollars per acre. Pecuniarily Pennsylvania can well afford the cost of a bronze tablet upon a stone; the "York Imperial" has paid the price of its own monument many times over: but not always are men so thoughtful of the sources of their wealth—and health, if the adage: "an apple a day keeps the doctor away," be rooted in truth, as we are inclined to think it is.

A MONUMENT TO AN APPLE

The York Imperial, which has so largely contributed to the horticultural prosperity of the state of Pennsylvania, is thus honored by a monument erected at the place of its origin near York, Pa.

From Pennsylvania the "York" has migrated to Maryland, the Virginias, and the middle Western States without detriment to its individual qualities. It is not adaptable to the upper belt of states. The fruit is rather a pretty one, as any smooth-skinned, carmine-streaked, rosy apple is apt to be, and under its surface prettiness harbors some very substantial charms for both grower and consumer. Its flesh is crisp, and somewhat aromatic, it is moderately tender and juicy, and exceptionally well-flavored, being slightly sub-acid at first, becoming almost sweet. Its excellent flavor and its keeping quality are perhaps its strongest claims on popular favor. An apple which successfully winters over and is still good for eating purposes as late as May or even June is assuredly an apple for the home garden in its region of adaptation. As Prof. S. W. Fletcher of the Pennsylvania State College in his dedicatory tribute pertinently put it: "The York is not beautiful, like the Jonathan; not shapely, like the Rome; not rich-flavored, like the Stayman; not precocious in bearing, like the Duchess; but it is dependable. It can be counted on to fill the barrels. It has the solid, homely virtues of the common people. On many farms the York Imperial Apple is the keystone in the arch of prosperity. It has paid off mortgages, built barns, sent the boys to college, installed modern conveniences in the house and brought happiness and comfort to the home. Let us thank God for our friend, the York Imperial Apple. He gave it to us, unsought. Like the Baldwin Apple, the Concord Grape and other great varieties that have blessed the world, it was not the product of the plant breeder, but merely a chance seedling springing up in a neglected fence corner."

The tree itself, upright spreading in form, is a thrifty, vigorous grower under conditions in which it feels at home. It seems to prefer clay soils rather heavy in character, and seldom does its best in light, thin, or leachy soil.

In erecting a permanent memorial to the "York Imperial"

Pennsylvania shows a fine appreciation of the zealous and intelligent husbandry of its pioneer growers, as exemplified by Jonathan Jessop, by which we of to-day increasingly profit.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

Keeping Grapes

To the Editor of THE GARDEN MAGAZINE:

YOU may have fresh grapes long after the vines are barren and leafless—if you are willing to follow this simple method. When the grapes are ripe select a few perfect bunches and cut them with a generous portion of the shoot attached to the stem of the cluster. Place this shoot in a bottle or jar of pure water and store the bottle away in a dark, dry place where an equable temperature of about 40 degrees can be maintained. The bunches will receive sustenance from the water drawn up through the stem in the same manner that flowers are kept fresh in vases. It is surprising how long grapes may be kept in this way. Indeed, they may be still available for eating and for decorating baskets of fruit during the holidays.—JAMES J. DEEHAN, *Bryn Mawr, Pa.*

—This method is followed on a large scale, commercially, in France, and is known as the Thomery system—ED.

Two Easily Grown House Plants

To the Editor of THE GARDEN MAGAZINE:

FOR those interested in house plants in the winter let me call attention to two probably not generally known, but which are most attractive both on account of their foliage and their fragrance. The shrub sometimes called Olea fragrans, but which is really Osmanthus aquifolium, or False Holly, when potted readily grows to the height of three feet or more. In the Southern States where it is hardy and grown out of doors it becomes much taller. It has fine, dark, glossy, evergreen leaves. The flowers are indeed small, white, and entirely insignificant, but exhale a delightful apricot fragrance perceptible in a room far away from the plant. The variegated Thyme is a low growing, creeping plant, spreading rapidly. If the least bit is planted around a bulb or any potted plant it will soon fill the empty spaces completely with its charming gray-green foliage. These plants in my experience have never been troubled with insects.—G. E. BEHR, *Englewood, N. J.*

Evergreen Trees Struck by Lightning

To the Editor of THE GARDEN MAGAZINE:

A SHORT time ago I saw the statement in this magazine that evergreen trees were not struck by lightning. I beg to differ, however, for I saw a large Fir tree in Dublin, N. H., split nearly to the root by a stroke of lightning. Such queer pranks were played with large pieces of the trunk and limbs that many people came to see it. The tree was seventy years old.—ELIZABETH L. CABOT, *Dublin, N. H.*

—Many evergreen trees have been struck by lightning in this section. During this summer a large Pine tree was struck in Dana not far from the residence of Mr. George Southworth. On Sunday evening, September 12, a large Pine tree was struck at Greenwich Village, Mass., not far from the railroad. With a little investigation I could easily give you a dozen cases where evergreen trees have been struck by lightning in this section. The two trees mentioned here were White Pine.—REV. GEORGE A. FULLER, *Greenwich Village, Mass.*

—I wish to go on record as stating my observation that evergreen trees, especially the Hemlock, are struck by lightning in this locality. In the summer of 1918 I was working on an estate in the Chagrin Valley, near Cleveland and during that time there were four Hemlock trees struck by lightning on that estate. Two of the trees had their tops shattered and the bark stripped from the trunk, one had the top completely knocked off about fifteen feet from the ground, while the lightning struck the other tree near the top shattering it and ploughing a furrow the complete length of the trunk, nearly killing four men who had taken refuge under it during the storm. This is the first time I have ever heard of evergreens being immune from lightning. I have always heard that Beech trees were immune and as far as personal observation goes, have never seen one that was struck. Perhaps there is someone who could say something in regard to this.—I. S. HEASLEY, *Cleveland, Ohio.*

The Summer Gloxinia

To the Editor of THE GARDEN MAGAZINE:

AFTER several years' experience with Incarvillea Delavayi, I am led to wonder why so few gardeners grow or even know this exceedingly handsome border plant. During early July no plant in my garden was more conspicuous or more greatly admired than this Summer Gloxinia, with its spikes of delicately tinted pink flowers. I have found, though, that the plant needs to be given an abundance of room, and it suffers if it is badly crowded. One reason for this is the fact, undoubtedly, that it has a strong growth underground. Moreover, surrounding plants should not be allowed to sprawl over it later in the season. Some gardeners lift the bulbs in the fall, but if they are well protected in the border, and especially if plenty of snow falls, they go through the winter safely when left out of doors, and make better plants the next season than if disturbed. It is important, though, that the covering be a loose one of straw, rather than something which mats down hard and becomes water soaked. Then care must be taken that the plants are not disturbed in the spring, as they are rather tardy in appearing, and there is danger of their being dug up. Altogether, the Incarvillea is a very desirable garden subject, and one worth becoming better acquainted with.—E. I. FARRINGTON, *Mass.*

INCARVILLEA DELAVAYI

More often talked of than seen, yet this Summer Gloxinia is a welcome flower in the summer border. It is one of the late starters in spring

Must We Revise Our Pruning Practices?

To the Editor of THE GARDEN MAGAZINE:

I SUPPOSE the last division of Mr. Seymour's article (page 28) describes Mr. Chandler's "unpruned" method. He says: "except for removing interfering branches, preventing the formation of undesirable crotches, and doing any such absolutely essential pruning,"—which is pruning, of course. I did not know any one in the United States, who knew anything about pruning, did any different. I have seen old country gardeners do what Mr. Chandler condemns, and some of them I know keep doing it in spite of "bad luck" as they call the resulting brush wood, and low crops. It ought not to take much experience to show that a so-called, unpruned tree has the best chance, and I know successful orchardists in New England who never did any different, and no one told them how. Tom Butterworth was once asked what he fed his Orchids, and he quickly answered, "Brains." I have raised a young orchard of 300 trees from planting, these ten years, and never pruned any other way. I always did as little as possible. In spite of any old country training I saw at once it was best to let them grow, with only restraint enough to keep them in shape—open and free from interfering branches. But then, a broad field, and lots of room, might have impressed me.—T. D. HATFIELD, *Mass.*

—Pruning problems as brought out by the article of E. L. D. Seymour last month cause one to think. The illustrations, however, do not tell much of a tale save as regards how not to do it. The

trees dealt with and shown, are presumably field grown and therefore are an object lesson for the commercial grower rather than the home gardener. The latter, if he is limited for space cannot hope to make a great fruit garden with trees of the type shown. The pruned Apple is a most deplorable specimen, while neither of the Pears would win a prize for shapeliness.

Regarding the pruning of young trees, it has long been recognized in England that this depends upon circumstances. The commercial grower who wants a tree first, before he thinks of fruit, should not prune the first season unless his soil is in specially good heart or he plants early. If he plants in the spring, no live commercial grower will touch his trees save to trim off damaged shoots. The following year, however, the expert cuts back well into the original wood and from the breaks that follow he builds his tree. Varieties that will respond to it are trained in basin form so that there is no tall growing leader and, especially is this so when half-standards or bush trees are being grown. The modern grower does not want trees away up in the air making spraying and picking difficult; this applies to Apples in particular.

Pears cannot be heavily pruned unless on the Quince stock, for the more they are knifed the more persistently they make watery, non-bearing wood, as is shown by the illustration on page 28, September issue. Incidentally, it is incorrect to speak of these shoots as suckers; the latter term is only properly applied to growths pushed up from the roots.

As to the work carried on at Cornell, it is not convincing for one does not know just how much pruning was actually done; the trees illustrated suggest undue cutting. Pruning must be governed by circumstances; varieties even call for different treatment. Some fruit on the terminals and, if spurred, little fruit ever shows itself. Personally I favor maiden trees, that is, one year old from the bud for planting which one may develop as desired and, while apparently small for a start, they are infinitely better than some of cut-backs supplied as fruiting trees. Particularly is this so for Apples and Pears on dwarfing stocks, but even with these, it is not good policy to prune the season of planting unless the soil is moist and rich.

It may be mentioned that trees on dwarfing stocks should be lifted at the third year. Regarding the cutting off of food supplies through top pruning I am under the impression that the root area is more or less governed by the top. We see it in well-established trees, particularly Pears on the free stock. Rampant growth cannot be suppressed by top-pruning because the roots are too vigorous; and we therefore root-prune and thereby make the trees develop fruit buds instead of wood.

The experiments at Cornell only demonstrate long accepted theories; and, if the teachers here have all along been advocating rule of thumb pruning, their principles are at fault. I cannot however imagine that undue knife manipulation among young trees is general among commercial growers, otherwise New York State would not stand so high as an Apple producer.—T. A. Weston, *N. J.*

Burning Money

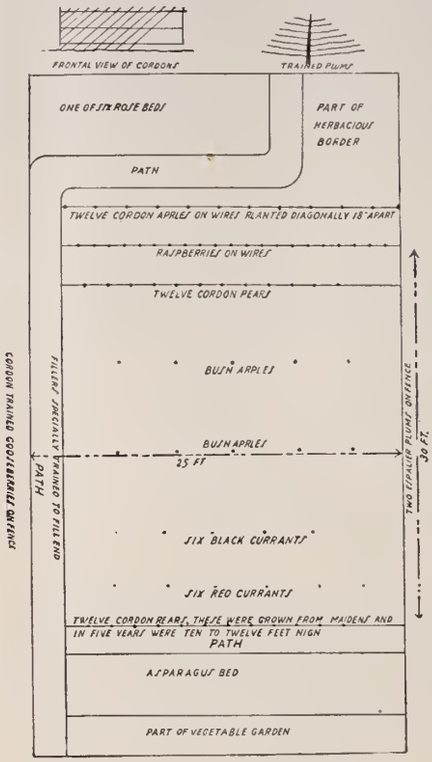
To the Editor of The Garden Magazine:

LAST spring, just at "cleaning up" time, I called at a suburban home and found the owner busy in the garden trying to burn a damp accumulation of leaves. I remarked that he must be flush to be burning money in such a reckless fashion, that those leaves were just what his light, sandy soil needed as a mulch and to furnish humus. One corner of the garden was occupied by blackberries which he said dried badly during the summer droughts. Yet he had raked some of those very leaves from the ground about those plants! I suggested that, if he would cover the surface with a thick mulch of leaves, it would prevent this disastrous drying and insure a better crop of berries, something he hadn't thought of, but seemed willing to try. I wonder how many others are equally thoughtless? In autumn, our town and, I presume, other towns are blue with smoke from burning leaves. When fallen, they are considered a nuisance to be gotten rid of in the easiest way. On the contrary, they are valuable for a number of purposes. They are not the best poultry litter in the scratching shed, or bedding for stock, but answer fairly well in the absence of something better, and when worn out (or before) are a useful addition to the compost heap. They are excellent for covering bulb beds for winter protection, though they need to be held in place in windy locations by brush, evergreen boughs or by wire netting. When decayed, together with rotted sods and other kindred material, they are excellent for potting soil. It is a mistake to burn them. Gather them instead when they are dry and store them away in burlap bags for various future uses.—F. W. Valentine, *New Jersey.*

Making Much of the Small Fruit Garden

To the Editor of The Garden Magazine:

ALTHOUGH I have not had any great opportunities for seeing many gardens, I must confess that the average gardens of modest dimensions that I have seen in New Jersey are not impressive in regard to fruit trees and, by the tone of the timely and pointed article by L. R. Hartill in September Garden Magazine, I assume that these conditions prevail more or less in many places. Considering the climate and the freedom with which many trees grow, it has struck me as peculiar that the small home garden is so lacking in really well grown fruit trees.



As an old-time resident of England's garden county, Kent, may I be excused for remarking that there one finds in the small gardens of a quarter acre or less, a greater variety of fruit trees than is usually seen hereabouts, although Peaches are impossible except on warm walls. Some years ago, on a patch 25 ft. x 30 ft., I was successfully fruiting a row of Raspberries, six Red Currants, six Black Currants, ten bush Apples, eighteen cordon Apples, eighteen cordon Pears, eighteen cordon Gooseberries, and two espalier Plums, almost every plant a distinct variety! The bush Apple trees on several occasions yielded from 15 lbs. to 25 lbs of fruit each, while the cordon Apples and Pears gave not only wonderful crops but remarkably fine fruit, some of the Pears ranging up to eight ounces.

I am somewhat puzzled by the fact that no garden that I have seen here has this class of trees. In all instances the trees I see are either ancient crocks, badly ridden with disease and pests, or fairly young standards or half-standards with no particular claim to shapeliness or fruitfulness. Perhaps I have been unfortunate in my location. At all events, I have been disappointed, for the soil and general conditions suggest that really wonderful results should be obtained. The so-called bush trees that I have examined in several gardens were nothing more than bastard half-standards, and "runts" at that. They never were good and never will be, and I have been astonished that any reputable firm should offer such stock.

When I think of the three year old bush trees that I could buy in England some years ago at 80 cents to $1.00 apiece I just sigh; trees that would settle down to fruiting freely a year or so after planting and, with careful pruning grow steadily and improve year by year. So good were these trees after I had cropped them for nine years that I was able to lift and sell them without trouble when I quitted. True a bush tree 4 ft. or so in diameter and 6 ft. tall, will not yield a crop equal to a fully grown standard, but in my own case I was growing a whole orchard on the space that would barely hold more than one good standard and I had early and late fruit, culinary and dessert.—T. A. Weston, *N. J.*

Fall Planting of Fruit Trees

To the Editor of The Garden Magazine:

I AGREE with Mr. Hartill (Assets of the Fruit Garden, September number) that many fruit trees can be successfully planted in the fall. I have moved all the things he names—Plums, Peaches, and Quinces as well, and I am sure something has been gained. But I have done this only on a small scale and have had plenty of water at hand.

I consider it would be a hazardous proposition to do any large amount of planting with the soil as it is in September, dry. To be sure of success, the roots would have to be kept moist as long as the plants carried any leaves. It is essential in order to get the full advantage of

fall planting, to have the leaves hold, and fall slowly, and in a measure naturally. If the leaves stay on, the plant makes new roots quite freely; but if they shrivel up and come off prematurely, few, if any roots are made, unless the plant starts new growth, as it occasionally will. We do fall planting of fruit trees when changes in the layout of the orchard are desired because that is the most opportune time of the year. We do not plant fruit trees in the fall by choice, but merely as a convenience.

Again, as Mr. Hartill suggests as an argument in favor of fall planting, we can usually go to the nursery at that time, pick out our own plants, and move them, maybe with more care and certainly with less loss of time. But, on the other hand, we could go to the nursery in the spring and do the same thing, to great advantage. I think there is much in favor of spring planting in that soil conditions are decidedly better.

In conclusion, what is said of fall planting of fruit trees, may be said of all planting. The chief argument in favor of fall planting is its convenience, and this is offset by the more favorable soil conditions at the time of spring planting.—T. D. Hatfield, *Mass.*

Elaborating the Cellar Window Frame

To the Editor of The Garden Magazine:

IN 1908 it occurred to me that a removable glass frame for plants could be fitted into one of those small oblong cellar windows at the ground level, and, with the window sash removed, worked from inside the cellar in all kinds of weather. It would have the advantage of the cellar warmth to help the plants on cloudy cold days, and on sunny days some of the excess heat could escape into the cellar. Such a frame was made for a south window. It was fourteen inches high (the height of the window) at the back and six inches in front; thirty-four inches wide (the width of the window) and twenty-four inches deep. The next year a similar frame was made for an east window. They were placed in the windows in October and removed late in May or early in June—after it was safe to set out the Peppers and Eggplants—and the ground they had covered was set with flowering annuals. Every winter until 1916 they did their share of plant raising and did it pretty well, considering that they were made of scrap lumber and did not have thoroughly tight joints. Then it was found that they were worn out. New frames were necessary, and as more room had been needed for some time (what amateur gardener doesn't always need more room?), it was decided to make them larger and to make one of them with double glass. The frames had been successful enough to be respectfully treated, so new clean poplar lumber was bought for them and they were put together with screws and with white lead in the joints. For the double glass parts $1\frac{3}{8}$ inch pieces were used. A half inch strip down the center all the way round held the glass apart and $\frac{3}{8}$ inch beveled strips, fastened with brass screws so as to be easily removable in case of breakage, held it in place. The floor was of $\frac{7}{8}$ inch boards and was covered with a piece of composition roofing. The back of the frame was made of a six-inch board, four feet long, across the top, an eight-inch board at each side and a two-inch strip across the bottom. This left an opening the size of the cellar window. Three sides of a frame that would slip snugly into the window were put together of six-inch boards, and attached with long screws around the opening in the back of the frame. With the thermometer at ten below zero last winter, and the wind blowing, the temperature in this frame dropped to thirty eight, but I think that it would have made a better showing had it not been for two cracks where the front is joined to the sides, which were discovered in the spring. For ventilation an inch hole was bored in the top of each of the end sashes, to be stopped when not in use with a tight fitting wooden plug which hangs to a light chain; also a twenty inch stick was fastened to the middle of the upper end of the top so that it may be pushed up and held in place by screw eyes in the stick which slip over a hook inside the frame. The inside measurements of the frame are forty six inches long, twenty eight inches deep, twenty inches high at the back and fourteen at the front. As the whole thing is too bulky for one person to carry, two handles were attached to the back piece of each of the end sashes so that in removing it can be tipped up on its back, or open side, and readily picked up. Another frame, similar in all respects, except with single glass was also made.—Hortulus.

THIS FRAME UTILIZES CELLAR HEAT

On cold days in winter the house heat benefits the plants started here

IT IS EASILY REMOVABLE

Strongly built this frame serves all the purposes of a miniature greenhouse

Perseverance with a Calla

To the Editor of The Garden Magazine:

SIX years ago a friend sent a pot of Tulips and Hyacinths to my mother. In the pot I found two tiny leaves about an inch long; and after the flowers had gone I transplanted the small plant and it developed into a Calla. Four years ago I repotted it into a larger pot, but it never blossomed. Last year I set it out in the ground, and still no blossoms. But still I didn't despair! I brought it in the house again, and still no bud or blossom. This spring, however, I set it in a cool dark corner of the grape arbor; there it blossomed for the first time and more buds are showing.—Joseph Rix, *Lansing, Mich.*

How Is This for Number of Blooms?

To the Editor of The Garden Magazine:

IN A recent article in The Garden Magazine there was a picture showing a patch of Peonies said to be 20 by 40 ft. with a thousand blooms. That is extraordinary, I know, but on the other hand I think my record is quite pleasing, too. We had 374 blooms at once on four plants in a bed but six feet square.—H. C. Bennett, *Ohio.*

Snails and Slugs

To the Editor of The Garden Magazine:

IT IS very disappointing to have a nice batch of young plants in the frames ruined by the mollusks. You would not mind it so much if your itch for revenge could be satisfied but snails and slugs are such retiring creatures that they are rarely seen. Their habit of lying concealed in the daytime accounts for the fact of their being more common than is apparent. However, there are remedies. Hand picking is of course the best cure for potted plants but it is too slow and tedious for the frames. A thorough sprinkling of the soil with a solution of ammonia several days previous to planting will bring the pests out of hiding and either kill them outright or make them so conspicuous that they can be hand picked. Another effective method is to make a circle of soot or quicklime around the plants. They are not apt to cross this but the ring requires frequent renewing as these mollusks exude a

slimy fluid over which they can crawl with immunity. As is true in all wars with plant pests, one must keep eternally at it or the slugs and snails will steal a march. Then woe to the newly opened leaves!—J. J. D.

The Best Hardy Leek

To the Editor of THE GARDEN MAGAZINE:

WHAT is the best hardy leek? I want one that will not die out in zero temperature. Musselburg has been a failure two years out of three.—WILLIAM ERB, *Long Island.*

—We are quite surprised to learn that any Leek should freeze out, even during zero weather, since the Leek is regarded as one of the hardiest of all vegetables. There must be something in the method in which these Leeks are grown that makes them so susceptible to frost. Any Leeks forced to extra size through extraordinary application of water and concentrated fertilizer would of course be much more susceptible to freezing than the product that is grown more slowly, and is therefore more hardy. Now the variety we know to be the hardiest of all is Rouen Winter, and several good seed houses in the United States handle the true stock. This variety, however, does not grow as broad and thick as either Musselburg or American Flag. These three, by the way, are all favorably known and widely grown all over Europe and in Canada.—ED.

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of the THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in a *normal season* is taken as standard; but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

NOVEMBER—THE MONTH OF GETTING INDOORS

GET ready for the coming winter by gathering protective material for tender plants, and for covering up the hardy borders, and beds generally after *they are frozen over;* and by cleaning up the remnants of the seasons crops, so as to have everything tidy and in readiness for a clean start another year.

In the Vegetable Garden

Celery will have to be stored sometime during the month. Dig all root vegetables without delay and store in trenches; or an old box or barrel buried in the ground may be utilized. Better still is to store in moist sand in a cold frostproof cellar.

Late crops of Lettuce still outdoors may be prolonged for some weeks yet if protected during freezing weather with salt hay and leaves.

Put Cabbage in trenches upside down and cover the heads.

Cut off the tops of the Asparagus plants and burn them. Cultivate between the rows, and when the ground freezes apply a mulch of manure.

Protect French Globe Artichoke by laying some fine brush over them before covering them with corn stalks or other coarse litter.

Heavy retentive soils will be benefited by trenching or double digging at this time, leaving the surface as rough as possible.

In the Flower Garden

Plant all spring flowering bulbs.

Dig over vacant beds and leave as rough as possible.

Start giving protection to such things as tender Hydrangeas, Boxwoods, Rhododendrons, and Hemlocks in exposed situations.

Cut off and burn all flower stalks.

Gather up the stakes and put them away for another season.

Get the mulching material to some convenient place and apply it after the ground freezes sufficiently.

Perennials may be planted until the ground freezes up.

Lift and store, preferably in a dry cool cellar, Montbretias, Cannas, Dahlias, Gladiolus, and other tender summer-flowering bulbs.

Cannas winter well under a greenhouse bench. The best method of wintering Dahlias is to cover them with moist sand, on the floor of a frost proof cellar.

Cut everlasting flowers, such as Gomphrenas, and Straw-flowers before they are badly frozen, and hang up indoors to dry.

Fall sown Sweet Peas flower much earlier than spring sown. In the vicinity of New York and the colder sections of the North Atlantic states protection is essential.

In the Orchard

The orchard is to be a permanent feature of the place so prepare the ground well. Plow deep, and subsoil to break up the hard pan usually found beneath the surface soil. Make the holes where the trees are to go much larger than necessary, and fill them up with good soil and incorporate plenty of well-rotted barn yard manure.

Apples and Pears are best set in the fall, while the stone fruits do better if left until spring. However prepare the soil now.

Prune Grapes and fruit trees any time this month, and if the wood of the vines is wanted for cuttings, or the scions of fruit trees for grafting tie into bundles and bury in the ground until spring.

In the Greenhouses

Keep the Chrysanthemum house cool and dry, ventilation and fire heat being regulated to this end. Root cuttings of bush Chrysanthemums.

Cease picking off the flowering stems from the winter flowering Geraniums, where flowers are wanted for Christmas. Feed the plants with Clay's fertilizer.

Lift from the open ground Campanulas for forcing, pot, and place in a deep frame until wanted next January.

Allamandas and Bougainvilleas that have been growing on during the summer have made all necessary growth, and should be rested.

Roman Hyacinths and Paper-white Narcissus that have made plenty of roots can be placed in a temperature of 50 degrees, and successive batches brought in every ten days to maintain a succession.

Pot on Cinerarias, and Schizanthus as they require it. Grow them cool (45 degrees at night.)

Avoid wide fluctuations of temperature where Poinsettias are grown, maintaining 60 degrees at night steadily. Feed with weak liquid manure twice a week as soon as the bracts show color.

Discontinue pinching of Carnations. Maintain an even temperature at night of 50 degrees. Early cuttings may be taken.

Roses that have been flowering for some time will stand feeding with moderate quantities of liquid manure, or topdressing with a mixture of half soil and half cow manure.

Palms and stove plants need a moderate resting period. Keep the house a few degrees lower at night (about 60 degrees).

Large flowering English Primroses offer something in the way of variety. Plant them out in a house with a violet house temperature or winter them in pots in the frames, and bring them in some time in February for Easter flowering.

In the cool house grow Beets, Cauliflower, Parsley, green Onions, Radishes, and Spinach, with Asparagus, Sea-kale, and Rhubarb under the benches. In the warm house, String-beans, Bush-limas, Cucumbers, Melons, Tomatoes. Start Mushrooms now.

In the Fruit House

Look out for mealy bug. Prune vines as soon as they have shed their leaves.

Remove loose bark and fumigate the house with hydrocyanic acid gas. Paint the canes with wood alcohol.

Mint, Taragon, Chives, and other herbs may be potted up for use during the winter.

Stillman's Seedlings Lead

It is a pleasure indeed to announce that the recent Dahlia Show again proved conclusively the superiority of many of my introductions. "Millionaire" again was awarded highest honors as being in a class of its own for size.

But please do not feel that I am biased in favor of *large* Dahlias. Write for my catalogue, and become acquainted with the more than thousand different kinds which I consider my pets. I love them all, and long for the day when every Reader of Garden Magazine will love the Dahlia as I do.

Geo. L. Stillman, *DAHLIA SPECIALIST*, Westerly, R. I.

Plant Material for *Your Evergreen Garden*

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QUEENS, LONG ISLAND, NEW YORK

AIRPLANE photograph of Hicks Nurseries (copyright by James Suydam, New York). In the foreground are big, broad, symmetrical lindens, oaks, beech and maples 20 years old; next block to the north are pines, fir, and spruce of the same age. In whichever of Shakespeare's seven ages of man you are in, you want time-saving trees. You cannot afford to wait longer for them. You should come and see the special advantages in ordering them in November. You can use your time and the time of your gardener to the best advantage. It is also to the best advantage of the trees. Everything from Hicks Nurseries is guaranteed to grow satisfactorily or replaced with a new tree dug at the nursery.

Winter gardens are what you should start now. We will show you how to add to them ferns, arbutus and hepaticas.. It will be *your* garden- expressing *your* ideas with a souvenir of stone or plant for every trip to the nurseries, woods, mountains or seashore.

You have read Wilson's articles on the new plants of the Arnold Arboretum. Thanks to Prof. Sargent of the Arnold Arboretum and to Mr. John Dunbar, Supt. of Highland Park, Rochester, we can offer you some of them.

Cover plants are a new feature of the Hicks Nurseries. Send for "Old Friends and New" catalogue, Hicks Nurseries, fall and winter, and study a reproduction of an oil painting of Mr. Theodore Havemeyer's path border by Pachystima Canbyi, Gaylussacia brachycera, Dendrium, Erica, Arctostaphylos, Cotoneaster humifusa, and others. The same publication has a painting of the Henry W. De Forest place, Cold Spring Harbor, designed by Olmsted Bros., Landscape Architects, and the F. M. Weld garden, Huntington, designed by Miss Marion C. Coffin, Landscape Architect, New York.

Extra sized fruit trees grown in squares 6′ apart will save you time. Hardy perennials in some of the best varieties for planting now will give you big bloom next year. Trees trained for pleached alleys.

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BOX M, WESTBURY, LONG ISLAND

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Order NOW for Thanksgiving and Christmas.
A fragrant gift that will be appreciated.

Flower in 18-20 days from time of planting in Our specially prepared Mossfiber.

20 pips . $2.25
50 pips . 5.00

Sent POSTPAID with sufficient Mossfiber to plant, and full directions.

"Joy in Every Bulb"

To decorate your home, to bring cheer to lonely shut-ins. The LOVELIEST gifts for your friends.
Shop flowers last a few days, GROWING flowers are a delight for weeks.
Plant NOW in Bowls and Jardinieres, bulbs which will flower for the holidays and all through winter by successive planting.

ALL bulbs offered, bloom in 6-8 weeks from time of planting.
ALL are deliciously fragrant.
ALL can be grown in water and pebbles or in our prepared Mossfiber.
ALL are prepaid to your home.

SPECIAL OFFER

		Three	Dozen
1.	Crystal white French Roman Jacinths	.40	$1.40
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3.	Chinese Narcissus (Flower of the Gods)	.85	3.00
4.	Silverwhite Narcissus in large clusters	.20	.75
5.	Double Roman Narcissus "Sacred Lily," white with golden cup	.30	.85
6.	Soleil d' Or (Golden Daffodilly)	.35	1.25

One each of these six lovely bulbs for 80c. postpaid.

Our Fall Bulb Book gives full descriptions and directions "HOW TO GROW" these flowers successfully, and many other delightful winter flowering blossoms. Send for it. It will interest you.

H. H. Berger & Co.
Established 43 years
70 Warren St. N. Y. City

HARMONY IN THE GARDEN

As the last thing to come into an Artist's life is the understanding of color, so, the last thing to come into the life of the garden is the exquisite harmony of color. Follow it carefully this month—its harmony, its contrasts. Have your future garden additions or arrangement considered by us.

WARREN B. MEIXNER & CO.
Landscape Architects **Ithaca, New York**

"No Library complete without Kipling complete"

ANNOUNCEMENT

The American Dahlia Society awarded, on Sept. 24th 1920, a Certificate of Merit to a Seedling Dahlia, year 1914, originated by the Indiana Dahlia Farm, New Albany, Indiana, E. L. Kunzman, Prop.

It is of true Decorative type; an iridescent Tango color with golden Suffusion; of *large size* on an *exceeding* long, clean, straight stem (often 36 inches), and is *always* in bloom. One of its peculiarities is that it has never been known to drop petals.

Anyone wanting Stock of this for Spring 1921, or any of the other 976 varieties grown by them will please write the above mentioned firm.

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SOUTHERN AZALEA

The most delicate and charming of all Azaleas, varying white, pink and deep rose-color, with *wax-like* petals.

Leaves turn rich crimson.

Splendid Bushy Plants, filled with buds

1 to 1½ ft.	$1.25 each,	$10.00 per 10	
1½ " 2 "	2.25 "	20.00 "	"
2 " 3 "	3.50 "	32.00 "	"
3 " 4 "	5.00 "	48.00 "	"

Ready for immediate shipment, balled and burlapped.

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"Home Kraft Homes" "Draughtsman," "Kozy Homes," and "Plan Kraft"—50c each, postpaid. Contain distinctive designs, complete.

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These men demand the best because their livelihood depends on their success. We meet their most exacting requirements and this is the kind of seed you want.
Ours is a plain little catalogue without extravagantly colored plates but it lists a complete assortment of the best vegetable and farm seeds and plants, annual and perennial flower seeds and some *Money Saving Specialty Collections.* A postal will bring it.

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Carry a very complete line of
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Price list will be sent to interested parties.

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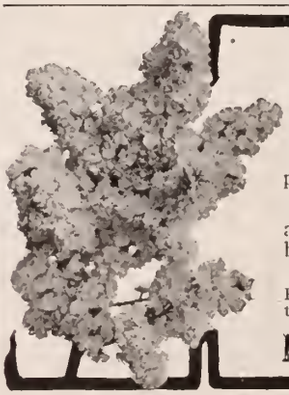

Farr's Superb Lilacs

should be planted this month. Lilacs are essential to the garden; in early spring the bushes are laden with beautiful flowers and their delicate perfume is not surpassed by any other flower.

There are many new varieties at Wyomissing which bloom more freely and produce much larger trusses than the old types. My collection embraces over a hundred varieties.

Farr's Hardy Plant Specialties (seventh edition, 1920) contains a full descriptive list of all French Lilacs, Peonies, Irises, and perennials. Copies will be sent without further notice to my customers; to others copies are free on request.

Bertrand H. Farr, *Wyomissing Nurseries Company* 104 Garfield Avenue, Wyomissing, Penna.

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Anywhere—Anytime—Instantly!

What would it mean to your flowers—your vegetables—your grounds, to be able to have *rain* on any spot, at any time you want it!

That's exactly what you *can* do with Skinner System Irrigation.

Just *how*, is told and shown in our new book on Irrigation For the Home Grounds, to a copy of which you are most welcome.

In writing, mention dimensions of your vegetable garden, and if city water or pumping plant is used; that we may send you sketch of a system to fit it.

The Skinner Irrigation Co.

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The Glen Road Iris Gardens

Grace Sturtevant, Prop.

Wellesley Farms, Massachusetts

GROWERS AND ORIGINATORS OF FINE VARIETIES OF BEARDED IRIS

Maplewood, N. J., Nov. 1st, 1920.

Dear Dahlia Lovers:—

Jack frost caught my Dahlias just a few days ago. It makes me sad to see my favorites drooping. There's Attraction—ah—this lavender pink hybrid cactus has a place near the heart of all Dahlia lovers who know it; Insulinde, the new golden bronze hybrid that created so much favorable comment at the Dahlia Show; Yellow King—a hybrid cactus of perfect form and a free bloomer; then Pierrot, what a shame to see these dainty amber-tipped white flowers burnt to a crisp; and Tom Lundy, poor Tom, yesterday his face was a beaming red, but today he's burnt colorless.

But dear Dahlia lovers—I'm going to issue a small booklet to tell you about my hobby—You may have one bulb of each of the above varieties guaranteed to grow true to name for $5.00—if you send order now. Bulbs sent anytime you wish. Don't forget to ask for my Dahlia Booklet!

A. W. Beebe,
Maplewood, N. J.

Totty's *NEW* Dahlias

While we lay no claim to being Dahlia Specialists, yet, a worth-while *new* Dahlia interests us just as much as any other novelty. Foremost among Dahlia Novelties destined to become popular, especially as a cut flower, is the

Immensely Free-Flowering Star Type

The very stocky plants grow about four feet tall, spreading three feet wide. Each plant becomes a perfect mass of lovely, single flowers, carried on 18 inch stems. Besides rose-pink "Crawley Star," shown in illustration, there are "White Star," "Primrose Star"; carmine "Autumn Star" with bronze shadings; light pink "Ifield Star," and bright rose-pink "Sussex Star." All have contrasting centers. The stock of all varieties is limited as yet.

Special Offer:—We will supply green plants, one each of the six distinct and beautiful varieties for $5.00. Plants of any one kind $1.00 each, $10.00 per dozen. Orders booked now for May or June delivery. Safe arrival and satisfaction guaranteed.

Other Novelties of Merit

including the sensational Giant Collarette "Climax" will be fully described in our 1921 catalogue, as well as other phenomenal varieties shown by the different raisers at the recent exhibitions. Please write for *your* copy NOW!

Remember:—If it's worth-while in Novelties, you'll generally find it at Totty's.

Chas. H. Totty Company

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for Improving and Beautifying the Surroundings of the Home.

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Catalogue. Elizabeth Leighton Lee, Director.

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For Porches, Windows, Tables, Entrances, Sun Parlors, Balconies

7 Compact Arborvitae, about one foot high, and box for $5.00. Delivered to transportation company, Framingham, Mass. (Shipping weight 25 lbs. express or parcel post).

The special assortment here illustrated, comes in a box 3 feet long, 7 inches wide and 6 inches deep. Box painted dark green. Shipped carefully packed. You simply remove cover, fill box with earth and plant evergreens as illustrated. The only care required is frequent watering.

WRITE FOR PAMPHLET—"Evergreens for Pots, Tubs, Urns,"—showing veranda boxes other than above, and how our evergreens, especially grown for the purpose, are used for many decorative effects. Hardy indoors and out.

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Beautifully illustrated with photographs of trees, shrubs and landscape effects. Contains valuable data on choice and care of nursery stock. Used as a reference work in schools, and listed in library of U. S. Dept. of Agriculture. Write for it.

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Owners of Little Tree Farms

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DAHLIAS
the Giants—true to name—we have them.

Send for our catalogue which will be issued early in January.

SOMERHOUSEN DAHLIA GARDENS
Chestnut Hill Philadelphia, Pa.

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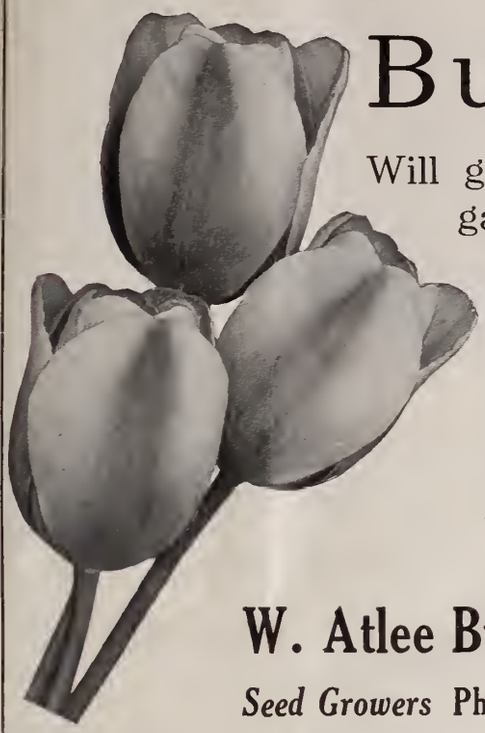

Will glorify your garden next spring.

Write for a copy of Burpee's Bulb Catalogue now.

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You are not interested in mere claims as to what nursery stock will do. You want *results*—and the best possible results. Instead of making large claims for our product we prefer to submit evidence of *results* that have been obtained with our product—results that you can approximate on *your* home grounds.

The home of Mr. J. B. Walker, Needham, Mass., planted with Framingham trees and shrubs—one link in the chain of evidence of the results gained by using Framingham Nursery Stock.

Perhaps our book "Beautiful Home Surroundings" might help you secure the results you desire. It has helped others. May we send you a copy?

Framingham Nurseries

FRAMINGHAM — MASSACHUSETTS

Announcement of an Unusual Character

THIS is to announce that we have a limited number of sets of both Flower Lore and Vegetable Lore by Mr. Fuld. Unfortunately, the publication of these volumes has been discontinued, inasmuch as they were Mr. Fuld's unique contributions to make gardening more successful for the amateur.

The fact that we have sold thousands of sets to customers and subscribers of this publication, causes us to feel that other readers will be glad to be afforded the opportunity to secure the sets on hand.

"Flower Lore and Vegetable Lore"

by

Maurice Fuld

Seven unique volumes written exclusively for those who wish to understand the practical growing of Roses, Perennials, Annuals, and Vegetables, in a manner so delightfully different and easily understood that the very beginner can follow the best of professional treatment in the home garden. Timely suggestions are found for each month's work.

There are four complete volumes of Flower Lore, and three complete volumes of Vegetable Lore. Each volume holds twelve copies and Index.

Complete set of both magazines bound in artistic binders	$14.00
Single volumes of either magazine in loose numbers, each	1.25
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If desired, volumes will be mailed to arrive at Christmas, accompanied by a card bringing the compliments of the season from the donor.

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A gift that carries the spirit of Christmas way beyond the holiday season,

Golden Shower Narcissus and Narcissus Paper White Grandiflora

Both are easily grown in either soil, fibre, or pebbles and water. We will mail one dozen of each, for $2.00.

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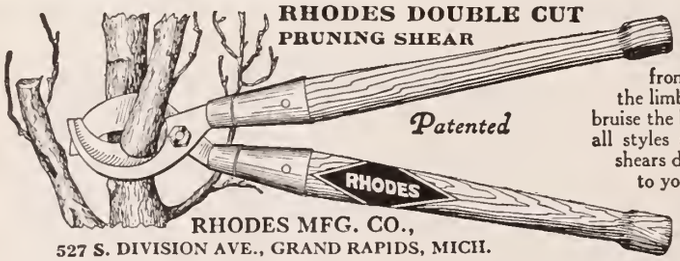

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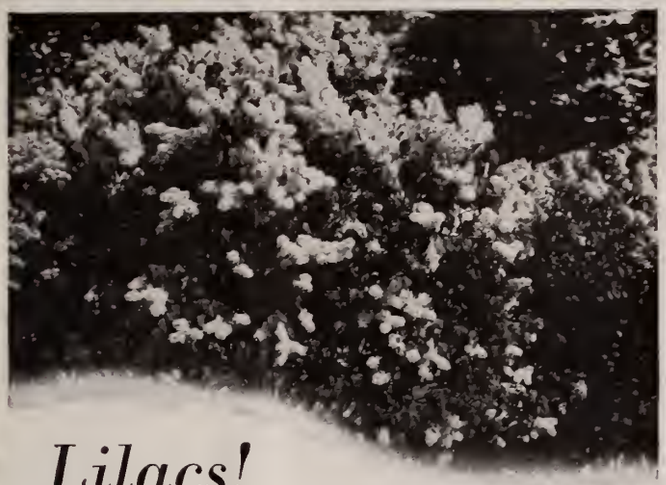

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IN spite of the quest for the unusual, the good old fashioned Lilacs still hold their own. In fact, for beauty, fragrance, and vigorous growth they are not easily excelled, especially in the improved hybrid varieties. These hybrid Lilacs bear enormous clusters of single and double flowers, varying in shade from pure white to the richest velvety purple. Their perfume, too, is most delightful.

Every lawn, whether large or small, can be appropriately decorated with these shrubs, and they cost only from 75c to $2.00, depending on the size.

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There are Hodgson Portable Houses for every purpose—churches, hospitals, schools, barracks, offices, garages, playhouse, bird-houses, and dog-houses—all built to last.

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Cottage

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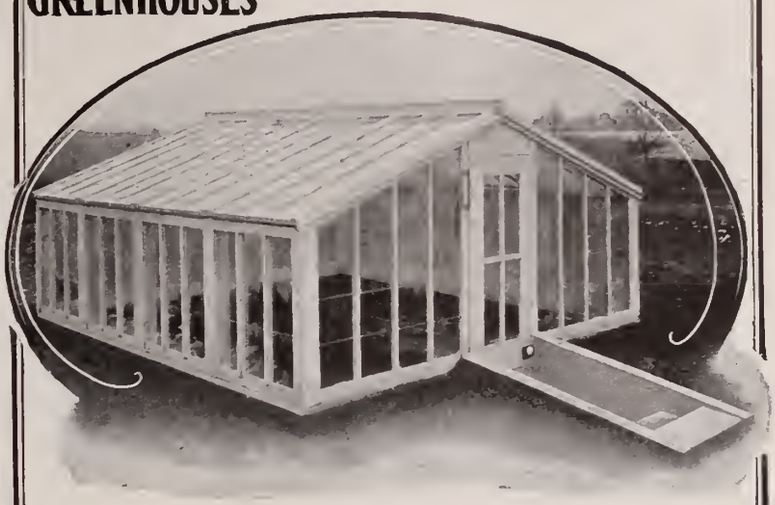

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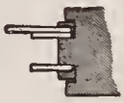
Don't let another winter pass by without owning a *Sunlight Greenhouse* when you can enjoy growing "out-of-season" vegetables and flowers.

The Patented Double-Glazed Construction

is an exclusive feature of the *Sunlight Double-Glazed Greenhouse.* It forms a transparent "blanket" which retains the heat from the sun and repels the cold. It holds an even temperature in the greenhouse during the night and makes growing successful, inexpensive and profitable.



No costly heating plant—a small oil heater in severe weather only is required—no coal to buy—no sleep lost fussing over fires and no guessing about the growing.

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The Dodson Bird House adds to the beauty of your grounds and the birds protect your trees, shrubs and gardens.

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The Greatest Grass Cutter on Earth —Cuts a Swath 86 Inches Wide

Drawn by one horse and operated by one man, the TRIPLEX MOWER will mow more lawn in a day than the best motor mower ever made, cut it better and at a fraction of the cost.

Drawn by one horse and operated by one man, it will mow more lawn than any three ordinary horse-drawn mowers with three horses and three men.

Send for catalogue illustrating all types of TOWNSEND MOWERS

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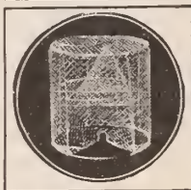

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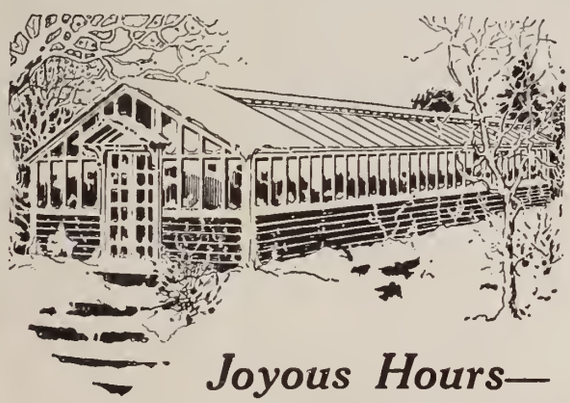

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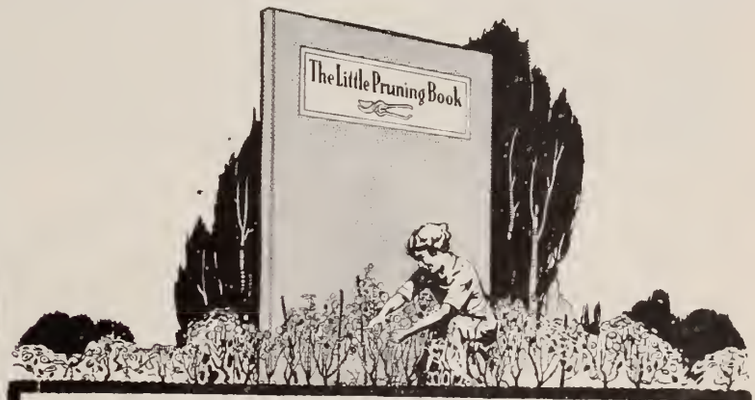

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THE COUNTRY LIFE PRESS, GARDEN CITY, NEW YORK

Doubleday, Page & Company, - - Garden City, New York

Breeding Greater Races of Food Plants and Flowers

The variety here shown is Diener's Improved Bunyip Wheat which ripens a month earlier than the average wheat.

THIS is a story of work, blended with an inherent love for growing things, and the desire to improve. About twenty years ago a boy of seventeen adopted hybridizing of flowers as a hobby. With patience and perseverance he made thousands of "crosses," meaning that he took the pollen of one flower to another flower, to effect cross-fertilization. Then he studied the resulting offsprings with great care.

One day, not so many years ago, he saw the light. His loyalty to his hobby had helped him to a great discovery. He found that the evolution of plant life is governed by a law as immutable as the law of gravitation. By intelligently applying this law, he set out to evolve more fruitful races of food plants and more beautiful flowers.

Just Got Started

Although this work has now been going on for over a decade, Mr. Diener modestly asserts that he just got started. About five years ago he started with an ordinary strain of Wheat, yielding about thirty bushels per acre. The improved strains, five of which are put on the market this year, yield up to one hundred fifty bushels per acre. Not only has the whole plant been strengthened, but the size of the kernels has been more than doubled.

Seemingly no Limitations to Application of the Law

In order to prove the working out of the law on widely differing forms of plant life, experiments were conducted with the greatest diversity of crops. Sudan grass—a forage crop; Tomatoes, Beans, and Corn—typical vegetables; Begonias and Gladioli—flowers grown from roots; Pansies and Petunias—flowers grown from seeds—these are but a few of the many plants on which Mr. Diener proved that, with intelligent help, any form of plant life may, within a few short years, be brought to a standard of perfection to produce which, nature unaided, would require centuries.

Now Ready to Share New Kinds With Others

In the course of the years, Mr. Diener has accumulated sufficient stocks of some of his most notable plant successes, to enable him to offer some for sale. Among them are the largest and finest Gladioli evolved so far in this country—new kinds and types that have won highest honors wherever exhibited. Then there are his monster Petunias, flowers of which measure eight inches across.

For years Mr. Diener has been working on Amaryllis to enlarge the size and enrich the coloring, and a good stock is now on hand. The colors range from almost white to all shades of pink; red to the deepest scarlet; the most brilliant and dazzling colors imaginable. For conservatories, these Amaryllis are the greatest show objects of the day. The flowers measure over a foot in diameter, and the colors are so dazzling, that there is nothing to compare with them at the present time.

Seedlings will commence to flower from eighteen months to two years after sowing. Seeds only, for sale. Prices: 15 seeds $1.00; 100 seeds $4.00.

Free Catalogue Available

Besides a finely illustrated catalogue which may be had for the asking, Mr. Diener has published a book on his newly discovered Law of Hybridizing, which is of interest primarily to teachers, students, and horticulturists. Because of the limited edition, the price of the book is $5.00. Those interested in either book should write to address below, kindly referring to GARDEN MAGAZINE.

Richard Diener Company, Inc.
Kentfield, Marin Co.,
California

Front view new gladiolus seedlings. Famous Mt. Tamalpais in the background

Oenothera fruticosa

No Waiting For Spring Thaws

Ready for the Pacific Coast and the South now, for the East in the Spring.

IN my garden in the high mountains of Northern California, frequent frosts coupled with cool winds, harden my plants splendidly and retard them so that they can be shipped early and late. Fresh plants dug every week in the winter go out to any distance safely.

My collection of HARDY PERENNIAL PLANTS will interest every true gardener. Old favorites such as Hollyhocks, Irises, Phlox, Anemones are well represented; many others are offered in their newest and best varieties, not mere novelties but tried selections.

Then for the rock garden, the wild garden and the water garden I have good things; while with all of these are first-class novelties such as Bellium minutum, Onosma taurica, rare Sedums and Origanum hybridum, *offered by no other American dealer.*

My Hardy Perennial Catalogue Can Be Had For the Asking as long as the second edition lasts.

My catalogue is not a mere descriptive and price list—it contains many suggestions for the best grouping and handling of plants; list of plants for special purposes, and a short group of the very best things that I offer regardless of price.

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6 Michaelmas Daisies in two varieties
12 Hollyhocks, 10 colors of doubles, and two of singles
6 Oenothera fruticosa

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THE GARDEN MAGAZINE

DECEMBER, 1920

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LEONARD BARRON, Editor

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P. S. This combination of Tools will make a welcome Christmas gift for most any garden hobbyist anywhere!

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The Garden MAGAZINE

Vol. XXXII, No. 4 — December, 1920

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A PATIO CHARMINGLY SERENE WHICH COAXES THE LOITERER WITH AN ASSURANCE OF PEACEFUL HOURS

Except for the slight tropical accent of the slender-leaved Bamboo this courtyard corner of Mr. Pierre E. Letchworth's house at Covina, California, might with equal suitability be located almost anywhere else in the country, and seems again to suggest that simplicity is synonymous with taste

A MODERNIZED BIT OF OLD SPAIN

Where Moorish influence, again transported, lingers in California, strangely in harmony with the raw modernity of concrete which judiciously subdued planting is rapidly touching to mellowness. The Climbing Rose and the Water-lily thrive in the friendly shelter of the Patio

APRIL IN SOUTHERN CALIFORNIA IS A PROMISE ALREADY FULFILLED

The violet-perfumed Banksia Rose, an immigrant from India known as a rare and delicate greenhouse shrub in the East, seems spurred to riotous growth by the California spring. The fifty-foot Palms are agleam with sprays of tiny cream-yellow blossoms thrown ever up and out by the lusty climber whose trunk can be seen just at the right of the Washingtonia

THE WHOLE YEAR ROUND

IN THE CALIFORNIA GARDEN

SIDNEY B. MITCHELL
University of California

Concise Practical Manual of the Year's Work and Descriptive Guide to Plant Material

[EDITOR'S NOTE: *The author of this article has had unusual opportunity to visualize the Californian garden, and in the present article accomplishes, we fully believe, the most useful practical guide yet presented for the garden lover whose lot is cast in California; and equally, he interprets the problems for the newcomer and the visitor who aspires to a critical appreciation of the Californian garden. A trained and practical horticulturist and an enthusiastic student of plants from the gardener's point of view he has had the advantage of much experience both in Europe and in the Eastern United States before settling in California. He has in recent years contributed to these pages occasional articles on Californian gardening.*

WHEN the eastern gardener goes to California he has more to learn and unlearn than if he went to western Europe; as much as if he went to Spain, or Italy, or South Africa. Even the native Californian has something to unlearn, for much of the garden literature written for American readers does not apply to his conditions. He must discriminate between general principles of arrangement and culture applicable everywhere, and particular advice in regard to materials and the attention they need in a climate where they will meet summer rains and winter cold.

California has certain limitations which must be recognized. It is difficult and expensive to maintain grassy terraces or slopes through a rainless summer, but banks can have other coverings—Lippia, Ivy-geraniums, or shrubs. The wonderful bursting forth of spring, the Lilacs and many flowering deciduous shrubs which make that season so gay along the Atlantic coast, can only follow the atrocious winter which holds everything in check for months. The beautiful colored foliage of the Indian summer needs the shock of cold for its development and reliance can not be placed on the same plants to produce the same effects in both the East and the West.

The need of gardens in California is great, for, at the present time, without cultivation, wide regions are bare and hard, the more evident as the nakedness is not covered with snow. Yet when planting is done and artificial watering provided until trees and shrubs are well established the reward is often exceedingly rapid growth and a quickly attained luxuriance. The problem is to select such trees, shrubs, and climbers as will give satisfactory general effects without continual care, and, in the case of flowers, to obtain a succession through the whole calendar year, which is synonymous with the California garden year.

Trees, Shurbs, and Climbers

NO ATTEMPT will be made to list all the trees, shrubs, and vines from Australia and New Zealand, South Africa and South America, Europe and western Asia which are thoroughly adapted to California and yet not hardy for the rest of the United States; but rather to mention, briefly, in order of flowering, a few which apart from their foliage, are valued for the flowers they give by their succession through the year.

At Christmas and the beginning of the year the most notable color comes from the Poinsettias. Less brilliant than their scarlet bracts are the lovely golden cups of that desirable little shrub, Linum trigynum, usually called by nurserymen L. flavum. The most brilliant shrub of semi-climbing habit at this season is the glorious orange Bignonia venusta, while the finest real climber is Bougainvillea lateritia, brick-red in color. Aloe arborea is also in full flower, and on large places should be grown for its brilliant red spikes. None of these are really practicable excepting in warm, almost frost-free parts of southern California. A winter bloomer better adapted to the northern than to the southern part of the state is Erica melanthera, much more effective than E. mediterranea because the latter is never

IN A SHELTERED SPOT

Here under the protecting shade of an Oak, itself draped in Ivy, are Foxgloves Cinerarias, and Geraniums, the strange fellowship of which (to the Easterner) is accentuated by the association of Fan Palms (Mr. Charles Alma Byers, Los Angeles)

in full flower at one time. Soil and water free from lime are essential to the Heathers.

With the warmer sun of February generally following rains the gray-leaved Acacia Baileyana is covered with its yellow flowers, and later in the month A. mollissima and A. dealbata draw even more notice by their odor almost of heliotrope. The leaning Streptosolen Jamesoni sometimes referred to as the "orange heliotrope" blooms profusely at this time, but is sometimes cut down by frost. Cestrum elegans (often called Habrothamnus) is a somewhat untidy grower, but its clusters of long red flowers now give fine color, brighter than the orange-yellow C. aurantiacum, though the latter is neater, rather suggesting an evergreen Lilac in growth. Laurustinus (Viburnum tinus) with broad heads of white flowers, pink in the bud, is frequently planted. This is an old south European plant, and the garden forms vary greatly, grandiflora being the best type. It is often used as a hedge.

That relative of the orange, Choisya ternata, blooms first in winter though its white, sweet-scented flowers often reappear later in the year. For its excellent foliage alone we should plant it. The feathery light-green foliage of Grevillea Thelemanniana is now spangled with its clusters of bright rose-red flowers, and the heath-like Diosma ericoides sprinkled with the dainty little white flowers whose scent has given it the common name of Breath-of-heaven. All these are evergreens, but a few deciduous shrubs are needed for variety and color. The pink-flowering Currant is very early in blossoming, but gets pretty shabby in summer. The Forsythias are early but not only do less well than on the Atlantic coast but are greatly overshadowed by more gorgeous neighbors. Kerria japonica, in particular the double form, is a fine orange-colored winter bloomer. Cydonia japonica, the scarlet Flowering Quince, is very early and beautiful, often in bloom for a couple of months, and of reasonably attractive apearance thereafter. There are also less popular pink-and-white-flowered forms. All are good for cutting. I like the scarlet form planted with the double Spiraea prunifolia, which is the first of that family to bloom. Spiraeas are less valuable in California than in the East, but this one is quite worth while. The most noticeable climbers of this period are perhaps the Wistarias and the white Clematis montana, which latter does well even on a north wall.

CALENDAR OF OPERATIONS

NOTE: *So much planting and seed-sowing can be done at any time of the year in California that it is only possible to indicate in a general way the seasonal tasks, and even these vary greatly with the distance north or south, on the coast or inland.*

January and February are the best months of the year in which to plant deciduous trees and shrubs, including Roses, as they can then be handled without soil on their roots. It is also a good time to plant evergreen shrubs, but if these are balled or in pots they may be planted practically any month of the year if they can be watered afterward. These are also the best months to prune fruit-trees and such deciduous shrubs as do not bloom in spring. Cuttings of Hydrangeas, Fuchsias, and Roses should now be put in. When ground is not sticky, divide and replant hardy perennials. Hardy annuals such as Calendulas, Annual Chrysanthemums, and Larkspurs may be sown in the open where they will bloom. Set out Pansies, Violas, and Stocks.

March and April. Finish planting deciduous stock and continue with evergreens. Sow half-hardy annuals in boxes for summer flowers. Cannas may now be planted and Gladiolus for mid-summer flowering. Propagate Dahlias and Chrysanthemums by cuttings. Spray with bordeaux such multiflora Roses as are subject to mildew. Discourage aphis with nicotine preparations.

May and June. Now that the rains are over, irrigate regularly and follow up with cultivation to conserve the moisture. Sprinkling is worse than useless. Plant out Cannas, Dahlias, Chrysanthemums, Begonias, and such warmth-loving annuals as Zinnias and Celosias. Put in last Gladiolus for succession. Divide and replant Violets for next winter's bloom. Dig up spring-flowering bulbs if the ground on which they are grown is needed. As the summers are so long they will keep better if in dry soil or sand. Prune spring-flowering deciduous shrubs.

July and August. Rest up as much as the necessity of watering and cultivating will allow. Mulch Chrysanthemums with manure. Mulch and disbud Dahlias. Sow seeds of perennials such as Larkspur, Foxglove, and Coreopsis, and at the end of the latter month sow Pansies, Stocks, Wallflowers, and Snapdragons for winter bloom. Divide and replant tall bearded Iris.

September and October. In the first month prune back Roses and water and cultivate them to encourage autumn flowers. Sow Sweet Peas for early bloom. Plant Freesias and Watsonias in September, all other spring-flowering bulbs in October. This is a good time to make new lawn. October is about the best month to put in cuttings of Carnations, Geraniums, Pelargoniums, and Pentstemons, and hard-wood Rose cuttings.

November and December. Continue planting spring-flowering bulbs. If they are in good condition, Tulips may be put in as late as Christmas and yet give good results. Sow in open ground such hardy annuals as Calendula, Larkspur, Scarlet Flax, Poppy, Nasturtium, Sweet Peas, and the many attractive native annuals—all will give spring flowers. Set out Pansies, Stocks, Snapdragons, and Wallflowers. Divide and replant perennials. Fertilize lawn. Toward the end of the year plant dormant deciduous trees and shrubs.

Spring Flowering Trees and Shrubs

Flowering fruit trees deserve a special paragraph, if only to emphasize their desirability. The first to flower is Prunus Pissardi, a small tree with almost white flowers and following them leaves which are purple when they first appear. Of the flowering Peaches my preference is for the semi-double early red, but there are later double reds, pinks, and whites. If pink is desired, preference might be given to the double-flowering Almond, as it is an even better grower and not subject to curl. All these flower before the leaves, and their colors are wonderful against an evergreen background. The flowering Crabapples are a bit later. Pyrus floribunda is deservedly the most popular because of its profusion of small, single rose-pink flowers. The double Prunus ioensis (Bechtel's double-flowering Crab) is a dwarf grower, often blooming while still only a couple of feet high. Its flowers are like little pink Roses, and it forms a lovely combination with Iris pallida dalmatica in April. For late March and April we have the Japanese flowering Cherries. The early single weeping form, and the later larger flowered double white and pink should be in every garden where space allows.

In late spring bloom Deutzias, Weigelas, Lilacs, and Syringas but they are relatively of less importance than in colder climates. They all do best under the colder, wetter conditions of the northern part of the state. This is also the time of all Roses, bush and climbing, excepting the multiflora and wichuraiana climbers, which flower in May.

Some Natives. No imported plant will give the fine blue effects obtained from a well-grown group of the native Ceanothus thyrsiflorus, our so-called Wild Lilac. Among other natives Carpenteria californica looks much like a Syringa, but the flowers are larger and the foliage is evergreen. Fremontia californica has beautiful golden-yellow flowers.

Two plant families should always be represented among the flowering shrubs of the spring, for all their members will stand much drought and neglect and may therefore be grown in dry, rough places. These are the Broom (Cytisus), and the Rock-rose (Cistus), families. Particular attention is directed to the Portugal Broom (Cytisus albus), covered with small white pea-shaped flowers in early spring, the Scotch Broom (C. scoparius),

APRIL FLOWERS IN A ROCK GARDEN

Though lacking the humid atmosphere desired by many alpines yet California affords a place for rock plants demanding heat and light. Iberis gibraltarica, Dianthus plumarius and Stachys lanata in bloom

a larger shrub in golden-yellow, and its variety Andreanus. A smaller relation is C. racemosus (Genista racemosa) with rather pleasant green foliage and continuous yellow flowers, best, however, in spring. The Spanish Broom (Spartium junceum) is the most valuable of the family because of its sweetness and perpetual bloom. The one point in growing Brooms is to keep them from getting leggy by pruning them back while they are still fairly young.

Of the Rock-roses, the white-flowered Cistus salvifolius is a particularly strong grower and fine spring bloomer. C. ladaniferus maculatus has better individual flowers, white spotted dark red, and is less rampant in habit. C. albidus must be planted with care, as despite its name its flowers are of a rather trying pink.

Around San Francisco Bay, where the early summer climate is cool and the air moist, Rhododendrons give wonderful effects in May and June, as the great collection in Golden Gate Park proves, but like the Heathers they will not thrive where there is much lime in the soil or water.

Some *good summer-flowering trees* are the Pomegranates, and Oleanders, best in warm locations, the sweet-scented Acacia floribunda, and the slow-growing Eucalyptus ficifolia, with flowers generally of orange-red. Of summer-flowering shrubs, Hydrangea hortensis is especially useful for banking against the cool sides of a house. For this purpose and also for planting in the semi-shade of Oak-trees, Fuchsias should be much used, as they are available in such a range of color, form, and growth and remain in bloom practically all summer. They are perfectly hardy along the coast, and are at their best where the summer fogs can reach them. Though drought-resistant, they will respond better to watering, and will require it if planted in sun. The Escallonias, from Chile, are valued for their mid-summer flowers in white, pink, and red. Smaller shrubs flowering in summer include the New Zealand Veronicas, whose purple, blue, or white flowers are borne in neat plants varying in growth from three or four inches to as many feet.

California needs color in the autumn garden, lacking it as she does in nature. For this purpose plant berry-bearing shrubs. Pyracantha angustifolia is the most striking because its profusion of orange berries is often borne on tall, rather angular growth. Of slightly darker orange are the berries of P. coccinea Lalandii, a form hard to obtain as nurserymen continually substitute the red-berried variety. These are all often listed as Crataegus. More graceful in growth are the large Cotoneasters, especially C. pannosa, quite tall with clusters of red berries, and C. Francheti, dwarfer and more arching, with yellowish-red berries strung along the stems. The prostrate forms, C. microphylla and the deciduous C. horizontalis, are useful both to cover banks and as individuals in a rock garden. Both bear red berries in great profusion. Of somewhat similar use is the recently introduced Berberis Wilsoni, its berries of coral pink being almost transparent in effect.

A Sequence of Bulbs

THE Snowdrops, Crocuses, Siberian Squills, and other small bulbous flowers bidding winter farewell and heralding spring have practically no place in the California garden, for there has been no winter, and spring begins with the first rains at the close of autumn. They can sometimes be grown in carefully chosen, semi-shaded places, where it is fairly cool, but the thrill they give in colder climates is absent, and their garden effect negligible. Neither is it advisable to plant the early Tulips, for with the warm sun of February they will bloom as soon as the buds appear above the ground while their stems are still less than an inch high.

Our first flower from a bulb is the polyanthus Narcissus, which in the Paper-white variety is often in bloom on New Year's Day. Another good very early variety is the deep orange and the pure yellow Soleil d'or. Both of these are much superior to the commoner Chinese Sacred-lily. The Spring Snowflake (Leucojum vernum), is the substitute for Snowdrops, and its white, green-spotted bells are equally dainty though they bloom on stems a foot or more high. Planted in half shade and allowed to develop clumps, it is very attractive. Of the Narcissus family, the Campernelle Jonquil is next in time to the early polyanthus, and should be more planted. It is in full bloom in February, as are also the early Trumpet Daffodils such as Golden Spur and Victoria. Sir Watkin, Emperor, and Empress are usually with us by early March, and the Daffodil season often extends to the end of the month with such late varieties as Barri conspicuus, Seagull, and Gloria Mundi. Plant the earlier varieties with south and west exposure and the late ones on the north and east, and the Daffodils will last for two months or more. They can't get too much water and, especially in a warm section, they are at their best where shaded part of the day.

Tulips and Hyacinths. March is also the month of the Hyacinths, which, too, are better planted in a border getting only filtered sunlight. Of the Tulips only the Breeders, Cottage, and Darwins, all late kinds, are worth while. Late March and early April is their season. They do well right in the open, but last

longer in partial shade. They need a lighter, richer soil than Daffodils, but with reasonable care they are wonderfully fine, especially in the central part of the state. Gophers, alas, are very fond of the bulbs.

The early Anemones of the coronaria section and the turban Ranunculus are best mentioned here as their dried, dormant roots are planted in the fall with the Dutch bulbs. These "poppy" Anemones have a range of red, blue, pink, and white, and a mixed bed is very gay in March and April. Ranunculus are smaller and more double but equally attractive in the scarlet, orange, and cream color range. The sparrows are so fond of the young growth that in some places they can only be grown where protected by wire screen. Both Anemones and Ranunculus roots should be soaked for a few hours before planting. If not now available they may be raised from seed, but this means starting the previous summer.

South African Bulbs. A class of bulbs confined to greenhouse use in the East but best outdoors in California has its origin in South Africa. In it one finds Ixias, dainty flowers on tall,wiry stems always swinging in the breeze; Sparaxis and Babianas, dwarfer, stockier, but also quite attractive; Tritonia crocata, of a fine, deep orange; and Freesias in a beautiful range of soft colors. Quarantine 37 has made these bulbs rather harder to get, but they are all easy to raise from seed and are thoroughly at home in California. All are at their best in April.

In May we still have South African Gladiolus bulbs of the early-flowering type such as Peachblossom, Blushing Bride, and the pure white Colvillei. With these in season of bloom and in general treatment should be included the Spanish Iris. All these bulbs like early fall planting in well drained soil in full sun. After they have bloomed they may be left without a drop of water until the next rains and they will be quite happy.

Companion plants for the bulbs. Unquestionably, where space is available, all the spring-flowering bulbs are best in a special place where they may be forgotten when out of bloom, but in small gardens this is not possible. Where planted in the flower border, I have found that Daffodils or Tulips put four or five inches deep and about six inches apart may be interplanted with Spanish Iris, Ixias, or early Gladiolus planted two or three inches deep; thus a double crop of bloom is secured in the same space. A sowing of such hardy annuals as Calliopsis or Larkspurs made in March will still further put off the day when that area will be a bald spot in the border.

Summer Bulbs

Of the larger bulbous plants which bloom in summer, the Watsonias, in white, rose, salmon-pink, and orange-red are well worth planting at the proper season, which is September. They make very early growth, though they rarely flower before May. The large hybrid Gladiolus may be had in bloom from May to October by judicious planting beginning in autumn and continuing until June. Those who have never grown the dainty primulinus hybrids have a treat ahead of them. For house decoration they excel all others.

Of Lilies, which bloom chiefly in June and July, it can only be said here that practically all prefer, in California, at least partial shade, a loose, porous soil, and summer moisture. The conditions for a good Fern bed suit the majority of Lilies.

In July and August we see the striking rose-pink of Amaryllis belladonna in the garden. As this is a plant which loses its leaves before it blooms, it should for good effect always be faced by another plant which will hide its bare stems, not planted as an edging as is so often done. Clumps of Agapanthus umbellatus are also at their best in midsummer, their large umbels

THE CALIFORNIA GARDEN IS THE SUPPORT OF THE "MOVIE STAR"

Heather on the left with a carpet of Wild Strawberry; Veronica, Genista and Catalina Cherry in the background ("A Sporting Chance" with Ethel Clayton, Paramount Picture)

of fine blue color being far more effective in the garden than is the Amaryllis.

Montbretias are quite hardy, and are generally planted in autumn to get the advantage of the rainy season. They do well in sun or partial shade, and will often bloom under most adverse conditions, but summer watering and occasional replanting will add to their size and beauty when they bloom in August.

Rock Gardens and Walls

ROCK GARDENS should have quite a future in California, for though the humid atmosphere preferred by many alpines is lacking yet the climate is splendidly adapted to those plants demanding sunshine and warmth. Banks or uneven ground can often best be treated in a rather bold, rock garden manner and will thus add much to the interest and variety of plants which may be found in a small place. In the sunny rock garden during the early months of the year the best bloom will be given by Alyssum saxatile, golden yellow; Arabis albida, pure white; and the Aubrietias in lavender, violet, and shades of pink and red-purple. The white Iberis sempervirens blooms in January and is the longest-lived and most dependable of the perennial Candytufts.

Often the rock garden will be found to be the best place for groups of the smaller winter-flowering bulbs, such as Oxalis (often easier to grow than to get rid of); Milla (Tritelia) uniflora; (Grape-hyacinths) Muscari; Scilla campanulata; miniature bulbs of the Dutch Hyacinths; the late single Jonquil, and such smaller Tulip species as Didieri alba and the pink-and-white-striped Clusiana. Groups of the dwarf bearded Irises pumila and chamaeiris, and especially the dainty cream I. lutescens statellae are also desirable for February and March color.

Of sub-shrubby plants at their best in midwinter, Agathea coelestis (syn. Felicia melloides) deserves a place for its pretty, blue, daisy-like flowers. Agathea rosea is not like it a compact shrub, but a trailer with pale pink flowers, desirable but rampant, as its stems root freely. It is best trailing down a bank or over a wall. Erigeron mucronatus (syn. Vitadenia triloba) of similar growth, is a pink and white Mexican Daisy which will bloom practically throughout the year if watered and prevented from going to seed. The sunny rock garden in April should also show in bloom some of the Rock-pinks, or, if it is very large, even Dianthus plumarius; the Sun-roses (Helianthemum); and trailing over rocks Cerastium tomentosum, the larger C. Biebersteini, and the Silenes.

The ordinary garden Wallflowers, kept from rank growth by starving, may also be used, but the beautiful clear orange Cheiranthus Allioni is better for this purpose and will bloom for many weeks, beginning in April. In late spring a most conspicuous plant is the lavender-colored Catmint (Nepeta Mussini), very fine and vigorous and excellent for edging.

Through the summer it is more difficult to get flowers in the sunny rock garden, yet the various dwarf Thymes give white, red, and light purple carpets in May; lavender blooms in June and July; and a very pleasing combination if you plant below some of the salmon-pink Diascia Berberae, which flowers all summer. The scarlet, white-tipped, tubular flowers of Cuphea platycentra and the minute tinted white ones of Chenostoma hispida brighten the rock garden all summer. It is also at this time that the succulents (Sedums and Mesembryanthemums), are most appreciated, but only the shrubby ones should be used as it is practically impossible to keep the trailers within bounds. In a fairly large rock garden such dwarf shrubs as Cotoneaster microphylla and Berberis Wilsoni should be planted for their pretty berries.

Where there is room for it to trail, the finest summer color often comes from the deep lavender Convolvulus mauritanicus, while the brightest color in the autumn is furnished by Zauschneria californica, the so-called California Fuchsia, which is covered with scarlet, tubular flowers for weeks at the end of the season. To keep a sunny rock garden in flower after May the smaller annuals should be used; Linarias and Dimorphotheca aurantiaca are two of the best.

When Sheltered and Protected. If the rock garden faces east or north or is somewhat shaded by trees and yet may be freely watered, a different series of plants may be grown. For winter blooming try the common English Primrose or the improved Polyanthus varieties in white and all shades of yellow and red; Primula malacoides in white, lilac, or rose-pink; Cyclamens; Violas; the large pink Saxafraga crassifolia; the small London Pride (Saxifraga umbrosa); and the double English Daisy (Bellis perennis). For April the smaller Columbines should be planted, also Arenaria balearica for its dwarf, mossy foliage, and A. montana for its dainty, white flowers. The Arenarias or Sandworts are trailers, as is also the dwarf Myrtle (Vinca minor), with its blue or white flowers.

There are few summer bloomers. The best are doubtless the Bellflowers, and of them I specially recommend Campanula muralis (also called C. Portenschlagiana), covered all summer with violet-blue bells; and C. garganica, a pendant variety with an abundance of wide, flat, blue flowers. C. isophylla is very similar, but has white flowers. Veronica rupestris and some of the smaller shrubby New Zealand varieties also bloom in midsummer. V. chathamica is prostrate, with lavender flowers, but most of the other small ones are more valuable for their neat growth and interesting and unusual leaves.

The latest rock plant to bloom is usually the Leadwort (Ceratostigma or Plumbago Larpentae), with dark blue flowers, often at its best in September. It is less than a foot high and has rather attractive red-tipped foliage. Zephyranthes candida, a bulbous plant, shows its many starry white flowers in early autumn.

Perennials, Biennials, and Annuals for Border Planting

IF EASTERN gardeners find it difficult to keep a border in bloom for six months with hardy herbaceous plants, how much harder is it for the California gardener to achieve that happy result through twelve months! In order to keep it even in fair condition he must use shrubs, bulbs, and rock plants as well as those more commonly listed as hardy perennials, biennials, and annuals. In preceding paragraphs mention has been made of some of the best shrubs, bulbs, and rock plants, and therefore nothing further will be said except to emphasize their importance in a border.

For spring flowers, clumps of Daffodils and late Tulips should be planted at intervals, while for later bloom Watsonias, Gladiolus, and Montbretias will be desirable. From the list of rock plants may be selected those suitable for front rows or edgings, Alyssum saxatile, Dianthus plumarius, Nepeta Mussini, Violas, and Forget-me-nots being good examples.

From January to March, apart from shrubs and bulbs, the main dependence will be on Stocks of the Beauty of Nice type, and, in the central part of the state, on Wallflowers. Both these are commonly and best treated as annuals, that is, sown in late summer for winter bloom, but they may be considered as short-lived perennials, for they will often bloom during a second or third winter before they wear themselves out. Less attractive but practically perpetuating themselves from self-sown seed are the Calendulas, best as winter bloomers.

The later spring months are the easiest and finest of the year for the flower border. A selection of perennials at their best in late March, April, and early May should include Columbines of the long-spurred type, best where they get some shade and water. The tougher Aquilegia chrysantha will do well anywhere. Irises of the tall bearded class are perhaps our very best perennials for this season. Campanula persicifolia is nearly always dependable; so are the Lupins of the polyphyllus and the shrubby sections. Hemerocallis flava and H. fulva do well if given moderate irrigation. Oriental Poppies are fairly satisfactory, Iceland Poppies not at all. Geum Mrs. Bradshaw is the best scarlet perennial of spring; if cut back and watered

IN LATE APRIL WITH IRISES SUPREME

The open lawn with Larkspurs and Spanish Iris on one side and a mixed herbaceous border on the other strike an all-familiar chord. The Date Palms and Pampas Grass plumes in the background give the unmistakable California touch

it will bloom again in midsummer. Foxgloves, Verbascums, and Sweet Williams are generally perennial, but as they renew themselves from seed old plants should be discarded. The perennial Larkspurs give their first bloom in April and May, and should then be cut back for a second flowering. In good soil and with watering they will often give three fine crops of bloom, but apparently wear themselves out, for they seem to require renewing more often than in colder countries.

Unfamiliar plants. Some other perennials are new as garden flowers to people from the East except those who are familiar with the less usual occupants of the greenhouse. Such are the shrubby Calceolarias, in shades of bronze and yellow, long and profuse bloomers; also the Gazanias, fine yellow and orange daisy-like flowers, of value for the front of a dry, sunny border but useless in the shade. Of the drought-resistant Valerians those most often seen are a crude, dull rose and a rather dirty white. Much better than either is the dark red kind, a really good color. Valerians can hardly be killed. The best of the Flaxes I have grown are Linum narbonnense, a fine, clear blue from southern France; L. monogynum, a pure white shrubby species from New Zealand; and the dwarfer L. flavum, not to be confused with the lovely L. triginum sold under the former name. For planting on the north or east side of a house, or where the afternoon sun does not reach, Cinerarias are the best flowers of late spring and are quite hardy and perennial.

Hardy annuals, including such natives as Eschscholtzia (really a perennial), Clarkias, Godetias, Lupins, and such imported ones as Nasturtiums, annual Chrysanthemums, and annual Larkspurs, all bloom during the spring months from seed sown with the first rains of the previous autumn. During these months old plants of Petunias, Salpiglossis, and Verbenas, which commonly survive their first winter in well-drained places, are often a great addition to the garden. Those new-raised from spring-sown seed do not bloom until midsummer.

In the early summer the perennials most seen are the stately Acanthus, most appropriate near the entrance to a building; Anchusa italica, fine for blue effects and so true a perennial with me that I should make sure of where I wanted it before planting because it has proved almost impossible to get rid of it; Coreopsis, Gaillardias, and Shasta Daisies, all drought-proof; Statice latifolia, especially fine in southern California; Gaura Lindheimeri, a drought-resistant plant with airy, light pink flowers; and Gypsophila paniculata (the double form is best).

Hollyhocks are short-lived perennials, generally self-sowing, and blooming in the summer following the autumn in which they are sown. Cannas and even Dahlias are often left in the ground as perennials, and though they sometimes succumb to poor drainage are never as fine as when divided and replanted each spring.

The hardy Phlox, the mainstay of the August border in the East, can be grown in California where mulched with manure and watered; but with most people it is a failure, and even under the most favorable conditions I have never seen it give the garden effect it does where there are summer rains. If the finer single Geraniums were grown in similar masses in California they would give much the same color effects. Geranium Gertrude Pearson is quite the equal in color of Phlox Pantheon, and no salmon or scarlet Phlox can equal these colors in the newer Geraniums. Another substitute is available in the Pentstemons, which when massed will give much the same garden effect as Phlox, and in a wide range of colors, white, pinks of all shades, rose, and purple. These are real perennials, easily raised from seed, blooming the first summer if sown early. When a particularly fine specimen is found it may be readily propagated by fall cuttings of the new growth which springs up when the flower stems are cut back.

From August to the end of the year late planted Dahlias are the most showy flowers in the garden, and in the cooler parts along the coast they make a wonderful display by themselves. At this season drought-resistant perennials are especially valued, and therefore the various members of the Sunflower and Sage families should be planted. Of the latter, Salvia

azurea, in pale blue, and S. leucantha, purple and white, are needed, for their colors are not common in late summer and autumn. Leonotus leonurus, a shrubby perennial often growing six feet high and demanding little water, is conspicuous for its whorls of deep orange flowers.

For locations where water and part time shade can be given, Japanese Anemones and all the tribe of perennial Asters or Michaelmas Daisies should be grown. They can be planted with every assurance of complete bloom before the cold and rain of winter come to stop them. Last of all we have the Chrysanthemums, without which the flower border of October and November would seem bare. If grown for garden effect, single stems and severe disbudding are inadvisable. The many attractive pompoms and singles are better still for the garden than the large-flowered type, for their growth is dwarf and bushy. They also withstand cold, foggy nights, and rain much better, and though best if replanted annually with single shoots, even old clumps will be quite attractive and will flower freely if cut back in early summer and given an occasional good soaking. With them the garden year closes.

THE SPANISH INFLUENCE

MARION BROWNFIELD

Across an Ocean and a Continent the Subtle Charm of the Old World Patio has Travelled to Find Its Home Anew in the Gardens of Southern California

THE Spanish influence on southern California gardens had been a beneficent one, for the essential spirit of the Spanish garden lies in its adaptation of native flowers, shrubs, and trees to the background of native architecture and countryside; and the desirability of making a picture out of the materials at hand is being more and more appreciated.

The Mission with its simple architecture and cloistered gardens has played considerable part in the development of southern California homes, but more recently the revival of Old World styles has focussed attention upon the great possibilities of Spanish-Moorish-Renaissance buildings with their charming gardens. The severe fortress-like architecture of many of these buildings makes the inner court or patio a veritable oasis.

The patio, indeed, is a special type of small garden very attractive for its privacy. It affords a refreshing outlook for many rooms of the home and is capable of many variations of arrangement and planting. In southern California it is equally popular in the private home—whether of bungalow or mansion type—and in the apartment-house or hotel. It is ideal for any building site limited in garden area for it combines seclusion with the joy of a green breathing space, as Washington Irving's ("The Alhambra,") "little garden of Lindaraxa buried in the heart of the building with its roses, and citrons and shrubbery of emerald green" delightfully suggests.

Some of our American patios are merely paved or tiled courtyards dependent for their note of life upon potted and hanging plants, while others have a carefully planned centre plot for Palms, Banana or Orange trees, a Rose garden, Ferns, and Begonias. Many, as in the Old World, boast a cool looking fountain. A great deal of the artistic effect of a patio naturally hinges upon its architectural background. Nothing is more striking than cream colored plaster as a setting for dark green foliage and gay blossoms, and the arches of surrounding corridors offer additional place for hanging greenery.

Another Spanish feature is the wrought iron gate or reja, a screen from the outside world that makes the garden within most alluring. Of late, in southern California, this feature has been duplicated in grilled wood, painted either a maroon or the greenish-blue favored by the old Renaissance artists. Though such details, like the bird cage and the fountain, may appear only incidental to a patio or garden court, they are really more important than they seem, suggesting as they frequently do, the keynote of the whole planting scheme. For example, the brilliant-plumaged parrot demands tropical-looking plants and bright-hued flowers reminiscent of his native habitat, while the canary fits into more delicate color surroundings. Sometimes roof or floor tiles, or a Moorish-style inset above the arches suggests a color effect to be carried out in flowers. The bright reds, yellows, and blues can be successfully accented by the bloom or foliage of selected trees, shrubs and plants.

The older garden courts built by the Moors had graven upon them, somewhat in Oriental-rug fashion, romantic inscriptions in Arabic from the Eastern poets and philosophers. The alabaster vases of Oriental literature, effectively duplicated in concrete or other modern material, have been inherited by the southern California garden, and the reddish colored water olla, set in a niche in a wall, is used with distinct artistic effect. The bird-bath, the wall-fountain, and the wall-shrine, in frequent early use, still hold their place in the modern patio. A long stretch of austerely simple wall needs such occasional relief. The stone garden seat, too, helps to furnish the patio.

The large garden, also walled in semblance of a courtyard, is much enjoyed in southern California. This type is often considerably modified by Italian and American ideas. The wider space area gives scope for individual ingenuity in planting. In one of the illustrations we find a pool, instead of the typical fountain, occupying the centre of the garden, while the fountain-like shrine makes a point of interest at the farther end. The pergola treatment of the wall, a distinctly American feature, offers no disharmony, but is on the contrary a serviceable as well as decorative addition. The side walls of lusty evergreen hedge add another pleasing variation. The generally formal aspect of this garden with its rows of graceful, stately Cocos plumosa Palms is more Spanish in inspiration than in detail. Indeed the typical Spanish garden is more often characterized as naïvely simple and informal; in it studied planting gives way to the artistic grace of natural effects.

Less friendly than either the patio or the larger courtyard, but decidedly effective is the Cactus garden sometimes used with Moorish architecture in southern California. The fantastic forms of the various species of Cactus are strikingly etched against a plaster background, and their martial quality admirably suits the fortress type of architecture. They have almost the air of having trouped in from the desert for the special purpose of affording protection to the house about which they are grouped.

The nature of Spain is "wild and stern," says Irving, "the moment it escapes cultivation; the desert and the garden ever side by side." Southern California's natural landscape

"THE DESERT AND THE GARDEN EVER SIDE BY SIDE"

Afford in Southern California curiously contrasting types of vegetation to all appearances equally at home in this hospitable climate

A HARMONY OF PLANT MATERIAL AND ARCHITECTURAL MOTIF

The various forms of Cactus with their stiff, soldierly air reiterate in another fashion the dominant note struck by this Moorish-style dwelling so fortress like in its severity of line and detail

A COURTYARD GARDEN

Where Spanish influence reigns unperturbed over the modern handling of detail

is similar, and therefore a harmonious background for the Spanish type of garden, whatever its mood. The mountains always framing the distance make a particularly inspiring contrast for all the fragrant and colorful enchantments—Rose, Jasmine, Bougainvillea, and glowing Gold of Ophir Rose—found within the walled gardens of the "Sunset State."

THE PROBLEMS OF THE LANDSCAPE ARCHITECT

WILBER D. COOK, JR.

Pres. Pacific Coast Chapter Am. Soc. Landscape Architects

MANY angles of approach offer themselves to me in writing on a subject so comprehensive, covering as it might the special treatment for California soils; the difficulties of making good lawns due to the shallow rooting of Blue-grass and the encroachment of Devil Grass; the problem presented by the long dry season which requires the installation of sprinkler systems and irrigation; the acquiring of accurate knowledge about the very extensive assortment of trees, shrubs, and flowers which can be grown in our climate; the efforts that are necessary to get nursery stock in quantity, size, and quality to carry out the planting scheme; and the labor situation. There is, besides, the problem—perhaps most important of all—of convincing the public that expert knowledge in the scientific preparation of soil, in the attractive shaping of the ground, and in studying out a comprehensive, appropriate design, with intelligent selection and placing of the factors (such as drives, walks, lawns, trees, shrubs, flowers, pools, wall, or garden furniture), is the only safe insurance against failure, and a real assurance toward getting a properly planned and wisely developed estate.

But for the present I shall deal with the larger problem of landscape design and planting, because it is in this that the new home builders in California make their first, and often irreparable, mistakes.

Visitors to California are so fascinated by the wealth of flowers that, when they become settlers, they are carried away with the opportunity of having bloom the year round. And, desirous of trying out all the many strange and beautiful plants they see and hear about, they frequently fail to realize that the fundamental principles of good landscape design and planting are lost by a confused over-planting with its consequent lack of proper spacing.

The rapid growth and great variety of easily cultivated plants, combined with the abundant free advice often given by nurseryman landscape architects in order to sell their stock, has led many enthusiastic California home builders to overlook the

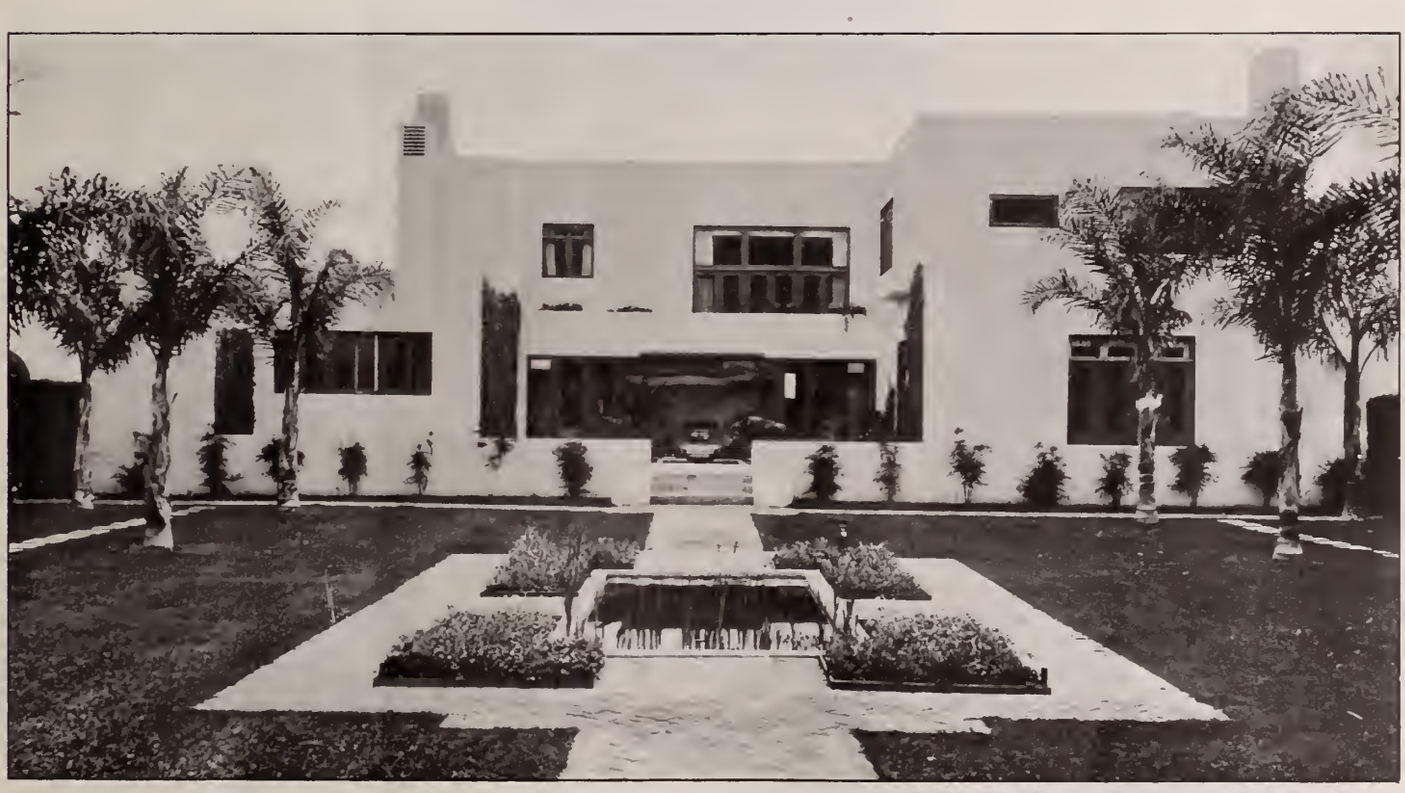
need of employing competent advisors in planning the development of their estates. The large problem before professional landscape architects everywhere is the necessity of educating the public toward a realization of the truth that only through the services of specialists in planning can truly happy results, commensurate with their cost, be had. For several reasons this is particularly true of California.

First. Nowhere are the problems of private place development more varied because of the frequency of distinct types of architecture which demand highly individualized treatment. The English Manor, Colonial, Italian, Spanish, Moorish, Japanese, Hopi Indian, and even Aztec, are not unusual in California. Each type of dwelling should be offset by a harmonious landscape treatment, formal, or naturalistic as the case may be, with special attention in the matter of an appropriate grading and in the character of the plant material used. Such planning cannot be left to mere chance with any surety of success. The stately, beautiful Palm, and the Cactus with its irregular, interesting growth well accompany the severely Spanish dwelling, but strike an immediate false note in conjunction with the English Manor or the Colonial Cottage; and an indiscriminate use of terraces, without due consideration to the character or lines of the house, cannot be excused on the easy ground of "getting rid of surplus excavation."

Second. The constant augmentation of the planting material of California by the introduction of new varieties, renders appropriate selection a serious study for even the experienced designer. The landscape architect must have a thorough knowledge of his materials, as well as imagination and judgment, in order to create effectively. Too often private landscaping—if it can be called such—has the character of a botanical garden, with specimen trees and shrubs haphazardly dotted about the lawn and a restless profusion of bloom in the scattered beds. Such jumbling of the factors of design, such lack of any real scheme of composition leaves upon the spectator an impression of confused dissatisfaction.

Third. The space composition essential to all good landscape design is more difficult in California than in the East, because the lawn, a fundamental in landscape composition, must be treated as a luxury requiring much careful watering to tide it over the dry season. It is, therefore, often necessary to reduce the lawn area to the minimum permissible in space composition. The same restraint applies to special water features and other planting dependent on a liberal supply of water during the summer months. Excellent sprinkler and irrigation systems, together with an increasing water supply, is helping to solve this problem for California, but the expense of water is still a factor which must be taken into account by every landscape developer. Drought resisting ground covers, native plants, and introductions from the desert do much to create attractive landscape effects; but here, too, an intimate knowledge of local conditions is essential to the best results.

The thoughts that I would like to leave uppermost are that although a greater variety of plants can be grown in California than in the East, it is necessary to discriminate very carefully in their selection for the particular project in hand; that California soil often needs special treatment to insure the proper growth of plants; that the extent and character of the landscape development is necessarily dependent upon the available water supply; that flowers, lawns, pools, trees, and shrubs do not in themselves make a happy flower garden or an attractive estate, unless used as wisely placed elements in a composition planned with due consideration of the type of house they are intended to embellish. Finally it is essential that the home builder—if he does not himself possess the requisite knowledge, experience, and skill to plan and direct the development of an estate—confer with competent advisors in order that the land may yield its maximum of service and enjoyment.



PLANTING AS A COMPANION ART

To architectural style whose needs are ever varying and often insistent. A few seasons will quite transform this house at Hollywood (California), veiling its severity with the sweeping grace of Cocos Palms, softening it with the fringed, mantling green of vines. (The illustration on the opposite page gives a reverse view of this courtyard)

Some Builders of Gardening Activitity in California

CARL PURDY

Long years of persistent work have made Mr. Purdy a world wide authority on the bulbous plants of the Pacific slope and their adaptability to cultural conditions elsewhere. He has introduced also many foreign bulbs to the coast; his work in this field, especially with Lilies, is of great value

RICHARD DIENER

Marked improvements in Gladiolus and Ruffled Petunias are conspicuous results of Mr. Diener's work in hybridization and selection along specialized lines. Dahlias, also, as well as Tomatoes, Beans, and Grains have also profited by his handiwork

THEODORE PAYNE

A prophet with honor in his own country, Mr. Payne has done fine pioneer work in collecting and testing native California flowers for garden use; and he has successfully practised what he preaches. Mr. Payne was also an ardent, early advocate of Eucalyptus planting

ALBERT F. ETTER

Who has devoted many years of effort to improving the Strawberry, not alone in regard to texture, taste, and keeping quality of the fruit, but also in habit of growth, so that now Mr. Etter has evolved a type of plant that, in his region, is evergreen, everbearing, and carries the fruit off the ground on upright stalks

© Hartsock, San Francisco and Los Angeles, Cal.

LUTHER BURBANK

Whose work in hybridization and selection of preferred types and variations has added large numbers of garden ornamentals and fruits to our catalogues. Beginning his labors in the East he has drawn much attention to the West since his settlement there

SHRUBS AND VINES FOR CALIFORNIA GARDENS

WILLIAM TYLER MILLER

A Practical System of Choosing Kinds Best Adapted to Soil, Climatic, and Other Conditions of the Individual Householder's Garden and Grounds

EDITOR'S NOTE: *The author of this article who will be remembered by many old readers as the first editor of* THE GARDEN MAGAZINE, *is now a resident of California. The lists of plants presented have been prepared with Mr. Miller's customary careful attention to detail and as a close student and observer of plants and take cognizance of the most recent recommendations of the leading plantsmen of the section.*

THIS article deals with the permanent planting materials of the typical garden or yard in California—the shrubs and vines. Obviously, these should be located on the garden plan before filling in with temporary material. There is one previous question—the trees—but the average home has room for few of these and their varieties are too numerous to mention now.

The beginner commonly chooses by jumping at what he likes, with little regard to practicality or suitability. Effort and time may be saved by considering each list in the order here given where the garden maker can find what will really grow on the shady side of his house, and what plants are adapted to his peculiar conditions of soil, climate, etc. Having reached a decision on these points he can consult with an easy mind the list of plants that bloom the year round, or nearly so. This is usually the only list which the beginner considers and the nurserymen commonly put it first. I have placed it toward the end, because practical questions must be solved before aesthetic ones.

Personal observation has been fortified by free use of such authorities as Wickson, Gregg, Davy, Braunton, Gill, and Bailey.

The aim of this article is to supply in the most convenient form all the information necessary to a choice of plant material. The lists serve as a storehouse of useful fact much of which can not be secured from catalogues. A set of abbreviations is used in order to simplify the lists and render them easily readable.

ABBREVIATIONS USED

A—Extremely showy, often overdone to point of vulgarity.
B—Both fls. and fr. attractive.
D—Deciduous.
E—Everblooming, free.
F—Fragrant flowers.
G—Ground cover, banks.
H—Herb, herbaceous.
L—Leaves, foliage plant. Flowers unimportant.
N—Native to California.
O—Open, light tracery.
S—Full shade. ½S—Half Shade.
T—Tender, but stands 10–12 degrees frost when established.
U—Unsightly objects, screen for.
W—Winter color, flowers or fruits.

Shrubs that Blend with the Native Landscape

The following native shrubs are nearly all available in the form of nursery plants, as well as collected stock, and most of them can be grown from seed which is easily obtainable. All evergreen, except D. Others in more general cultivation are marked N, in previous lists.

Button Sage; small with silvery foliage and lilac fls. Dry places.
California Lilac (Ceanothus thyrsiflorus), compact, glossy; fls. deep blue.
Catalina Ironwood (Lyonothamnus floribundus), white, free.
Oso Berry (Osmaronia cerasiformus), D, Small white fls; fr. purple.
Scarlet Honeysuckle (Pentstemon cordifolius), 6-8 ft, half-shrub, orange-scarlet.
Pink-flowering Currant (Ribes glutinosum), deep pink.
Mallow Currant (Ribes malvaceum), pale pink fls. midwinter or early spring.
Fuchsia-flowered Gooseberry (Ribes speciosum), cardinal red.
California Rose (Rosa californica), fragrant, pink. Heavy soil, sun or shade.

Shrubs for Protected Sunny Situations (Tender)

Coming from warmer countries these often require a sunny situation, moist (if possible), and protected from heavy frost, can stand about 10 degrees.

Acacias (A. armata, cultriformis, longifolia). T.
Natal Plum (Carissa grandiflora). B, F, T.
Mexican Orange (Choisya ternata). E, F, T.
Breath-of-Heaven (Diosma ericoides). F, T.
Grevillea Thelemanniana. Ruddy Pink. E, T.
Shoe-black (Hibiscus Rosa-sinensis). Southern Cal. only, T.
Oleander (Nerium Oleander). E, T.
Evergreen Thorn (Pyracantha coccinea). B, T, W.
Spanish Broom (Spartium junceum). E, F, T.

Shrubs for Full Shade

DECORATIVE FOLIAGE ONLY

The great surprise in this group for the Easterner is the popularity of the Coprosma, used everywhere for hedges and foundation planting. The following plants do fairly well on north side of buildings, in bungalow courts, or under Live-oaks:

Coprosma (C. Baueri). Lvs. very shiny; fruit yellow, showy.
Boxwood (Buxus, all kinds). Tree, hedge, and edgings.
Aucuba (Many kinds). Red Berries.
European Myrtle (Myrtus communis). Small lvs; fls. white, spicy; fr. black.

FLOWERING SHRUBS

Fuchsia (Many species). Crimson, purple. D. E. Half-shrub.
Garden Hydrangea (H. opuloides). Blue, etc. D. E. Half-shrub.
India Azaleas (A. indica). Many colors; early spring.
Nandina (N. domestica). Fls. white; fr. red.
Cascara (Rhamnus californica). Fls. greenish; fr. red, turning black.

Shrubs for Partial Shade

If there is any danger of lack of water during the long, dry summer it is better to put the following in partial shade. Those in the "full shade" list will generally do better in half shade.

Camellia (C. japonica). White, pink, red, winter. Commonly treated as shrub. ½ S. W.
Rock-spray (Cotoneaster horizontalis). Fls. pinkish white; fr. scarlet. ½ S.
Mediterranean Heath (Erica mediterranea). Fls. pink, winter. ½ S.
Banana-shrub (Michelia fuscata). Fls. yellow, fragrant. E.
Laurustinus (Viburnum Tinus lucidum). Fls. pinkish white. ½ S.

Shrubs that Bloom a Long Time

Some of these are in flower the year around, with little intermission; some have several periods of bloom; most of them can be counted on for winter flowers.

Mexican Orange (Choisya ternata). E, F, T
Grevillea Thelemanniana. E.T.
Lantana Amiel. Red and yellow. E, W.
Fuchsias. D, E, S, Half-shrub.
Streptosolen Jamesonii. E.
Spanish Broom (Spartium junceum). E, F, T.
Mediterranean Heath (Erica mediterranea). E, ½ S. W.
Plumbago (P. capensis). E.
Star Jasmine (Trachelospermum jasminoides). E, F.
African Trumpet (Tecomaria capensis). E.
Oleander (Nerium Oleander). E, T.

Shrubs with Fragrant Leaves or Flowers

It is pleasant to brush against fragrant foliage along the garden walks. The leaves of such plants, when crushed, yield fragrance any day of the year. The names with the asterisk indicate plants with fragrant foliage. Nearly all the plants given below have fragrant flowers. Some are indicated by F.

WITH WHITE FLOWERS

*Mexican Orange (Choisya ternata). 6 ft.; broad clusters, odor of orange E, F, T.
*Cascara (Rhamnus californica). 6 to 8 ft.; "Wild Coffee" Fls. greenish; Berries red turning black, N, S.
*Breath-of-Heaven (Diosma ericoides). Low, Fls. small, star-shaped.
*Lemon Verbena (Lippia citriodora). Fls. white or lavender; odor of lemon. D.
Natal Plum (Carissa grandiflora). Edible red fruits, 1–2 in. long. B, F, T.
Star Jasmine (Trachelospermum jasminoides). Petals twisted, reflexed, 1 in. across, low, but free, E, F.
Tree Anemone (Carpenteria californica). Odor of orange, N.
Japanese Pittosporum (P. tobira). 12 ft. F, ½ S.

WITH FLOWERS OF OTHER COLORS

*Boxwood (Buxus). Tree, hedge, and edging, Fls. unimportant, L. S.
*Rosemary (Rosmarinus officinalis). Fls. small, lavender, small straggling bush; edgings, dry ground, ½ S.
Spanish Broom (Spartium junceum). 6–8 ft. Yellow pea-shaped, E, F, T.
Banana Shrub (Michelia fuscata). Yellow, odor of banana, rare. E, F.

Shrubs Attractive both in Flower and Fruit

RED FRUITS

Strawberry-tree (Arbutus Unedo). Fls. white; fr. edible. W.
Natal Plum (Carissa grandiflora). Fls. white; fr. edible. F, T.
Spurge Olive (Cneorum tricoracum). Fls. yellow.
Rock-spray (Cotoneaster horizontalis). Fls. pinkish white. ½ S.
Evergreen Thorn (Pyracantha coccinea). Fls. white. T, W.
Laurustinus (Viburnum Tinus). Fls. pinkish white. ½ S.
Evergreen Dogwood (Cornus capitata). Fls. cream.
Nandina (N. domestica). Fls. white, S.

PURPLE, VIOLET, CLARET FRUITS

Brush Cherry (Eugenia myrtrifolia). Fls. creamy. E.
Strawberry Guava (Psidium Cattleianum). Fr. edible.

BLUE FRUITS

Oregon Grape (Mahonia aquifolium). W.

In addition to the above the following are worth growing for the fruits alone, though the flowers are unimportant.

English Holly (Ilex Aquifolium). W.
California Holly (Heteromeles arbutifolia). N, W.

Shrubs for the Interior

In the great valley and in the arid regions the chief enemies are heat and drought. All plants must be watered until established. After that the following can stand the conditions and a good deal of neglect. These plants and shrubs are also good drought resisters near the coast.

California Holly (Heteromeles arbutifolia). B, N, W.
Spanish Broom (Spartium junceum). E, F, T.
California Lilac (Ceanothus thysiflorus). N.
Cascara (Rhamnus californica). N, S.
Scotch Broom (Cytisus scoparius). F, T, W.
Portugal Broom (Cytisus albus).
Oleander (Nerium Oleander). E, T.
Strawberry-tree (Arbutus Unedo). B, W.
Catalina Cherry (Prunus ilicifolia integrifolia). N.

Deciduous Shrubs

Shrubs that lose their leaves in winter are not exactly a curiosity in California, but they are rare in gardens compared with the overwhelming abundance of evergreens. With few exceptions (marked D) all the preceding shrubs are broad-leaved evergreens. If the new comer is homesick for the deciduous kinds he can buy from a single nursery at least eighty of the sorts popular in the East. Practically all the native shrubs are evergreen; there are however, a few winter-naked shrubs that especially delight the Easterner and they are all foreigners.

Bird of Paradise Flower (Caesalpinia Gilliesii); yellow petals, red stamens. D, E.
Coral Plant (Erythrina crista-galli); crimson and scarlet, like a Cockscomb. D, E.
Crepe Myrtle (Lagerstroemia indica); pink, also purple and white. D, E.
Lemon Verbena (Lippia citriodora); low herb East, tall half-shrub here.
Pomegranate (Punica granatum). B, D.

Shrubs for Seaside (Wind-resisters)

Near the ocean there are likely to be strong winds, dry sandy soils, and salt. The best wind-breaks are generally wiry, but the Fan Palms included below are exceptions.

Monterey Cypress (Cupressus macrocarpa). L. Hedges.
Sydney Golden Wattle (Acacia longifolia). T.
Beefwood (Casuarina equisetifolia). L.
Coprosma (C. Baueri). L.
Savin (Juniperus Sabina). L.
Kangaroo Thorn (Acacia armata). T.
Spanish Broom (Spartium junceum). E, F, T.
Canary Palm (Phoenix cariensis). Feathery, ornamental Date.

Fan Palms—These remain shrubby permanently or for a considerable number of years:

Dwarf Fan Palm (Chamaerops humilis).
Windmill Palm (Trachycarpus excelsus). Tree.
Cabbage Palmetto (Sabal Palmetto). Dwarf in Cal.
Guadaloupe Island Palm (Erythraea edulis).
California Fan Palm (Washingtonia filifera). Tree, N.

Bush Roses

In this list H. P. means hybrid perpetual; H. T, hybrid Tea; T, Tea; Per. Pernetiana; Pol., Polyantha.

Duchesse de Brabant (T). Soft rose.
Frau Karl Druschki (H. P.). White.
Gen. MacArthur (H. T.). Red.
Heinrich Munch (H. P.). Pink.
Irish Elegance (Irish Single) Apricot, shaded orange and pink.
Kaiserin Augusta Victoria (H. T.). Yellowish white.
Laurent Carle (H. T.). Carmine.
Lyon (Pern). Shrimp pink or coral.
Madame Caroline Testout (H. T.). Pink.
Magna Charta (H. P.). Rosy red.
Maman Cochet, White, (T.). White, outer petals blush.
Miss Kate Moulton (H. T.). Pink and silvery flesh.
Mlle. Cecile Brunner (Dwf. Poly). Salmon pink.
Mrs. Aaron Ward (H. T.). Yellow tinted salmon rose.
My Maryland (H. T.). Bright pink.
Radiance (H. T.). Carmine pink.
Ulrich Brunner (H. P.). Cherry red.
William Shean (H. T.). Pink, veined ochre.

Vines to Screen Unsightly Objects

In general vines are very rampant in California, screening unsightly objects is therefore easy. Also, and alas! many one-story houses are smothered, while taller buildings are top-heavy with vines.

Chinese Trumpet Vine (Campsis chinensis). D, E, T.
Climbing Fig (Ficus pumila). L, S.
English Ivy (Hedera Helix). G, L, P, S.
Catalonian Jasmine (Jasminum grandiflorum). E, F, T.
Wonga-wonga (Pandorea australis). T.
Jasmine-like Trumpet (Pandorea jasminoides). E, T.
Pink Passion-vine (Passiflora mollissima). T.
Plumbago (P. capensis). E, T.
Steptoslen Jamesonii. E, T.

Vines for Decorating Fine Architecture

The following, as they make a light or open tracery, are suitable for fine house walls, columns, and windows. It is well to have the space that vines are to occupy indicated by lattice work designed by the architect of the house, too many windows in California are covered with rampant vines.

Cat's Claw (Bignonia unguis-cati). G, P.
Winter Pink-vine (Hardenbergia monophylla). T, W.
Wax plant (Hoya carnosa). E, S, T.
Winter Jasmine (Jasminum nudiflorum). D, G, W.
Chilean Jasmine (Mandevilla suaveolens). D, E, F.
White Bignonia (Pithecoctenium cynanchoides). T.
Orange Bignonia (Pyrostegia venusta). E, T, W.
Solanum jasminoides. E.
Blue Potato-vine (Solanum Seaforthianum). E, T.
Australian Bluebell (Sollya heterophylla). E, G, S, T.
Star Jasmine (Trachelospermum jasminoides).

Vines for Brick, Stone, Stucco

These are self-supporting, (requiring no lattice) and will grow on surfaces sufficiently rough for them to cling to.

Cat's Claw (Bignonia unguis-cati). G, O, P.
Evergreen ampelopsis (Cissus striata). E.
Climbing Snowball (Decumaria barbara). D, F.
Climbing Fig (Ficus pumila). L, S, U.
Low Climbing Fig (Ficus pumila minima). L, S, U.

European Ivy (Hedera Helix). G, L, P, S, U.
Englemann's Ivy (Ampelopsis Englemanni). C, D, G, L, S, U.
Japan Ivy (Ampelopsis Veitchii). C, D, G, L, S, U.
Bignonia cherere (Phaedranthus cuccinatonia). E, T.

Vines for Decorative Effect

The visitor is delighted to find English Ivy so abundant, and, though it is not met as a tall vine as frequently as in the South or in Europe, it is a wonderful ground cover under trees and on banks. Climbing Fig is the most popular of this group but is overdone, and is coarse compared with the dainty Maiden-hair Vine. As compared with the foliage the flowers and fruit of the following are unimportant.

Evergreen Ampelopsis (Cissus striata). L, T.
Climbing Snowball (Decumaria barbara). D, F.
Climbing Fig (Ficus pumila). L, S, U.
Dwarf Climbing Fig (Ficus pumila minima). For very low walls. L, S, U.
English Ivy (Hedera Helix). G, L, P, S, U.
Maiden-hair Vine (Muehlenbeckia complexa). L, S, U.
Evergreen Grape (Vitis capensis). L, T.

Vines for Shady Places

Suitable for the north side of the house, under trees, bungalow courts and shaded banks.

Climbing Fig (Ficus pumila). L, S. U.
European Ivy (Hedera Helix). G, L, P, S, U.
Wax Plant (Hoya carnosa). F, O, S, T.
Fuchsia; many kinds. D, E, S.
Double yellow Jasmine (Jasminum primulinum). T.
Lippia (L. canescens.) G, P, S.
Wonga-wonga (Pandorea australis). T.
Blue Potato Vine (Solanum Seaforthianum). F.
Australian Bluebell (Sollya heterophylla). E, O, T.
Star Jasmine(Trachelospernum jasminoides). E, F, O, S, T.
Evergreen Grape (Vitis capensis). L, T.

Vines for Heavy Soil (Drought resisters)

Will endure a certain amount of drought and hard clay, but are worthy of good soil and water:

Cat's Claw (Bignonia unguis-catis). G, O, P.
Climbing Fig (Ficus pumila). L, S, U.
English Ivy (Hedera Helix). G, L, P, S, U.
Double Yellow Jasmine (J. primulinum). T.
Red-and-yellow Lantana (L. Camara). A, E, G. P, T.
Lippia (L. canescens). G, P, S.
Maiden-hair Vine (Muehlenbeckia complexa). L, S, U.
Wonga-wonga (Pandorea australis). T.
Jasmine-like Trumpet (Pandorea jasminoides). E, T, U.
Pink Passion Flower (Passiflora mollissima). T. U.
Ivy-leaved Geranium (Pelargonium peltatum). A E, G, H, T, U.
Silk Vine (Periploca graeca). D, E, F.
Plumbago (P. capensis). E, T. U.
White Potato Vine (Solanum jasminoides). E, O.
Australian Bluebell (Sollya heterophylla). E, G, O, S, T.
Streptosolen Jamesonii. E, T, U.
African Trumpet (Tecomaria capensis). E, T, U.
Larger Periwinkle (Vinca major). E, G, H, S.

HOLLY FOR THE HOLIDAYS AND OTHER DAYS

CHRISTINE EMERY

ONE of the joys of Christmas time here on the west coast is our home-grown Holly, then obligingly at its best, though it is at all times an effective and satisfactory dweller on the home grounds. It is not the Aquifolium of the British Isles, nor the Cassine — that least attractive species of the Holly family that may be found growing in wild tangles to the height of thirty feet in the rich soil of our Southern states. It is Ilex opaca, the common American Holly, that shrouds itself in an armored covering of prickly green leaves, and early in the summer bears myriads of small, inconspicuous waxen-white flowers, speedily followed by a prodigal crop of glistening, brilliantly colored berries that remain upon the shrubs throughout the winter, thus giving a vivid impetus of life and color at a season of the year when much of the native shrubbery is sear and unattractive.

Gardeners in the far Northwest find Holly indispensable for well balanced plantings; it is hardy and adaptable,

HOLLY AS AN OUTDOOR ORNAMENT

This thriving Ilex opaca at Tacoma, Washington, shows what our native Holly, given a chance, will do. Its natural range is rather a wide one which makes it possible for many a householder East and West to have it outdoors as well as in

lending itself readily to a variety of forms — the tree, the bush, the standard, the pyramid, and the hedge. Aside from its slow growth, which is most apparent during its early years, it is ideal as a hedge plant, for when well trimmed it forms an impenetrable, effective screen requiring little attention and increasingly valuable from an aesthetic, as well as from a financial and practical viewpoint.

This sturdy Holly thrives in sun or shade, and in almost any kind of soil provided that there is good, natural drainage. The plants, however, make their best growth, in a rich loam. Propagation may be made from cuttings, by layering, and by seeds. As many berries are infertile, and germination is a slow process at best, generally taking place in the second year from planting, the seeds may be stratified, like those of the similarly slow growing Hawthorn. Slips or cuttings should be transplanted when small, for well established plants do not take kindly to being disturbed, and even under the best of conditions

there is a check of at least one year in the growth of each large plant. If the work is done when the wood is well ripened and the roots are active, say early in the spring or in mid-fall, the roots will continue to function, whereas if the planting is made during mid-winter, as many would assume that it might safely be in the mild climate of our far Northwest, there is less activity of the roots and the continuance of the winter rains is apt to cause root rot, especially when there is little or no underdrainage of the soil. Newly transplanted Holly should be carefully pruned or cut back from the top to check the upper growth until that of the roots has become normal; or the plant may be stripped of all its leaves, as is the common practice in the East when transplanting Holly at any time of year.

Holly requires very little actual care when once established. It is practically free from the attacks of insects and requires only an occasional top dressing of the soil with well rotted manure. This is best applied in the spring or fall, and the annual Christmas clipping, which is such a pleasant feature of the holiday celebration, should be so done as to leave the Holly natural and symmetrical, undiminished in value or beauty for the seasons to come.

ENGLISH GARDENS REVISITED

ERNEST H. WILSON

Assistant Director, Arnold Arboretum, Harvard University

EDITOR'S NOTE: *This is the first of the "traveller's letters" that Mr. Wilson will send exclusively to* THE GARDEN MAGAZINE *during the course of his journey to Australasia. They aim to reflect conditions and observations on garden work and materials in other lands from the viewpoint of the American. Thus in the present letter Mr. Wilson sees in the influence of the great war a marked change in the English gardener's attitude and an approach to a closer similarity of thought and feeling to certain ideals and methods that have hitherto been characteristic of American gardens.*

AFTER an absence of nine years I found in England the love for flowers and gardens more real and more in evidence than ever, but heavy taxation combined with the high cost and scarcity of suitable labor are doing their utmost to stifle this love. There is a marked increase in the interest taken in hardy flowers—in shrubs and trees, in rock plants and in the herbaceous border, but the death knell of the tender exotics has been rung. Orchids will survive as a hobby among the wealthy, but the hothouse with its miscellaneous collection of tropical and semi-tropical plants is fast vanishing. The price and scarcity of both coal and labor are prohibitive, and, moreover, people have discovered that in the outdoor garden they can enjoy, and much more cheaply produce, flowers just as lovely as the hothouse product. Hardy plants are the garden material of the moment and of the future, and after all it is such material that makes the garden a permanent institution.

The management of herbaceous plants is well understood in England; but not so well that of trees and shrubs. The old idea of a shrubbery being nothing but a screen is hard to eradicate. Both shrubs and trees are planted too thickly or not properly thinned and are seldom, if ever, given enough room to develop their proper form and full beauty. The rockery at the Edinburgh Botanic Gardens, the Heath Garden at Wakehurst Place in Sussex, and the long border at Hampton Court are perfect examples of their kind; but in one private garden only did I see shrubs given their necessary space, and the generous treatment they merit. There is need to-day of a work that would do for the shrubbery what William Robinson did for the flower garden. Shrubs with colored foliage obtrude themselves far too frequently in English gardens. To say that they are used far too excessively is stating the facts moderately and yet, after seven nearly sunless weeks, I was forced to admit that they do add a little cheer to villa surroundings.

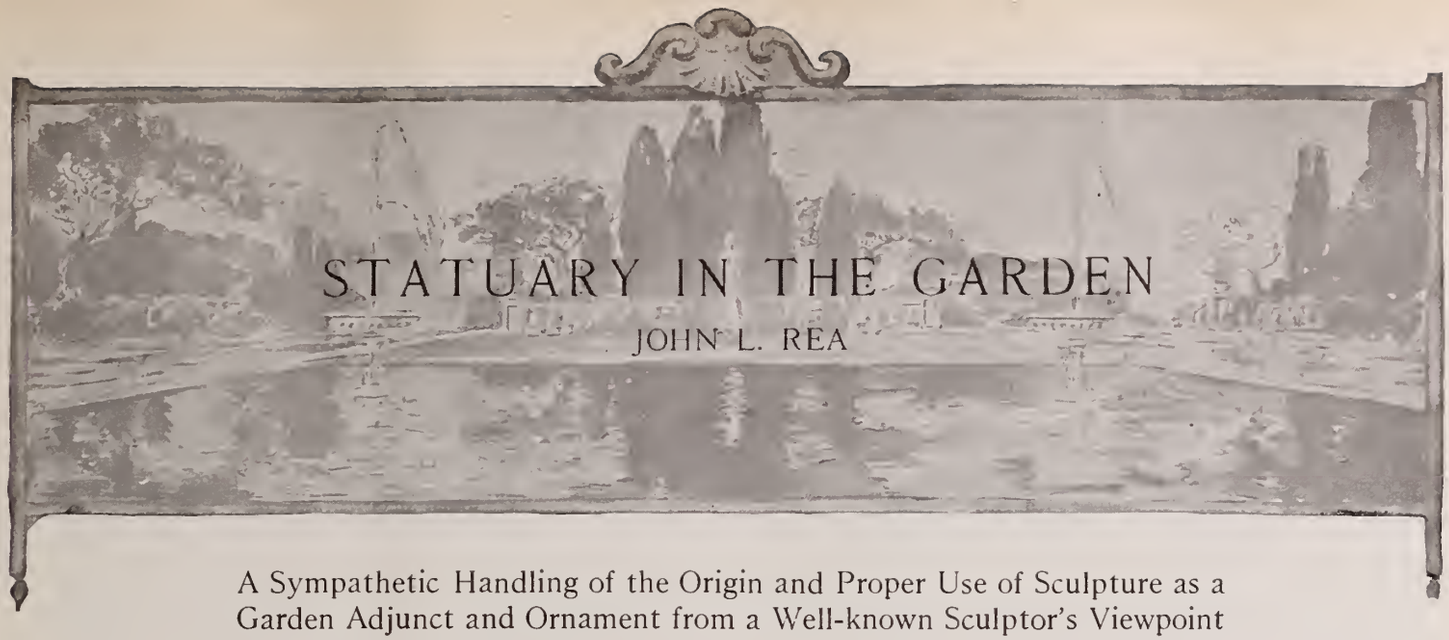
The new plant introductions of the last twenty years from China have become amazingly popular. Indeed, their presence or absence in a garden is indicative of progress or otherwise. That these Chinese plants have so quickly established themselves in English gardens already rich in plant material is proof positive of their merits.

I visited two Royal Horticultural Society Meetings in London and on both occasions the display of flowers and the attendance were surprisingly good, especially when the season of the year was duly appreciated. Kew Gardens to the average visitor shows no ill effects of the war save for a large patch of Potatoes where a fine lawn used to be. But the critical eye easily perceives that the plants in the "collections" have suffered considerably and that over-crowding is a marked feature of the arboretum. However, the highest praise is due to the officials who have labored so diligently to save and protect these wonderful gardens through the terrible strain of the Great War. Nor is the public wanting in appreciation for, in spite of the fact that a charge of admittance is now made and that traffic rates have risen enormously, the lawns at Kew are daily decked with crowds of visitors.

In many private gardens the ill effects of the war are only too plainly visible but it is in the nurseries that the full ravages are most apparent. Lack of labor in itself has caused the loss of a vast quantity of the choicest plant material. Owners of gardens have in a majority of instances labored personally in their gardens as never before; and that has brought about an even keener and more intelligent interest than before, and a deeper knowledge and appreciation of the plants themselves. Many have found solace and comfort in their gardens during the war; and to all such the garden is now sacred and consecrated. In England there is a dearth of young gardeners and a shortage of stocks of plant material. Young men are seeking more lucrative employment than gardening and the demand for plant material is so limited that there is little or no inducement for nurserymen to work up and maintain stocks. In England alone there is a wealth of varied material, which our gardens in America need but cannot have, because of the operation of Quarantine No. 37.

Owing to the crushing burden of debt weighting down every European nation the art and practice of gardening must languish unless America comes to the rescue. It is the duty of those in the United States who love flowers, and of every reader of THE GARDEN MAGAZINE in particular, to further by precept and example the gospel of gardens and an increased appreciation of flowers throughout the length and breadth of this great country; to enjoy in the present and to develop and save for the future what older generations of cultured people have in the past cherished and protected for our uplift and enjoyment.

EN ROUTE, PORT SAID, EGYPT, SEPT. 10, 1920.



STATUARY IN THE GARDEN

JOHN L. REA

A Sympathetic Handling of the Origin and Proper Use of Sculpture as a Garden Adjunct and Ornament from a Well-known Sculptor's Viewpoint

THE statue, like the pergola, the bench, and other furnishings, is a mere accessory in the garden and should be kept strictly in its place, never being allowed to dominate the scene so completely as to distract the attention entirely from the flowers themselves.

In the gardens of ancient Greece and Rome many of the lesser members of Jupiter's numerous family—if not Jupiter himself—then first bodied forth in marble and bronze, took up, and long held, positions of honor. But, as the Golden Age lapsed into the obscure gloom of the Middle Ages, mankind seemed to lose all interest in both the gods and their gardens. The latter fell into ruinous decay, and the former, if so fortunate as to fall into the safety of utter forgetfulness, merely bided their time. Their long and patient waiting was at last rewarded when the great gardens of the Renaissance received them, a weary, broken company, into their bosoms.

After a time the Renaissance petered out into the trivial formalities of decadence, and again the old gods were forgotten in the excesses of the Romantic rebellion which followed.

The garden builders of the new movement were so frantic in their attempt to "get back to Nature" that they well nigh disgraced her, for instead of going to her directly they tried to come at her through the medium of the school of romantic landscape painters, and went about setting up dead trees and bringing old, mossy, half-rotten logs from the woods. They reached what to this later time seems the lowest possible depths, when they invented the painted cast iron effigies of the denizens of the forest and set them up amid their prostrate logs and lifeless tree trunks, thinking that in reproducing such scenes as the painters chose to put upon their canvases they were paying Nature the highest possible compliment.

It must be remembered that the old gods were no sort of kin to these startled deer, timid gazelles, and pointing hunting dogs. These are no more to be classed as sculpture than were the "wax works" of the old Musée. They were not representations

SAINT FRANCIS AMID THE FLOWERS

Where, despite his ascetic garb, he seems thoroughly at home. His spirit, trafficking ever in beauty, lingers fitly in the gardens that he loved

in the sense that a work of sculpture is a representation, but imitations pure and simple, and, as such, intended to supply in these artificial sylvan scenes the lack of the actual animal.

In the course of time, and while the Romantic revival was still at its height, the devotees of the gentle art of gardening were vouchsafed a new prophet. It was Humphrey Repton, the sanest of all landscape builders, who in a sensible, practical way worked to bring an end to these childish excesses and set our forefathers on the middle, more reasonable, course, which, after nearly a century, is bringing us here in America to what promises to be an era of distinctive and beautiful gardens.

And now the gods are coming into their own again, for in this modern type of garden there is a distinct place for sculpture. Indeed, in many cases the best taste among us considers the statue in its proper setting the diadem of the garden. Of course in speaking of the old gods I must not be taken too literally. Though the ancient statue in a modern garden is likely to appear somewhat remote and far-away, not quite in sympathy with the temper of the times perhaps, yet if it seems best to open our garden gate to it, there is no valid reason for not doing so. Are not the latest garden statues after all of the same race as the ancient gods, and but a newer and, for the moment, a more easily understood rendering of the same old thoughts and fancies?

IN TIMES past, as now, statuary has, in a general way, always been considered more appropriate in connection with a somewhat formal type of garden, although its use has by no means been strictly limited to the formal garden; and it is not unusual to find a statue in an informal, more naturalistic setting. The naturalistic setting, however, makes the selection and placing of a piece of sculpture an especially difficult undertaking.

I can imagine the haunting effect of the exquisitely comic Pan of Paul Darde placed in a leafy bower by the side of a woodland path. At the forest's edge on a high eastern hill which I have in mind, I can fancy how a statue of the Great Spirit, or a Sun Worshipper with uplifted face and outstretched arms, might help to point the scene for the unpoetic mind and heighten the effect for the more responsive observer. But, unless, as in these cases, the statue is strictly in keeping with the scene or possesses a strong emotional appeal, placing it in the open will hopelessly dwarf and enfeeble it. Its only chance of seeming other than trivial and ineffectual lies in its power to impart this emotional climactic effect.

In the more restricted, more intimate areas (with which the greater number of us have to deal) just the contrary is desirable. There is no fear that any sculptural work of man will be able to dominate the extended view over a broad countryside, but in a small garden, on the other hand, this might easily happen. Rodin's Thinker, for instance, with the heart-breaking, terrifying qualities it possesses to some minds, should be admitted into a garden only under very special circumstances. In a semicircular garden facing a wide sea view, it might seem appropriate. And yet the effect would, I imagine, be far removed from what most of us consider congenial or in keeping with the idea of a garden.

If it seems best to display this or similar works in a garden at all, I should say a special type of garden should be constructed for them. This might well be a sort of open-air art gallery, where we should find broad stone walks, marble balustrades, Bay trees in tubs, clipped hedges, trees that naturally grow, or are trained, in formal shapes; in short, such accessories as we associate with stately terraces and the immediate settings of great mansions, or public buildings of classic style.

In otherwords, for most of us the garden itself and the growing, flowering plants in it are the important things.

NOT only statuary with a strong emotional appeal but, except in very special circumstances, all statuary depicting violent physical effort or in any way suggesting either physical or mental discomfort or pain I should exclude. The Charging Elephant, the Panther with the Lamb, the Dying Gaul placed on the table or mantel of my library might not disturb me at all —might even have a rather pleasing romantic or literary suggestiveness—but I should never think of setting them up in my garden. Here I come seeking beauty and joy—beauty of line and mass and color, and the joy of life and growth. If it seem desirable that a garden statue should set me thinking at all, pray let it be along pleasant ways, with a quaint and whimsical contemplativeness or a quiet bookish flavor, but nothing that smacks of suffering, or decay, or change. Mortuary urns and Death's heads are far too solemn for a garden!

The modern tendency is to run all to children. Though it be recorded against me and belike lose me the freedom of Greenwich Village, I must confess that I have had a surfeit of water babies. This, however, I am willing to have set down as a purely personal idiosyncrasy, sharing as I do Charles Lamb's objection to having the little dears put upon a body on all sides —"what is one man's meat," etc., applies with equal justness to our enjoyment of the arts.

If we are agreed that the modern type of garden at its best is the proper place for sculpture of some sort, we shall no doubt further agree that the ideal is reached when the garden, its statuary, and other accessories in some intangible way, though none the less actually, reflect the taste and character, even the personality of its owner. Then let us each, bearing in mind the logical restrictions good taste imposes in such an event, choose the statue, or statues, that seem best suited to our own particular case.

These restrictions, briefly stated, are something as follows:

1. Let the statue express the spirit of the particular garden.
2. Let it be a thing of as great beauty and preciousness as possible, always of course, within proper limits.
3. Avoid representations of mental or physical violence or suffering.
4. Choose a statue in a scale and of a material suiting the garden. (A life size statue representing a grown man or woman would by its very size be out of place except in a garden of considerable extent.)

UNDER the climatic conditions prevailing throughout much of the United States bronze seems the most appropriate material. A marble statue of any value, especially in a scale suitable for a garden, really needs some protection from the elements, and usually must be removed or covered with ugly wrappings at the approach of winter. Under the more brilliant skies of California and in other warm sections of the country this objection does not hold to the same extent, of course. Artificial stone, pottery, and lead are also used as materials for garden sculpture. For many reasons, however, bronze, if it is available, will prove most satisfactory. It not only has in the various patines, or finishes, a beautiful and wide color range, but owing to its inherent qualities may be used to express a greater grace and delicacy.

There are those who contend that in every case where statuary is to be employed either the garden setting should be planned for the particular statue or a special statue designed for each particular setting. Although this may be the desirable procedure, it seems to me not always absolutely necessary. Where a garden has been constructed along unusual lines, or even if it possesses, as the best gardens do, some measure of individuality, a statue designed especially for it should be more in keeping than one chosen at random. However, at almost any of the exhibitions devoted especially to sculpture for out-door use, decorative sculpture, as it is sometimes called, examples may usually be found that will fit in any one of several gardens with very nearly equal appropriateness. There is, of course, a sort of proprietary interest in a work for which one has given a commission, gone into consultation over, and seen grow to be the statue for one's own garden, just as the ownership of the garden itself seems more real if one has actually entered into the planning and perhaps the constructive work of building it.

HEBE CONTENT TO ABANDON HER ANCIENT POMP FOR THIS HUMBLE GARDEN NICHE

Quietly come upon in her own peaceful corner of this particular garden, where she does not unduly dominate but stands offering her meek welcome to the chance comer led hither perhaps by the lovely scent of flowering Lilies. The Robley D. Evans garden, Beverley, Mass.

Probably it is in the choice of subject that the personality of the master or mistress of the garden may be most readily expressed. One may choose Saint Francis preaching to the birds, another Phocis the patron saint of gardeners; still another may decide on Flora or Pomona, Love, Youth, Pan at his pipes, or some kindred subject. The garden lover caring chiefly for beauty and less for any special thought association, has even a wider field from which to choose. For such there are graceful nymphs, athletes, gay dancers, and a horde of merry children. Some would say that a falconer with his bird, a spearman, or a hunter, belong to a more virile class of subjects. These latter, however, to my mind are not equally suited to emphasize the spirit of joyousness and beauty which should permeate the garden atmosphere.

CUSTOM and good use have more or less prescribed the garden situations where statuary is likely to be most effective. Not only the desirability of having a statue in a certain spot but the form and character of the available statue must be considered. The relief obviously must be set in a wall, the sun dial in the sun. The two headed Termes are best placed to mark boundaries, possibly the dimension between two distinct parts of the garden plan. Here, however, we are more concerned with the free standing statue, the single figure or group. Such a work is often effectively placed at the juncture of two walks. A small space for grass or flowers may form the actual setting and the walks may meet and divide as they circle about this.

An even better position is against a wall or hedge where two walks join in the form of a letter T. This is usually an especially effective position. Placed against a suitable background such as a hedge, a group of evergreens, a vine clad wall of stone or brick, perhaps in the broken shadows of an over-arching tree or even in a niche in the wall, the best aspect of the chosen bit of statuary may form the closing for a view down the length of a double border, and the secondary views along the cross walk reveal other and quite different beauties.

A somewhat more ambitious setting and one not often enough taken advantage of, is the placing of a statue so that its reflection will be caught in the surface of a quiet pool. Only a work of unusual beauty of line and composition can bear this self comparison with any degree of happiness, however. In such a case both pool and statue might be at the end of a garden, perhaps in a bay of evergreens. If the garden is small a seat at the opposite end might provide an opportunity for obtaining the most beautiful effect of the whole scene.

The centre of the oval or rectangular grass plot, about which so many of our American gardens are built, is sometimes chosen as a situation for a statue. There are, however, several more or less well grounded objections to this location. In the first place, the statue is so much of the time in the full glare of the sun that, due to the brilliancy of the reflections from its smooth surfaces, the full value of any delicacy of modelling it may possess is largely lost. A further objection made by some gardeners is that a statue of much intrinsic interest so placed is always in full view and so assumes a greater importance than an accessory should possess. It is a rare statue that is sufficiently interesting from all sides to warrant its being placed where all views are of equal importance. Every statue has, as a matter of fact, its best and worst aspect. It is far better then to place the statue where we catch more or less momentary glimpses of it, come unexpectedly upon it, perhaps, where it is shown to its greatest advantage, pause to take in its beauties, and pass on to enjoy the equally important beauty of the flowers themselves.

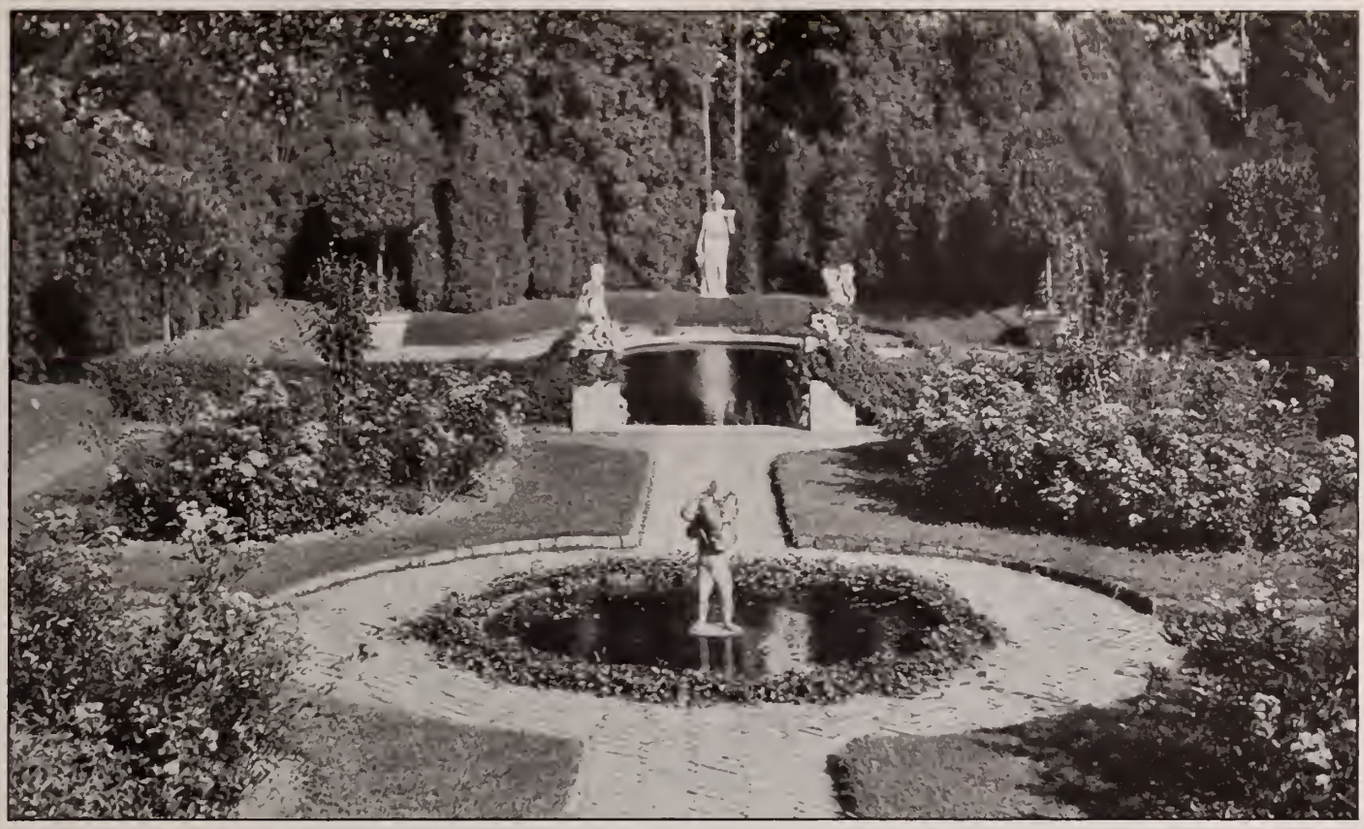
The fountain figure may hold any of these positions, and often indeed with the sparkle and splash of its rising and falling water fairly demands its place in the sun at the garden's centre, which only goes to show that fountains are a subject by themselves.

I would by no means be understood as advocating that statuary should be tucked off into some obscure corner, but that instead of usurping the undivided attention of the onlooker it should hold its proper part in a well-composed, beautiful whole.

And above all let the statue, like the other accessories, look as

GAILY GROTESQUE THEY EXCHANGE AMUSED GLANCES ABOVE THE LOITERER'S HEAD

A garden of size can afford to break its long sweep of walk by some such entertaining device which furnishes the so-inclined with an excuse to linger and an opportunity to gaze about at their ease. The Termes are admirably placed and their inherent frivolity nullifies any possibility of oppressive formality



WHERE NATURE AND ART ARE MET IN HAPPY AGREEMENT

This carefully rendered garden scheme is untouched by the pettiness which often accompanies artificiality. The fountain in the foreground has its chance to play merrily in full sunlight while Hebe at the far end, against a background of shaded natural greens, contemplates her own image. Basically sound in plan, Mrs. Ramsdell's garden at Newburgh, New York, meets with the unqualified approval of the author and admirably illustrates the arguments presented in the accompanying article

if it had come to stay, or preferably if possible as though it had always been in place, for "the old Gods never die," it is written, "they only stand and wait: they wait for a thousand years beside the churchyard gate." Profoundly true as the saying is in the symbolical sense the writer likely intended—referring, as he doubtless did, to old beliefs and superstitions, and the tenacious persistence with which they cling to us, and indeed recur, perhaps after long intervals, in the hearts and consciousness of mankind—it is none the less true in a more objective sense, with regard to the concrete expression of these old beliefs, semi-beliefs, and fancies. Here, however, the periodical waiting is done in the garden!

THE RAIN THAT COMES TO GARDENS

LOUISE DRISCOLL

The rain that comes to gardens
When summer days are long,
Soothes and heals and pardons,
And sings a little song.

It sings a song that Eve heard
When the world was new,
And God walked in her garden
With the dusk and dew.

It used to sing in Babylon
To Roses red and white,
And where the scent of Jasmine
Pierced the Assyrian night.

Dusty Persian Daisies
Heard its pattering rhyme,
It sang on high Hymettus
Over sharp, sweet Thyme.

The rain that comes to gardens
Is wise in garden lore,
It has known many gardens,
It will know many more.

In habit of tree the Acacias show a great diversity and they lend themselves to very different effects as landscape material. The leaf "texture," also differing considerably, affords a sort of classification in this respect. A. decurrens dealbata (top left) feather leaved type is one of the earliest to bloom and is very floriferous. The simple and narrow leaved type (top right) is represented by the open habited A. neriifolia, of gardens, a continuous bloomer. A. armata (centre) with shapely pointed leaves and gracefully arched branches is one of the most ornamental of this varied group

ACACIA ACCESSIONS FROM AUSTRALIA

A. M. WOODMAN

State Experiment Station, Berkeley, Cal.

A Remarkable Group of Flowering Trees Equally at Home in American Gardens on the Pacific Coast and in the Greenhouses of the East as a Favorite for Cut Flowers

PERHAPS it is necessary to see the Acacia in its native habitat to fully appreciate its unusual color, but probably no other tree in California, with the possible exception of the Red-flowering Eucalyptus, is so striking in appearance as a mature Acacia in full bloom.

The Acacia, existing in its thousand forms in Australia, has been domiciled so long in California that it is considered by many as native to the state. In reality but two insignificant species are found in the desert regions of California. Some other species are found in the southern part of North America, but all those worth growing in gardens come from Australia. These ornamental species have discovered very congenial soil and climatic conditions in California, and apparently feel quite at home.

As a group the Acacias are conspicuous chiefly on account of their peculiar fluffy inflorescence, which varies in color from a pale to a lemon yellow, and occasionally to orange; the inflorescence usually consists of a loose or compact globular head, or of a cylindrical spike of pollen-laden balls.

Some of the Acacias are peculiarly useful in garden plantings as settings for other plants because of the unobtrusive greens of their foliage, especially A. longifolia, A. neriifolia, and the so-called A. floribunda with its arching branches and "leaves" that are continually fluttering in the breeze.

Dark-foliaged Acacias like A. armata and A. verticillata, form splendid backgrounds for low growing shrubs, or for flowers of brilliant hue. The forms with heavy foliage and the feather type of Acacia had best be planted by themselves.

Of late years it has been the practice to cover bare hillsides with plantings of Acacia, which is to be commended, provided forms with yellowish-green foliage are not used. I have in mind one large country estate practically ruined by such a planting.

Acacias will thrive in regions of poor soils where many other types of trees and shrubs would perish; though some of the more delicately foliaged forms require fairly good soil and an abundant supply of moisture. The very fact that the Acacia adapts itself so readily to the climatic and soil conditions of California makes a particularly judicious use of it necessary.

Most Acacias are rather aggressive feeders and many people object to them on this ground; however, if planted a convenient distance from the shrubs in the foreground they are not so objec-

tionable. A. Baileyana is a heavy feeder, but this fact is somewhat compensated for by the delightful contrast its gray foliage makes with shrubs of a dark green.

The wide variation in the character of foliage in different species sharply divides the Acacia family; this distinction is so marked that many of them cannot be grouped together. The "foliage" ranges in color from a yellowish to a dark, sombre green. The best known kinds belong in a class with members having simple, broad to linear-lanceolate "leaves," or, to be more accurate, phyllodia (petiolate leaves).

Acacia latifolia (A. longifolia) is a small sized tree of rather straggly growth; broad, coarse, flat leaves, olive green in color; will thrive equally well in hot, dry regions, or near the sea shore. A. retinodes floribunda (or A. neriifolia as it is sometimes called), is a quick growing tree of exceedingly graceful habit of growth; the inflorescence is scattered, but of a rich canary-yellow. Acacia pycnantha (Golden Wattle) is a small, round-headed tree with broad, lanceolate to obovate leaves; it is quite ornamental; has flowers of a golden yellow. One Acacia of this group with a slight differentiation in leaf-shape is A. melanoxylon, or the Australian Blackwood, much used as a timber tree in Australia. It is a prodigious grower in California, of handsome appearance, despite its insignificant yellowish-white inflorescence, which is followed by seed-pods that make streets and sidewalks very dirty. The foliage, seen from a distance, is dark olive-green in color; the individual leaves are curled.

The Golden Wattle (A. pycnantha) and the Blue-leaved Wattle (A. cyanophylla), are closely allied. The latter is a tall shrub in habit, with foliage of a decided blue tint, and with deep, golden-yellow flower-heads. A. saligna is similar to A. cyanophylla, except in the color of its foliage. The Golden Wattle, the Blue-leaved Wattle, and A. saligna, with A. floribunda as an occasional accent, may be very effectively grouped, due heed being paid to the height and spread of branches of each species.

Acacia armata, spreading in growth, is quite a distinctive ornamental, with small, deep green phyllodia, each tipped with a small, sharp thorn; the solitary flowerheads are borne all along the branches. It appears to best advantage when reinforced by other specimens of the same species, although A. cultriformis and A. pravissima may be planted with it.

A. cultriformis is distinguished by having long and willowy yellow branches; leaves small, acute, glaucous; the flower-heads are in clusters. A. pravissima is a shrub of upright growth with slender, drooping branches; leaves similar in appearance to those of A. cultriformis, but smaller and sage green in color.

Taking into account the habits of growth of each and placing the species with the lightest colored foliage in front, quite an effective grouping may be obtained with the A. armata type. A new species, A. podalyriaefolia has been recently added to the trade. It is described as having leaves like A. cultriformis, and covered with a silvery down, as are the branches.

Acacia verticillata is perhaps the most remarkable species in the entire Acacia group. Except for the characteristic deep-yellow inflorescence in the form of dense spikes, one-half to one inch long, this shrub is quite unlike the rest of its family. The phyllodia, usually a half to three quarters of an inch long, are in whorls, awl-shaped, linear, sharply pointed, and dark green. The branches droop in an exceedingly graceful manner. Massed it makes a splendid effect but care must be taken not to mix other species with it, or to add types of shrubs totally dissimilar in foliage. A. juniperina has numerous, needle-like leaves, similar in appearance to those of A. verticillata, though smaller. The pale yellow inflorescence is in the form of solitary stalked heads.

In the last group to be named are included some of the most beautiful forms of the Acacia. These are the species having finely divided leaves, pinnate to twice pinnate; varying in height from shrubs to tall trees; and in color of inflorescence from yellowish-white to deep golden yellow. In Acacia Baileyana the pinnae are in several pairs, which are again divided into many pairs of leaflets, giving the tree a feathery appearance. The entire tree is very glaucous in effect, and when in bloom is very beautiful, displaying a deep golden inflorescence against its grayish-white foliage. Indeed, it is so distinctive as to be best planted alone.

The Silver Wattle (A. dealbata, sometimes called A. mollissima), is one of the most popular of the Acacias. The foliage is feathery and the rich green of the finely divided leaves often has a beautiful silvery sheen. The flower-heads are a clear

GREENHOUSE GROWN ACACIAS IN THE EAST

As spring flowered shrubs for Easter and for cut bloom the Acacias have recently acquired a decided prominence. At the Boston Show in March, 1920, the group by Thomas Roland was a special feature.

The following species are included: Top row left to right: A. pulchella, Baileyana, pubescens, longifolia, grandis; 2nd row: A. heterophylla (2 plants); 3rd row: A. verticillata, longifolia, 2 vars; 4th row: A. lineata, diffura, heterophylla

Acacia pubescens. Fragile, ethereal, in appearance this is too delicate outdoors even on the Coast, and is most largely cultivated in the East for the florist trade. Leaves feathery, flowers in showers of fluffy balls

yellow, in clustered racemes, and are borne in great profusion, literally covering the tree in late winter and early spring. Its growth is very rapid, resulting in a tree of considerable height. A. mollissima, often confused with the above in nursery catalogues, differs from it slightly in the character of the young shoots and in the length of the pod.

A. decurrens is marked by its prominently angled branches. In growth it is similar to A. dealbata from which it differs in the matter of blooming. It has two periods of bloom, the first coming some time after A. dealbata has finished flowering.

Other forms include A. Farnesiana (Popinac), grown in southern France for its perfume, with finely divided leaves and large, globular, deep yellow and very fragrant flowers; A. Cavernia, which resembles the latter very much in form and habits of growth; A. cyclops, which may be classed with A. melanoxylon, although much smaller in size; A. extensa, a drooping form with hair-like foliage; A. penninervis, another drooping form with rather long leaves, having nerve-like margins; A. pendula (Weeping Myall); and many besides, all possessing some degree of merit. Acacia pubescens, which is a favorite of the florists of the East is quite rare in the Pacific Coast; indeed I know of its being grown in two places only, at Santa Barbara and at Berkeley. It is not very hardy outdoors but makes a most beautiful shrub for the conservatory in both West and East.

Acacia longifolia. With dark green leaves and elongated flower heads this species comes in several varieties showing shades of lighter or deeper yellow

The type with short, broad and stiff phyllodia and solitary round flower heads along the branches; does not blend well with other plants

SOME DIVERSE FORMS OF FOLIAGE AND FLOWER AMONG ACACIAS

FOREIGN FRUITS AT HOME ON OUR WEST COAST

LEE McCRAE

Plant Colonists From All Over the Map—Many Countries Have Contributed Toward the Development of California's Widely Diversified Fruitage

MOST of the best fruits of the entire globe may be found somewhere in the United States, and there is on the Pacific Coast a wider range of accommodating conditions than in any other defined region. One county of California alone, Orange County, already established in public confidence for its fine yearly yield of oranges, affords a comfortable home to at least thirty distinct kinds of immigrant fruit, beside Olives, Apricots, and the Citrus group, all commonly grown.

Some of these, such as St. John's Bread, Feijoas, Pomegranates, Persimmons, Jujubes, Varnish Nuts and Camphor, seem to have become entirely reconciled to the general climatic conditions. Others, notably the Mango, Sapote, Cherimoya, Date, Papaya, Avocado and Nutmeg, demand special thermal and soil conditions. My neighbor's wonderful Avocado orchard has a water spray beneath each tree, and while the trees were rooting each had its screen of burlap to protect it from the chilling sea breezes. Of course they are worth it from every point of view. A successful orchard is pecuniarily a decided asset, and the Avocado, or alligator-pear, is said to contain more nutriment, pound for pound, than prime sirloin steak. It easily leads in combined food-value and market price.

The Cherimoya or Custard-apple, though as yet scarcely known by us, is prized by the Peruvians above all other fruits. Strawberry shaped, but looking like a big soft green pine cone, the fruit has a pulp very like delicious ice cream. Like the Avocado, it requires great care in this section, and is exacting as to its habitat. It is a wonderfully ornamental tree with dense and glossy foliage.

St. John's Bread or Carobs, on the other hand, is most accommodating and is becoming one of the shade trees of the highways, thriving without irrigation and seeming to prefer arid hillsides. If the land is really good one cannot afford to plant Carobs because of their slow growth and meager production. The "bread" comes in the shape of a pod containing small seeds, chocolate-colored on the outside and tasting not a little like chocolate; and although John the Baptist was supposed to have lived upon it, it is better for stock food than for human beings.

Feijoa trees grow only about eight feet high, their leaves are a dark glossy green on top and almost white underneath, the flowers very showy. The fruit, which looks like an elongated apple, combines the flavor of the pineapple and banana, and makes the finest of jams and jellies. When fully ripe it is delicious eaten raw. In my brother's orchard his one Feijoa tree is irrigated with the rest of the "family orchard" (consisting of sixty trees and representing almost that many distinct kinds of fruit), and seems to thrive under the same sort of care.

The Sapote needs a mild coast atmosphere where it attains a height of twenty feet. Its leaves are five-fingered, and its large, yellow fruit tastes much like a peach. Wherever the Willow will grow—given warmth—the Sapote will thrive. With it the Sapodilla has often been confused. Both came originally from South America, but they are different in many ways and the Sapodilla fruit is much more delicious, especially when preserved.

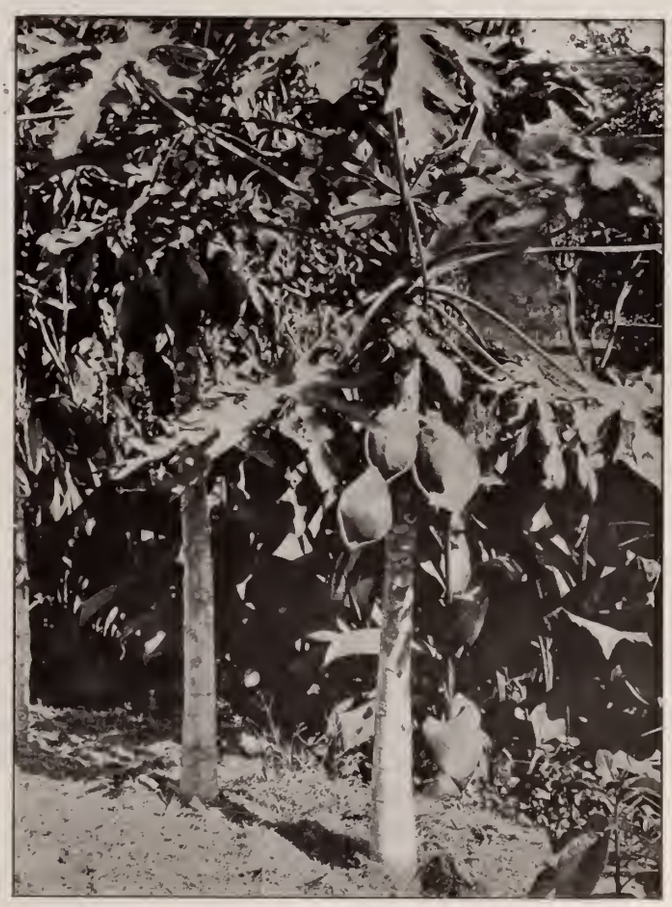
There are only a few Mango trees here, and these were introduced from Florida where, according to report, they are reputed to bear the "best dessert fruit in the world." The Mango needs great care, a mild atmosphere, and plenty of water.

Loquats from Japan are now among the commonest fruit trees in California. (One is thriving among the shrubbery of my yard from a self-planted seed, and will be transplanted to the orchard this fall). They set their fruit during the winter months, and as the earliest on the local market, it is eagerly sought by the housewife. It grows in clusters, is small, yellow, large-seeded, and, while good eaten raw, makes peculiarly fine jelly. Occasional irrigation is all the Loquats need here to become large trees.

The Kumquat, also from Japan, is so small that it is used as an ornamental upon lawns, or is grown in pots after being budded on Citrus trifoliata. Some varieties will stand considerable cold, but demand a moist climate like that of their native home. The fruit is like a miniature orange.

Chayotes are grown on a vine that—after being cut back almost to the root—will, in its second season, grow from forty to fifty feet and bear a thousand fruits by actual count. They are the shape of an egg-plant, pale green in color, with squash-like rind. We are told to "use them like you would potatoes," baked, fried, or boiled; they may also be served raw as a salad. Indeed, the Chayote ranks almost as a vegetable and is so placed in the Los Angeles seed catalogues. One yard in the city has its pergolas and arbors in the rear covered with this vine, the owner declaring they bring her more money for less care, and give better shade than anything else she could put there.

The Jewish people send to Italy for the Citron which they use in their ceremonials; yet, with good care, a full supply for them and for the whole United States could be grown in this one



PAPAYAS FROM HAWAII THRIVING IN THE OPEN

Near La Habra, Orange County, with ordinary care. The fruit, which ripens almost continuously throughout the year, resembles the avocado in appearance and delectability, and deserves to be more widely marketed

county where it is now raised merely as a curiosity and not marketed at all. Our agricultural expert in the Los Angeles Chamber of Commerce cites this as an example of our thriftlessness in the matter of national resources.

The Japanese Persimmon and the Tamopan Persimmon from China are not at all the same; they are near relatives of the common wild American Persimmon. The Tamopan variety may be grown in almost any clime as it is hardy over a large area in China, but there are few specimens in cultivation. The first specimens were brought by a missionary on furlough, and planted a few miles from my home where they grew neglected and unappreciated until recently. Many orchards in the foothills are now including these interesting trees. Orientals dry the fruit which has a high food value.

The date-like Jujube has, beside all the Date's good qualities, the happy faculty of ripening in a climate where human beings can live comfortably the year round. Only a few Jujube trees are being grown in Orange County, but these are doing wonderfully well with little care and no special protection.

Nutmegs of the spiciest kind have come to southern California directly from Persia, and are doing their best to win the approval which they deserve.

Varnish nuts are exceedingly valuable. The crude oil that oozes from the broken nut is used, unmixed, by Orientals as a finishing for their lacquer work and hand-carved furniture. There is a long row of these trees, twelve or fourteen years old, across a ten-acre field near Santa Ana, regarded by the owner merely as fine shade trees. Certainly they are ornamental, but a fortune awaits the man who will commercialize the rich oil of these nuts.

THE DATE PALM AS A DECORATIVE FEATURE

At the home of Mr. Wickham Havens, Oakland, California, where the too cool climate renders its fruit inedible, but in no way impairs its strikingly picturesque habits of growth

The Hawaiian Papaya also has large possibilities commercially. Like the Lemon it fruits nearly the year round. Papayas resemble avocados in shape and are eaten in the same manner, raw, as a salad.

The Carissa from the Upper Nile is considered a "plum," but the fruit when cooked tastes almost like cranberry and is entirely too acid for eating raw. It may attain tree-size in this climate, but usually remains a shrub with strikingly beautiful flowers. The few here are not being utilized at present.

The Eugenia is even less known. In Brazil, however, where it is highly valued, both leaves and fruits are made use of.

Like the Loquat the Guava is found in almost every California orchard. The little yellow fruits, "strawberries with a pine perfume" (according to a discriminating new comer), grow on large shrubs frequently planted as hedges, and receiving hedge-care. Brought first from Florida and here crossed with the Lemon, the California Guava produces fruit with a peculiar strawberry taste which distinguishes it sharply from the Florida variety. The Guava bears profusely and requires, a rancher tells me, as little attention as Pig-weed.

The Camphor tree is most popular all over southern California. Its light green, glossy foliage, shapeliness, and smoothness of trunk make it an admirable ornamental.

A single specimen of the "Crown-of-Thorns-tree," brought from Palestine years ago by Madam Modjeska and still thriving, seems to uphold the horticulturists' claim that the vegetation of this state can duplicate that of almost the whole world outside of the equatorial zone.

Palms of every description decorate the entire region, though their fruit attains commercial value only in the hot, almost desert-like Coachella Valley.

The "thirty kinds of climate" along the Pacific Coast, assisted by man's intelligent interest, make California an ideal home for adventurous immigrants of the fruit world who travel thus far.

GLIMPSES INTO SOME SAN DIEGO GARDENS

Effective results through the simple medium of varied greens; Eucalyptus tree to north of building; Ficus repens covering wall to left of gate: Vitis rhomboidifolia covering the four foot earth bed at base of columns and trailing over the wall. Vitis capensis trailing around pillar shows its rugged, artistic twining stem and wealth of evergreen foliage. Woman's Wednesday Clubhouse

Flowers in a winter garden. On the extreme right, and higher than the house, is the everblooming Jasminum catalonica supported in the air by an iron rod; on extreme left Rhynchospermum jasminoides. Over doorway and wall Bignonia cherere which blooms heavily in summer. The Palm is Phoenix Roebelenii with Doryanthes Palmeri in pots on step buttress. Residence of Mr. H. H. Timken

Roses and Cypress. The climbing Cecile Brunner Rose runs luxuriously over the doorway and its graceful airiness is in contrast to the stern columnar darkness of the Monterey Cypress. On the wall between the Cypress is Bignonia cherere planted forty feet away on the other side of the house. It blooms all summer. Residence of Miss Hortense Coulter

COLOR PLANTING FOR PACIFIC COAST GARDENS

KATE O. SESSIONS

Rich Variety of Material Available for Definite Color Effects in the Three Climatic Zones of the Coast. Necessity for Restraint in Use

THE plant life of the California coast region, which extends more than a thousand miles, may be divided into three sections: that of northern California; central California, or the San Francisco Bay region; and southern California, from Santa Barbara to San Diego. Naturally there are great variations of climate in so great a distance. From San Francisco northward there is more fog, rain, and coolness, while from Santa Barbara southward it is just the reverse. At San Diego ten inches is the average rainfall, and the least fog and much dryness characterize the climate. The entire coast section of California is very different from the interior of the state, which has far more heat and cold, but no summer rains.

In the southern section the growth of plants is twice as great as in the central and northern sections, and moreover, a great number of plants are hardy here that will not thrive successfully north of Santa Barbara. The gardens favor the bright and winter-blooming plants, making this part of the coast particularly attractive to the winter tourist. From December to March the flora is in strong contrast to that of the central and northern sections, which is more dormant and much of it deciduous. The traveller who moves in April to central and northern California, and enjoys thereby a lengthened season of springtime and flowers till June first, may retain the impression that all of California has been in bloom.

The possibility of color schemes for the garden is far greater in southern California than elsewhere in the state, for the everbloomers are helped out by the winter-bloomers, followed in turn by the summer-bloomers. Gardening is fast becoming of general interest in this section, and with its very great possibilities it is right and necessary that it should be so. It is, in fact, just in its infancy in this southwestern land.

Material for Color Schemes

In YELLOWS the material is abundant. We have the Grevillea robusta tree with large sprays of orange blooms; the many Acacias in flower from December to April in shades of canary yellow; the trumpet vine, Bignonia venusta, aflame from November to February, festoons itself from porchtop to treetop and over walls and pergolas. Jasminum primulinum with its vivid lemon yellow blossoms brightens the early winter; Bignonia Tweediana, clinging to chimney, eaves, and steeple is golden for two weeks in the spring; the shrub Streptosolen Jamesonii, flowers from February to May, in shades of rich orange; the Lantana taking its place from May till December. Cotoneaster angustifolia, with its wealth of fine orange berries, and the orange-berried evergreen Thorn (Crataegus Lalandii), both last for months. For border and ground cover plants there are the orange and yellow Gazanias; California Poppies; Dimorphotheca aurantiaca and its hybrids, and the Mesembryanthemum auranticum which is an exceptional color plant for the winter months. Calendulas, Marigolds, and Nasturtiums will thrive by the acre in any waste corner and on every sloping hillside.

In BLUES, there is Jacaranda mimosaefolia, a tree that in late spring and early summer is like a huge cloud settling in

the garden; Heliotrope of various shades from light to dark; Solanum Rantonnetti of a rich deep blue, a vining shrub always on dress parade if you are not too generous with water; the free-blooming light blue Plumbago, best in a wild mass over shed, embankment, or porch top, and the various Wistarias in full flower during February and March. Hardenbergia Comptoniana, a rare and pretty vine, throws out from January to May its sprays of small, violet, pea-like blooms. The perennial Statice in the new hybrid types, evergreen and almost ever-blooming in shades of violet with flower stems one to three feet long, make splendid bunches of color. This, together with the annual varieties, is the popular "immortelle" that is being sent out from California. The dainty Australian Bluebell (Sollya heterophylla), is excellent for the pergola column or even for a ground cover or division fence. The Ageratums, blue Agathea, and Violets for borders and beds, Convolvulus mauriticanus for an ever-blooming ground cover in shade or sun; Forget-me-nots for the shade, and Sweet Lavender, Mignonette, and purple Verbenas are all satisfactory winter bloomers.

THE PRIDE OF THE NATIVE TREES

More beautiful than any exotic the Live Oaks of California find a fitting place about the garden and house, in their maturity carrying a satisfying sense of completeness. Home of Mr. Carey Cook, San Rafael, on the northwest shore of San Francisco Bay

In REDS—the blazing Poinsettia, almost a tree, gorgeous from late November to January and bare from February to April, needs a foreground or screen of some evergreen shrub, such as the polished-leaf Coprosma or the brilliant-blossomed Callistemon (Bottlebrush, as it is commonly called.) The Showy Hibiscus, almost a small tree, double and single, in several shades of red, is effective until February. The flame-red flowers of Tecoma capensis clustered amid its rich green foliage adds a brilliant touch to the winter garden. The much beloved Pepper tree (Schinus molle), from Chile, with its very graceful foliage and bright red berries, grows better inland, about Los Angeles and vicinity, than near the coast or north of San Francisco.

Bougainvillea lateritia with its masses of terra-cotta colored blooms is one of the choicest winter bloomers. Bougainvillea glabra Braziliensis (best of all the purple varieties) must be very carefully placed to be tolerated in any garden. It is good with the blue Plumbago on some roof top or over a white cement garage, or trained into a high evergreen tree. The superior shrub, Grevillea Thelemanniana, with feather-like foliage and tasseled coral blooms, always in perfect condition, is the feasting board for the humming bird and the bee.

MONTEREY CYPRESS AS A HEDGE

A somewhat exceptional use of this splendid evergreen in Pacific Coast gardens. An individual tree of the same is seen beyond the hedge and Pampas grass to the right of the bird bath. Garden of Mr. Albert C. Hooper, Palo Alto, Cal.

That generous shrub, Cotoneaster pannosa, laden with strawberry-red berries in sprays and garlands from one to six feet long; Cotoneasters microphylla and horizontalis, abundantly bedecked with bead-like coral fruits for almost the entire year, are strong-growing, prostrate shrubs of great merit for embankments and walls. The red-berry Hawthorn (Crataegus cuneata) is a superior plant for large places, and the attractive Nandina domestica is desirable for every garden. Geraniums in various reds and the perennial Pentstemon and Gaillardias are all fine bloomers. A new successful border shrub is a dwarf, everblooming Pomegranate, a U.S. Government introduction. Of free-flowering habit it is practically an evergreen in the southern section, and can be kept trimmed to one or two feet.

Only a few Aloes are in cultivation, A. ciliaris, a climber for bedecking walls, trunks of trees, etc., and the large-growing and smaller border varieties. All are winter bloomers of flame and terra cotta shades. They are plants needing the least care imaginable, and deserve to be more generally cultivated in California. The ten-page list of Aloes and Mesembryanthemums in the catalogue of the Hanbury Gardens at La Mortola Ventimiglia, Italy, points the way.

In PINK—the Eucalyptus sideroxylon with a choice bloom from January to March; the Queen of Sheba Tecoma one of the most graceful vines in cultivation, an extravagant grower and bloomer in midwinter; Tecoma Mackenii, very similar, but a summer bloomer. The Ivy Geraniums of several shades are general favorites for window and porch boxes, sloping banks and division fences. Bush Geraniums for shade or sun in delicate shades of pink are very desirable. Saxafraga crassifolia gives good foliage and plenty of fine spikes all winter, and is excellent for broad borders and rockeries. Malacoides Primroses in sun or shade make masses of dainty flowers from December till April. The Mexican Daisy is always abloom, spreading by seed and runners. The free blooming and flat growing pink Oxalis purpurea makes a fine border or ground cover. The new pink Freesia is a valuable acquisition for the shady beds; and Verbenas are always satisfactory.

In WHITES—the Eucalyptus in its many species is the best winter and spring blooming tree. Bauhinia candida, with its bird-like blossom, is rare but of easy cultivation. Pittosporum undulatum is a large shrub, with creamy flower bells and very fragrant orange colored seed pods. Pittosporum tobira blooms resemble a Daphne cluster and are just as fragrant. Genista monosperma, the Bridal-veil Genista, is distinguished for its beauty and perfume. Sturdy Viburnums are generous winter bloomers, but do far better in the central section than in the southern; they need coolness and moisture. Hardenbergia or Kanadia shrubs are excellent, and the Swainsona flourishes from San Francisco to San Diego in the wind and westward exposure. Two Jasmines, catalonica and nitidum, bloom throughout the year. Solanum jasminoides is a continuous garland of flowers and its rapid growth makes it a general favorite. White Wistarias make a tremendous growth and are very free bloomers when well established, and the Guatemala vining Syringa is a treasure for the gardens of all California, practically an ever-bloomer that will climb to the housetop. Marguerite-shrubs, Callas, Stock, Candytuft, Paper-white Narcissus, Freesias, the generous white Oxalis, Watsonias, Sweet Alyssum, Snowflakes, and Ornithogalums are all of easy culture and free bloom.

TEA Roses, both bush and climbing, bloom continuously from March fifteenth until December. In January the pruning must be done, and at once the new growth starts, until by March first they are laden with buds that by April are a wealth of color and beauty. Skilful pruning at different times makes it possible to have some bloom from Roses during the entire year.

There is a tremendous value in the evergreen vines grown for their foliage effect only. Vitis capensis, V. rhombifolia, V. hypoglauca, the latter quite rare, are evergreen Grapes; capensis has artistic stems and decorative fruit ripening in the winter and is suitably planted on all heavy cement walls and pergolas; rhombifolia has wonderful endurance and much merit as a wall, trellis, or ground cover. Ficus repens and pumila are two evergreen clinging vines very charming on cement or brick walls, and chimneys; and although rather slow in starting, they finally cover every bit of available surface. Architects would find them friendly covers for rough and cheaply finished concrete structures.

All the Narcissus have bloomed and faded by April fifteenth, and the Spanish Iris, Ranunculus, and Anemones come in great profusion during March and early April.

San Francisco, and its environs, is a paradise for the Fuchsias. In coolness, fog, and wind they flourish and grow to be veritable trees; all the coast gardens can grow them with success.

Many Begonias are good winter bloomers, but they develop best beneath the shelter and shade of lathwork. The lathhouse is an attractive summer feature of the gardens of the southern section. The climate of San Diego in particular has

WHERE PALMS ARE USED SUCCESSFULLY IN GARDEN GROUPINGS

Palm planting in southern California opens up new opportunities for the designer and strikes a note quite unlike anything seen in the East. Blue Fan Palm (Erythea armata) in bloom occupies the centre. Cocos plumosa on the left; Chamaerops excelsa in front, as to line is twelve feet away from it. The border of Petunias has a very familiar look to any one. The garden of Dr. M. O. Terry, Coronado

NOT IN THE DESERT BUT IN THE GARDEN SPOT OF OAKLAND

Cactus, and Agaves, and such like plants which suggest the desert, may in the hands of a skillful planter be used to great advantage, but they needs must be used alone

proven especially adapted to the needs of Begonias and the largest collection of varieties in the state is now growing there.

Dasylirions, Dracaenas, Yuccas, Agaves, Crassulas, giant Echeverias, and Sedums, also flourish best in the southern section where they fit readily into the natural landscape.

Bamboos in variety add a distinct tropical accent to the lower coast zone. Dendrocalamus latiflorus is the most popular of the Giant Bamboos, and attains to a height of fifty feet in a few years. There is a Bamboo collection, unusually fine for the central section, at Golden Gate Park, San Francisco.

Palm planting, though little favored by the Eastern landscape architect, is prevalent in the southern section and should be more carefully studied. Proper group planting has great possibilities. The choicest Palms now grown are Cocos plumosa and australis, Kentias Forsteriana and Belmoreana; Phoenix rupicola, canariensis, reclinata and Roebelini; Erytheas armata, Edulis and Brandegei, native Fan-palms of Lower California and its islands. The armata is a beautiful blue-gray and when in bloom has a regal and striking beauty

Many fine exotic evergreens and summer blooming trees—Italian Cypress and Irish Yews, vines, shrubs, perennials, and annuals, decorative plants, bulbs, etc.—are used in addition to those already enumerated, and each plays its special part in planting schemes, whether deciduous or evergreen.

GARDEN INFLUENCE IN THE FILM DRAMA

GRACE TABOR

Richness and Diversity of Garden Material a Background for Various Sets Representing Remote Quarters of the World Draws a Great Industry to California and Simplifies the Problem of the Producer

IT IS no exaggeration to say that nowhere else in the Western Hemisphere is there a "location" for the great motion picture industry comparable in any degree to California, which undoubtedly accounts for the fact that, though the first motion picture company went to Los Angeles and there began work in a studio only twelve years ago, fully two thirds—possibly very much more—of the motion pictures made in this country to-day are made in California. "Location" from the film man's viewpoint embraces everything that on the mechanical side makes for efficient and successful picturization, as well as the requisite scenic features.

The clarity of the Californian atmosphere renders camera operation out of doors possible, practically daily, the year around. Thirty miles east of San Francisco for instance, where the Essanay is located, fog from the east does not reach on an average of more than twelve days during the year. And from each of the great companies clustered around Los Angeles, as well as those tucked away here and there in less gregarious fashion, the same day in and day out regularity of work is reported. So quite apart from its other advantages to this great modern industry, the climate of California would necessarily draw those engaged in it.

But if its atmosphere is benign, what words shall express its claims to scenic distinction? Truly, it appears that there are none, for the mere mention of these reduces to incoherence the men engaged in production. They can only babble of mountains capped with snow; desert plains; valleys deep and flowery, and others equally deep and stern and sterile; gardens of semi-tropical luxuriance and superlative beauty; trees of every kind from Pine and Cedar to Palm and Eucalyptus; pastoral groves and dells; rugged and cruel coastlines—"*and* the ocean!" After which breathless finish they begin again, emphasizing the immediate proximity of each of these diverse features to all the rest. A few hours motor ride will transport an entire outfit from any one to any other one.

This indeed is California's peculiar good fortune, that its wondrous diversities are all within a day's journey, practically. Hence a company of players with its directors, and operators, and group of general retainers, may settle down and make their homes—and their gardens!

Thus the player at last becomes sedentary instead of nomadic, and enjoys the privileges of his home throughout the year instead of briefly during the few idle months which the spoken drama observes. And this has brought into existence many of the lovely gardens which are becoming more and more a feature of California life. For no one is quicker to appreciate the qualities of a garden than the actor, nor more determined and enthusiastic in acquiring one—nor more habitual in the use of it, which is the final test of both garden and gardener.

Five years ago it was estimated that the players engaged in film interpretation in the state owned more than one million dollars worth of houses and gardens in California. What the increase over this figure may have been since then I am unable to say; but there is no question as to the really great sums invested by them in this greatest of all investments—the individual

MAGDA LANE AT HOME

Among her Pansies, Roses, and Heliotrope at Hollywood, California

A GARDEN OF JAPANESQUE TYPE MUCH FAVORED ON THE WEST COAST

Whose quietude and quaintness offer the owner, Madge Kennedy, a refuge for leisure hours many of which are spent here reading and writing. It is situated conveniently near the Goldwyn Studios (Culver City, California)

NOT AFRICA BUT CALIFORNIA!

A cleverly created tropical scene not far distant from Universal City on a natural stage where the chief features are already set

home! From the ranch of a star like Mr. Harry Carey of the Universal (located in San Francisquito Canyon an hour's ride from the strange and interesting Universal City), where droves of splendid cattle range and life is truly "Western," to the picturesque little flower-smothered bungalow of the less spectacular but very necessary electrician, property man, or wardrobe seamstress, these abodes run the gamut of home making possibilities; and each contributes that indefinable something of citizenship which only proprietary interest develops in man or woman.

From all of this it would appear that we may look with ever growing anticipation to California for architectural and landscape accomplishment. For to dwell and to work out in the open in the midst of surroundings naturally beautiful and poetic, that are manipulated to express the finest of both these arts, must assuredly heighten and refine the perceptions and further the creation of beauty of every kind.

The educational opportunity of the film folk in the matter of gardens is unlimited. Their "sets" put them in intimate contact with vivid bits of all the known world; the vegetation of Australia, of India, of Brazil, of Japan, become part of their daily living. Familiarity with such a wide range of horticultural material and California's hospitality to nearly all forms of plant life afford unprecedented gardening opportunities, which the "stars" and lesser "movie" lights have been quick to take advantage of, as their many gardens testify. Possibly with such varied material out of which to build and such exceptional natural conditions, they may substantially aid in the development of a really distinctive type of American garden.

JACK PERRIN PLAYING AT HOME

Gardening is a favorite recreation among actor folk who find its restful activities an anodyne for taut nerves

A CORNER OF THE GOLDWYN STUDIOS

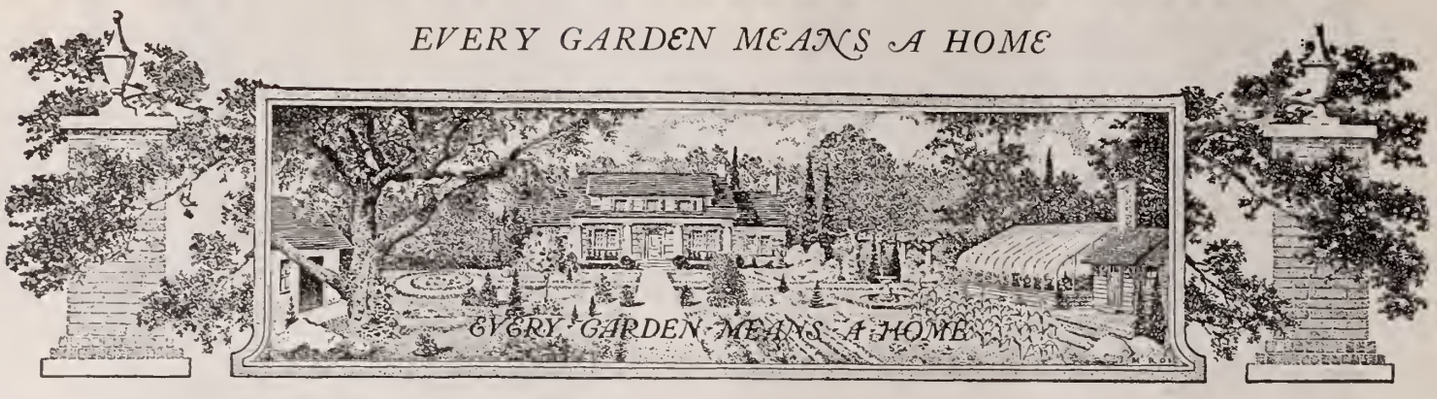
To which the Monterey Cypress lends distinction. Its sharply accented upright growth contrasts interestingly with the diffused, feathery airiness of adjacent Acacias. The color range, from the light grey-green of carnation foliage through the medium tones of Iris and Ivy to the deep note of Cypress green, is another attractive feature of this wall-girdled garden (Culver City, California)

AN EXCITING MOMENT IN "THE ADORABLE SAVAGE"

Staged amid stately Callas (Richardia or more properly, Zantedeschia aethiopica), which seem to have accepted their new condition and to flourish as cheerfully in California as of old in South Africa

AMONG OUR GARDEN NEIGHBORS

EVERY GARDEN MEANS A HOME



THIS number of The Garden Magazine concerns itself with Californian gardening. Two things are attempted. One, an interpretation for the Eastern visitor and the winter resident who has perhaps a home on each side of the continent; and the other, a survey of the Californian's garden year, with a summary of the available material that may be best utilized in making the garden. The California garden teaches the observer one definite lesson in a very decided manner—and one that it is hard to learn—namely that equal effects cannot be produced by identical materials in quite different climates.

The first attempts at gardening were made by the missions of southern California and the south European influence is marked. But, as the Easterner, saturated with more Northern types of garden, came into closer contact with the Californian region, he brought with him the desire of expression in terms of the East. The result was something of a shock, for the climatic conditions were not identical, and, to use a familiar solecism, the materials transported from the Eastern garden "ran away" from him. There was indeed "too much of a good thing" and the result was an extravagance of vegetation that overpowered the garden itself. When, on the contrary, the gardener turned to the desert-like plants and others of a more or less tropical type, yet handled in the same way as the other class of material, the results were freakish, the garden became a museum of curiosities with no element of the repose so essential to it. In brief, the California garden suffered from an embarrassment of riches. Its abundant native material had been added to by plants introduced from other regions; many of these, such as the Eucalyptus and the Acacias from Australia, requiring little acclimatization, stepped into immediate favoritism.

The Californian climate is horticulturally a thing apart from that of any other part of the United States.

Neither latitude nor longitude are the deciding factors in plant adaptations, which depend primarily upon "equal annual range of temperature." Meteorological observations show that this range is practically the same for Western Europe and the Western slope of North America, and a like similarity exists between the Eastern United States and Western China. Thus it happens that little of the native material of the Pacific Coast is available material for the gardens of the East, although much of it has been introduced, particularly through the agency of Douglas, the collector for the Royal Horticultural Society of England, into European gardens and thrives there. The European gardener visiting California finds himself among old friends but the Eastern American who has not familiarized himself with the general run of plant material of European gardens and greenhouses finds himself surrounded by strange and unfamiliar sights. Once this general law in the matter of temperature range was appreciated, the Californian garden began to acquire its own character, and to-day it expresses the basic principles of garden art in exactly the same way as do the older gardens elsewhere.

The articles in this issue dealing specifically with the Californian garden have been specially prepared for this issue by writers of unquestioned authority and ability, and, taken in their entirety, represent the up-to-the-minute information that is not available elsewhere in any written form, and will, we believe, be found valuable as reference material of an unusual nature.

THE letter from Mr. Ernest H. Wilson printed in this issue very plainly intimates that the centre of gardening activities so long settled in England may shift to this country. Indeed, it would seem that in the natural course of events this should be so because of the unparalleled range of opportunity offered by such diverse climates and conditions as obtain in our East and West, and North and South.

It is observed that the outdoor garden is supplanting the under glass collections of exotics on the big estates of England, a phase in which American gardening has progressed instinctively to its present status. When in addition one considers the climatic advantages of the West for the cultivation of so much that is greenhouse material elsewhere there surely can be little doubt of the ultimate glory of gardening among us as a fine recreation for everybody.

THE January Garden Magazine is to be a "planning manual," an aid to the gardener in laying out his scheme of operations for the active year ahead. In subsequent issues this will be supplemented with explicit instructions for the making of flower borders and vegetable plots, large and small; shrubbery planting and other matters of concern to the intelligent gardener; as well as information about the most up-to-date tools, appliances, and accessories of various sorts.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

Possibility of Growing Bulbs from Seed

To the Editor of The Garden Magazine:

IN The Garden Magazine for August, Mrs. R. W. Walters tells of raising Scilla sibirica from seed. I have had them come up from self-sown seed in my own garden. It is an easy bulb to increase. It may interest gardeners now forced to raise plants they were once able to buy to learn where they can obtain seed of bulbs as such seed is not generally offered. I am giving what information I have obtained from a pretty general search of the catalogues at hand in hope others may add to my limited knowledge. Luther Burbank, Santa Rosa, California, has listed Scilla hybrids. I bought of him in 1919. In the 1920 catalogue he gives a list of nine kinds of bulb seeds he can furnish; many are of bulbs not hardy in the East. Frederick H. Horsford of Charlotte, Vermont, offers seed of Lilium tenuifolium and of Iris si-

birica. Seed of Japanese Iris and of Gladiolus are readily obtained as many dealers furnish them. The Japanese Iris is especially interesting to raise as it varies greatly and one has an exciting time when the young plants first bloom. If the bumble-bees have been sufficiently active no two may be alike.—A. H. Botsford, *Edgemoor, Del.*

Bellflowers as True Shade Plants

To the Editor of The Garden Magazine:

I SHOULD like to add my observations upon the perennial Bellflowers to those of E. Herrick recently given in the Garden Magazine. I also find them true shade plants. Very few of the plants so advertised will come up to mark in the shade. The most important species I should consider Campanula Medium, C. carpatica, C. lactiflora, C. persicifolia. The first being a biennial is an infernal nuisance. Besides like many of the family, it frequently sulks over till the third year. Persicifolia and pyramidalis must be started early from seed if you hope them to bloom the second year. Pyramidalis is not dependable in the garden and generally dies out after blooming. English gardeners propagate it by root cuttings, but I'm willing to concede a great deal to climate. Persicifolia blooms magnificently in the first blooming. (I dislike all the double varieties, but that is a matter of predilection.) The second blooming is interspersed with dead flowers and seed pods and I prefer to cut the stalks to the base. It will then send up a few spindling stalks and resemble a second rate carpatica. The clumps spread rapidly and run out if not transplanted—which they resent. Lactiflora has the large fleshy roots of a Platycodon, and comes up in the same way, rather late in the spring. It is the most persistent bloomer. I consider it practicable. Its color runs from deep blue up through the paler shades of blue and lavender almost to white. You must sow the seeds under glass as the newly germinated seedlings are fairly microscopic, but they grow rapidly, and for all I can see the roots get larger and more prolific from year to year. Carpatica is the most practicable Bellflower, glomerata is too purple, so is latifolia macrantha. The latter is a plant that requires no attention beyond cutting off the large seed pods. Alliariaefolia is quite ugly. Trachelium an ugly shade and insignificant in aspect. The same will do for Grosseki. Both will survive persistent efforts to eradicate. Other species have left no impression on my memory. Allied to the Campanulas is a rare Bellflower, the so-called common Platycodon. Of course nearly everybody has this and naturally assumes that his enthusiast neighbor has it too. But no; the enthusiast neighbor has dug it over in the spring! For Platycodon is one of the last plants to come up. It ties with a sort of little white Bellflower, Nierembergia rivularis, but is not so late as Eupatorium coelestinum. Platycodon also begins to bloom immediately—and is often rewarded for these immature efforts by being thrown out. In fact it really doesn't amount to anything for at least three years and doesn't acquire its full stature for about eight or ten.—Julian Hinckley, *Long Island, N. Y.*

Bees in Relation to Good Crops

To the Editor of The Garden Magazine:

THE Pennsylvania Department of Agriculture has issued a call for the greater protection of the bumble-bee, alleging that the wanton destruction of our bumble-bees' nests has caused a genuine and serious economic loss. In addition to the destruction of nests and bees unnecessarily, this season's weather conditions have been very unfavorable for the propagation of these highly beneficial insects. As a result it is predicted that the crop of Red Clover seed to be gathered in Pennsylvania will be the smallest garnered in a decade. The writer remembers when carloads of the choicest grades of Red Clover seed were purchased from farmers in eastern Pennsylvania by local dealers who in turn shipped the seed to New York and Philadelphia exporters, to supply the farmers in countries across the sea. Clover seed then sold at 8 to 12 cents a pound—ridiculously low figures as compared with the present.

State and county horticultual exhibitions furnish frequent examples of the value of the bumble-bee and common honey-bee as aids in producing successful fruit crops. At a recent county fair, where hundreds of entries made the competition between grape growers keen, practically all the leading prizes were awarded to one grape grower. The bunches of grapes displayed by him were remarkable for their size, color, and uniformity. After the awards had been announced and the winning plates and varieties properly placarded by the judge, the champion prize-winner explained that his success was largely due to the fact that he kept bees in his vineyard to the mutual benefit of all concerned. The thorough pollination of the blossoms through the medium of the bee and the consequent increase in honey production resulted in financial gain from two sources. He advised any one having a dozen or more bearing grape vines to establish a colony of bees near them, or if the grower did not desire to keep bees, he would do well to have if possible a neighboring apiarist install a colony in the vineyard, through the blossoming and fruiting period, and pay him for the trouble of moving the bees to and from the vineyard. The grape grower's profits can be doubled by this comparatively simple expedient. —Oliver D. Schock, *Harrisburg, Pa*

American Rose Society

A NEW Rose, Eugenia, is registered by H. S. Collier, Seattle, Washington. It is a Pernetiana, sport from Madame Edward Herriot, described as "similar to the parent in all respects except that the flowers are flecked or striped with yellow."

A WOODLAND PATH WINDING THROUGH A CITY GARDEN

This remarkable bit of planting is convincingly delusive. Mrs. John S. Wood has created a little fairy-land of her own in the heart of Alameda (California) in which the Australian Fern-Tree (Alsophila Australis) and the Tuberous-rooted Begonia each play a friendly part

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of the THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in a *normal season* is taken as standard; but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

DECEMBER—THE MONTH OF FORESIGHT

SO LONG as the ground remains open continue deciduous planting. If large trees are to be moved with a frozen ball of earth, cover the ground about the trees (as far as the spread of the branches), with straw, or manure, to prevent the ground freezing so hard as to make the work of digging laborious. Moving trees with a frozen ball is a convenient, practical, and inexpensive method of handling a limited number of trees for short distances. Clean up and burn all refuse and rubbish, except the fallen leaves.

Pruning and Spraying

Spray now while the trees are dormant, and when there is time, and when strong solutions can be used.

Whenever possible proceed with pruning. It is not a good practice to prune branches from trees or shrubs when the mercury is hovering around zero; nor to spray when the solution will freeze as it is applied. Preserve the sky line values in your belt plantations where topping back is necessary.

It is all very well to thin out crowded and crossing branches in a fruit tree, but it is not intelligent pruning when the same rule is applied to a plantation of shrubbery containing plants with highly colored bark, the purpose of which was to create winter effects. Straight-line pruning is not an infrequent error made by even experienced pruners.

Cut back the garden types of Roses (Teas, Hybrid-teas, and Hybrid-perpetuals), when they are being protected for the winter. Long canes swayed and whipped about by the wind during the winter will loosen the plants in the soil. Cut back two thirds of the length.

With an up-to-date sprayer, and concentrated lime-sulphur solution, scalecide, miscible oils, kerosene emulsion (all of which are to be had as commercial preparations, are reliable, and are ready for use by merely adding so many parts of water). Choose a quiet day, and keep on the windward side of the spray.

Vegetables

If you have your patch of Lettuce round which you have built a frame, and covered it with sash, give further protection by banking leaves and manure round the sides. Mats, boards, and leaves should also be placed over the sash.

Celery stored in trenches outdoors and protected with a mulch will be safe from early frosts, but with the approach of more severe weather should be removed to the cellar. One convenient way to handle is to place an inch or two of sand in boxes of convenient size, (about as deep as the Celery is tall) and transfer the Celery to these, after giving the sand a good watering.

Trenching and Draining

Those sections of the garden that could not be cleared in time for cover crops to be sown, can be benefited by trenching, if the ground remains open. If manure is available first put on a liberal application. Dig as thoroughly as possible two spits deep. Start along one side of the plot, throwing the soil out. Spade up the bottom, turning it where it falls, and on top of this after you have put the manure and mixed it in, turn the top soil from the next strip—and so on.

If crops are backward in spring, and the ground wet and soggy it is safe to assume that draining is needed. This work can be done any time from now until the ground is frozen too hard to dig.

Forcing

Start forcing in earnest this month. Among the first things to be started are the early Grapes, and early Peaches (pot trees respond easier to early forcing than do those planted in the borders, hence should be started first). If the two are started together, the pot trees will give ripe fruit ten days in advance.

It is not really necessary to have a greenhouse for dark forcing which may begin toward the end of the month; but is usually best accomplished under the greenhouse bench, as a part of the regular routine. Rhubarb, Asparagus, Mushrooms, Endive, and Sea-kale, are all forced in about the same way: the dormant roots (with the exception of Mushrooms, which are planted by spawn), being planted in a prepared bed, which is darkened by a screen of burlap or boards. If you have no greenhouse, utilize the cellar or a hot bed.

An early batch of Strawberries can also be started with the Grapes and Peaches if shelves can be provided for them.

Tomatoes under glass need attention to set fruit. Tap the vines a couple of times during the day to cause the pollen to fly, and in very dark, dull weather it may be necessary to recourse to hand pollination.

In the Greenhouse

Start Melons. Fruit from plants started at this time will be of better flavor than that which is ripened from the new year up to the middle of April. Sow winter varieties like His Eminence and Hero of Lockinge.

Roman Hyacinths may be flowered by Christmas if they are well rooted and have made two inches of growth by the beginning of the month.

Stake as occasion requires tall plants such as Antirrhinum, Lilies, etc. Short stuff such as Freesias, can be supported by a few twigs in the pots or boxes. String beans may be supported in the same manner.

Amaryllis wanted early may be started at this time. It is not good practice to repot these plants too frequently. The best method of handling is to remove a couple of inches of the old surface soil from the pots, and replace each year with a good rich mixture.

Keep Chrysanthemum stock plants cool so they will throw out strong sturdy cuttings.

Be careful with Sweet-peas at this season, avoiding direct draughts, and a close stuffy atmosphere during dull weather. Do not overwater; Sweet-peas require lots of water when outdoors in spring, but not indoors in winter. Make another sowing for April flowering.

Orchids need less overhead spraying now, but guard against dry arid conditions with increased fire heat, as the depth of winter approaches.

Bouvardia Humboldtii that has finished flowering may be cut down. Place plants in deep flats, and set under a carnation house bench to remain dormant until April.

Propagate Carnations. Firing will be fairly steady from now on, and an even degree of bottom heat can be maintained.

Sow seeds of Vinca alba and rosea in heat to get to flowering size before planting out time.

Flowers for Christmas

Flowers for Christmas, such as Lilies, Poinsettias, Azaleas, Roses, Carnations, etc., may be hurried along for the holiday by a slight increase in temperature. Be careful not to over do it however, especially with the permanent fixtures like Roses, and Carnations.

Bulbs for late indoor forcing may still be planted, and set away to make a mass of roots before being placed in heat.

HENRY GIBSON, Pennsylvania.

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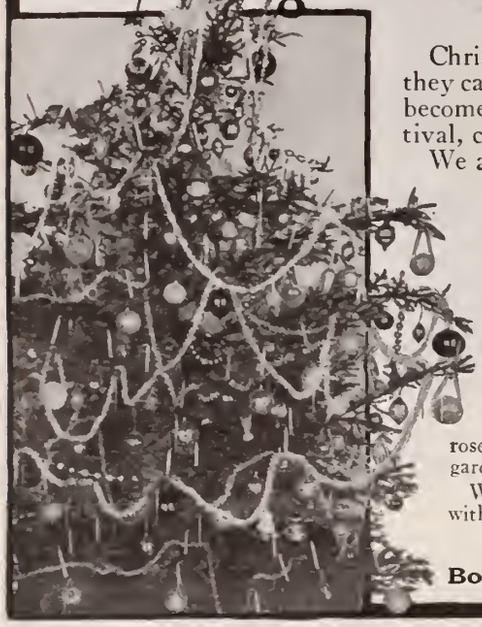

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GIVES ENDURING CHARM

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GROWING HYACINTHS INDOORS

HYACINTHS are perhaps the most beautiful flowers you can grow indoors for winter blossoms. The large Hyacinth bulbs cost more than other bulbs, but they are worth it. If you cannot buy them of a local florist, send for the bulb catalogues of the firms whose advertisements you will find in the magazines and newspapers. Then select such varieties as these:

Gertrude, rose color; Gigantea, blush pink; Moreno, bright pink; L'Innocence, white; Grand Maitre, lavender blue; Daylight, primrose yellow.

Order the single rather than the double flowered varieties. They are more satisfactory for use indoors. The cost of these bulbs depends upon their size. The larger the bulb the better the flower spike. In choosing them select those which are firm when pinched between thumb and finger and which show a healthy bud at the top. All you need to do to give this bud a chance to grow is to give it water and air and a temperature which at first is cool but not freezing. So it happens that you can grow Hyacinths in water, in soil, or in fibre.

In water.—There is a peculiar interest in growing Hyacinths in Hyacinth glasses. To see the long white roots projecting downward to the bottom of the glass gives one a better idea of the plant's growth than to just imagine them hidden in the soil. The cleanliness of the method is also in its favor; there is no dirt and no drip. The little water garden can be placed on a polished table or shelf with no danger of injuring the surface.

Two forms of these Hyacinth glasses are in general use: One, the Belgian, is tall with straight sides; the other, the Tye, is broad with rounded sides.

The use of the glass is very simple. Select a large, firm Hyacinth bulb; fill the glass with clear water; set the bulb in the top of the glass and then place in the cellar or in a dark, cool place where there is no danger of freezing. Leave the bulbs there until the long roots fill the glass and the crown of leaves has broken apart. This is important. If taken out too soon, failure is likely to result. Then bring to a light, cool room and watch the growth of leaves and flowers.

In garden soil.—To grow Hyacinths in garden soil select a flowerpot of somewhat larger diameter than the bulb. Fill it with soil to within two inches of the top. Set the bulb on the soil and fill in around it. Water thoroughly and place on the cellar floor or a shelf. Throw over it a piece of burlap or old carpet and leave it for six or eight weeks while the roots develop and the crown breaks apart. Water it once a week or so, as needed. Then bring it to a cool, light room, where it will soon send up leaves and flowers.

In fibre.—The special advantage of growing Hyacinths in the prepared fibre now offered for sale by most seed houses is that you can have the flowers in attractive, water-tight, flower jars that can be set on the dining table or mantel without injury to the surface.

Fill the receptacle nearly full of fibre, put the bulb in, and fill around it with more fibre. Then saturate the fibre with water and set away in a cool, dark place for six or eight weeks. When the crown breaks apart bring to the light of the living room.

DAHLIAS FREE
Three new Peony-Flowered Dahlias that sell at $1.00 each.

Ninigret, rich dark red, clouded and striped lighter. **Powhatan,** dark crushed strawberry, a flower of very beautiful shading, free bloomer. **Frances Lane,** light lavender red; this flower is wonderfully shaded and is difficult to describe.

A strong root of each of these three grand Dahlias and a year's membership to the American Dahlia Society, annual dues, $2.00, which includes the interesting quarterly bulletin, giving Dahlia culture and Dahlia news of the world. Also a season ticket to the Society's Great Dahlia Show, all for the regular annual dues for 1921, $2.00, with 50 cents extra, total $2.50 to cover cost of packing, postage, etc.

Order at once. Roots will be sent in time for planting in the spring. This offer may not appear again. Address

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Doubleday, Page & Company, Garden City, New York

STATEMENT OF THE OWNERSHIP, MANAGEMENT, Etc., OF THE GARDEN MAGAZINE, published in accordance with the Act of Congress of August 24, 1912; *Publishers*, Doubleday, Page & Co., Garden City, N. Y.; *Editor*, Leonard Barron, Garden City, N. Y.; *Owners*, Doubleday, Page & Co., Garden City, N. Y.

Stockholders holding 1 per cent. or more of total amount of stock on October 1, 1920. F. N. Doubleday, Garden City, N. Y.; H. S. Houston, Garden City, N. Y.; S. A. Everitt, Garden City, N. Y.; A. W. Page, Garden City, N. Y.; Russell Doubleday, Garden City, N. Y.; Nelson Doubleday, Garden City, N. Y.; W. F. Etherington, New York City; Alice A. DeGraff, Oyster Bay, N. Y.; Dorothy Doubleday Babcock, New York City; Florence VanWyck Doubleday, Oyster Bay, N. Y.: William J. Neal, New York City; Daniel W. Nye, Garden City, N. Y.; John J. Hessian, Garden City, N. Y.; E. French Strother, Garden City, N. Y.; W. Herbert Eaton, Garden City, N. Y.

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(*Signed*) DOUBLEDAY, PAGE & COMPANY
By S. A. Everitt, *Treasurer.*
Sworn to and subscribed before me this 1st day of October, 1920.
(*Signed*) Frank O'Sullivan, Notary Public
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Certificate filed in Nassau County
Commission expires March 30, 1922

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Rare shrubs, new plants, and variations of old favorites have to pass difficult competitive examinations before they're admitted to my collection.

That's why my catalogue contains such exceptional varieties; inferior sorts can't pass.

To be there, they must be **good.**

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Offers a wide choice of objects, from simple fern dishes and bud vases to impressive jardinieres and plant stands. Its predominating characteristic is refined elegance in designs and colors. A post card request will bring you the "Moss Aztec" catalogue and name of nearest dealer.

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Drawn by one horse and operated by one man, the TRIPLEX MOWER will mow more lawn in a day than the best motor mower ever made, cut it better and at a fraction of the cost.

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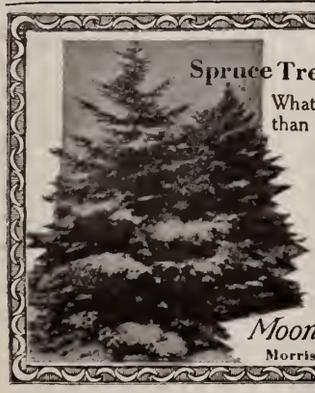

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Kunderd's New Ruffled Gladioli

Kunderd's catalogue for 1921 describes nearly four hundred varieties of these most beautiful flowers. Many of them are illustrated; eight are shown in their natural colors.

In the latter part of this book you will find the most complete cultural directions for Gladioli ever published. Altho this is the largest catalogue devoted to one kind of flower, all the varieties listed are of our own production; and many of them are only obtainable from us.

You would enjoy reading this book; send us your address for a free copy.

Address the originator of the Ruffled Gladioli

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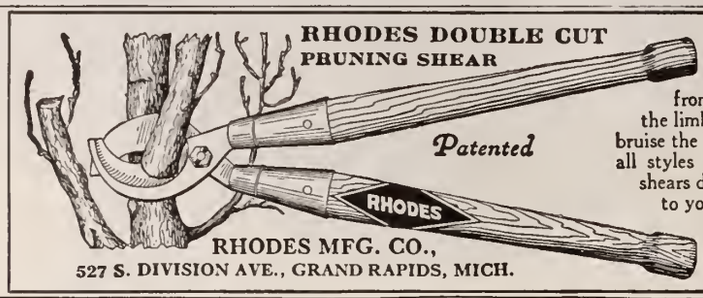

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Showing Installation of Underground Lawn Sprinklers on the lawn in front of the United States Capitol.

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for Plumbing, Heating, Lighting, Automatic Fire Sprinklers, Water Supply Systems
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THEY WHIRL IN THE WIND
giving all your clothes
full benefit of sun and air drying
Hanging out is easier—white, well dried clothes add satisfaction and when through, you can fold up the
HILL CHAMPION CLOTHES DRYER
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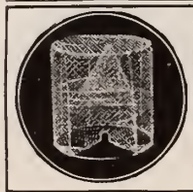

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Also other garden requisites
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Become a LANDSCAPE ARCHITECT
Prepare by mail for this uncrowded profession—
Inexpensive. Easy to master. Large income. Diploma awarded. Special proposition to HOME OWNERS and Plan for beautifying your property. Write to-day. L. W. Fisk, President.
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MR. C. E. BROOKS

Brooks' Appliance, the modern scientific invention, the wonderful new discovery that relieves rupture, will be sent on trial. No obnoxious springs or pads.
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Has automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No salves. No lies. Durable, cheap. Sent on trial to prove it. Protected by U. S. patents. Catalog and measure blanks mailed free. Send name and address today.
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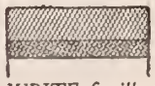
Portable Fencing System
Build enclosures of any size for chickens, rabbits and other pets, with BUFFALO PORTABLE FENCING. Keep them away from flowers. Permit rotation of yards.



The BUFFALO PORTABLE FENCING SYSTEM is light, strong and neat in appearance. Easy to put up and easy to shift. No heavy tools needed.
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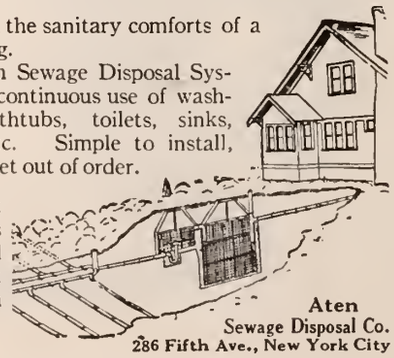
Secure all the sanitary comforts of a city building.
The Aten Sewage Disposal System allows continuous use of washstands, bathtubs, toilets, sinks, showers, etc. Simple to install, nothing to get out of order.



Our booklet No. 11 tells how and why. Sent free upon request.
Aten
Sewage Disposal Co.
286 Fifth Ave., New York City

NATIONAL ASSOCIATION OF GARDENERS

The following resolution was adopted by this Association at its convention held in St. Louis during September:

"On the Sign Board Nuisance

Whereas, it has become quite evident that if the Sign Board interests are permitted to continue unmolested they will soon succeed in the despoliation of the beauties of the natural scenery along our highways,

Therefore, be it resolved, that the National Association of Gardeners take the initiative to institute a country wide propaganda to arouse an indignant public sentiment against the sign board interests and certain national advertisers who are with unsightly sign boards defacing the landscape views along our highways, and

Be it further resolved, that the National Association of Gardeners invites all other organizations, interested in having the natural scenery along the country's highways protected and conserved, to coöperate with it in suppressing the sign board vandalism."

A movement of this sort should appeal to every citizen who appreciates the importance of beauty and the magnitude of its reaction upon national character.

PROTECTING THE EVERGREENS

THE past winter proved too much for most Hemlocks in exposed positions. Most evergreens are fibrous rooted, and have a greater amount of surface roots than other trees. This is particularly true of the more tender varieties. Constant freezing and thawing often causes injury to the roots, and the best protection is a heavy mulch of either leaves or manure. Tie together the stems of Hydrangeas, place a bottomless barrel over them and fill with soil. With Boxwoods, Rhododendrons, and other tender evergreens the case is different. They must be protected from sunscald. A plentyful supply of pine boughs makes the ideal protection, these placed among the plants protects them from the sun and wind, also from breakage by weighty snows. Failing the pine boughs, posts driven in the ground at intervals about the plants, and burlap stretched from post to post is very satisfactory. In the case of large specimen Boxwoods of considerable dimensions, it is better to cover them entirely with lumber, crate fashion, leaving an inch or so of space between each board to allow plenty of air circulation. The tops may be boarded tight.

Ofttimes evergreens are wrapped tightly in straw, but in the case of a mild winter a musty condition develops because of lack of air, and causes losses by damp rot.

Evergreens with spreading branches likely to be weighted down and broken by heavy snow falls should be tied in with stout cord so as to avoid damage.

Bay-trees, Hydrangeas, Oleander, and other decorative specimen plants in tubs should have proper winter protection. A cool greenhouse is the best place for the Bay-trees and Oleanders, and a cool, frost-proof cellar for the Hydrangeas.

Grand Central Headquarters for the Newest Creations and Special Selections in Seeds

The best or none

The earliest, sweetest and best flavored tomato in the world—the "Burbank"

A wonderful new sunflower—"Prolific White"

New field, pop, sweet and "Rainbow" Corn

New sweet Cucumbers

New hybrid Artichokes

"Quality" Asparagus

New, earliest, white, first-prize Wheat, 15% gluten

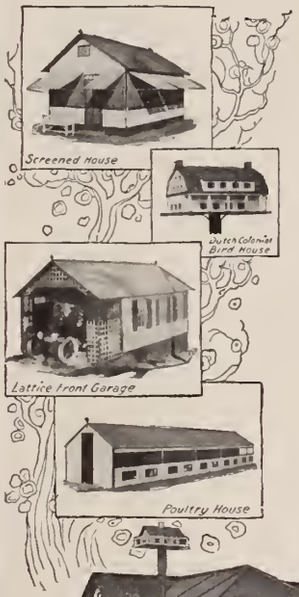
New and specially selected flowers, also rare new Gladiolus, Cannas, etc., etc.

All are grown on my Califorina farms under my own personal supervision. These seeds are not the common kind.

List your name now for January catalogue

LUTHER BURBANK, Santa Rosa, Calif.

HODGSON *Portable* HOUSES



Four-Square To The Wind

The coldest Winter need have no terrors for the owner of a Hodgson Portable House for Hodgson houses are weather-tight. They are built of seasoned red cedar with Oregon pine frames. The keenest winds may blow—but inside all will be warm and cozy. Windows and doors fit perfectly.

They come in sections—already painted—and it needs but a few hours before they are bolted in place and stand four-square to the winds—a veritable home. Beauty, convenience and permanence are the key-notes of Hodgson Portable Houses. Write today for our descriptive catalog.

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Room 228, 71-73 Federal St., Boston, Mass.
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Plan Your Vegetable Garden Early

And plan to make it a "banner crop" garden—one that will be the pride of your heart and the envy of your neighbors.

Let us help. Stark Seeds are always improved, selected strains of only the leading varieties. We will never handle anything other than the *best* of its class and season.

And Stark Seeds are fresh, virile seeds—grown in 1920—tested for germination and growing life. Each kind of seed offered is worthy of the Stark label and commendation. Therefore, every variety of Stark Seeds is a sure grower of good things to eat for your table—or for market use, if you wish.

STARK SEEDS

There is a supreme sort of satisfaction in growing only high quality vegetables.

Our 1921 CATALOG WILL INTEREST YOU—if you have an ambition for a better garden—finer grade vegetables—and larger crops. It is an entirely different kind of seed catalog. Written to help you—not merely sell seeds. As beautifully printed as Garden Magazine itself—showing all sorts of the most tempting vegetables and vegetable-fruits in Nature's own colors. *Flowers*, too—for home and garden beautifying. Upon inspecting it recently, one seedsman of years' experience, said:

Improved Strain Giant Ponderosa Tomato

Howling Mob Sugar Corn

White Tipped Scarlet Radish

Rocky Ford Cantaloupe

"The Most Inspiring Seed Catalog I Ever Saw!"

Get a copy of this catalog *at once*—so that you may go through its many interesting pages—and plan your *VEGETABLE AND FLOWER GARDEN* for 1921 *EARLY*. Just send the coupon—or

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Seeds and Fruit Trees

Nurseries at

Louisiana, Mo.

Since 1816

Send for 1921 Stark Seed Catalog

STARK BRO'S, Box 2, Louisiana, Mo.
Please send me a FREE copy of your 1921 Stark Seed Catalog at once.
☐ If you also wish a copy of "Stark Bro's Prize Fruits and Trees" Catalog and "Gateway to Landscape Beauty" Brochure, make an X in square at left.

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THE COUNTRY LIFE PRESS, GARDEN CITY, NEW YORK

Annual Planning Manual

GARDEN MAGAZINE

JAN. 1921
PRICE 25cts.

Doubleday, Page & Company, Garden City, New York

First Time in All History!

23 States Report 2-Year-Old Trees Bearing!

Here we have proofs that these STARK'S GOLDEN DELICIOUS trees bore fruit on 2-year-old trees in 23 different states.

Not in a few isolated instances. But in Va., N. J., Calif., Ark., Dist. Columbia, La., Wis., Ore., Penn., Tenn., Tex., Ia., N. Y., Md., Conn., Mass., Mich., Mo., N. Mex., N. Car., Wash., Ohio and W. Va.

Not little crops of little apples—but good crops of good-size apples. This magnificent, late-keeping, highest-quality yellow apple will bring top prices on all the markets, along with the famous Stark Delicious, King of all Red Apples.

Stark's Golden Delicious Natural Color

Exact Size

Read What Golden Delicious Growers Say!

Read the excerpts from letters from N. J., Wis., Ill., Calif., N. Y., Va., and Ind., printed under photos. Then, listen to *these* letters—

From Louisiana — A. Fromberg, Hygeia, La., writes: "This year my Stark Golden Delicious tree, bought 2 years ago, bore 3 apples, despite weather and beetles were very bad."

From Connecticut— S. P. Hollister, Prof. Pomology, Conn. Agri. Coll., Storrs, Conn., writes: "There are 9 apples this year on one Stark's Golden Delicious Tree (2 year old tree) we got from you in spring, 1918."

From Oregon—A. Johnson, Ashland, Ore., writes: "There was a good box of apples this year on 6 Stark's Golden Delicious that I planted 2 years ago."

From Texas—C. A. Griffith, Tatum, Texas, writes: "My Stark's Golden Delicious tree (2-year-old) has 10 apples—despite severe freeze April 1st that killed all my peaches."

Above photo came in from A. W. Brayton, Ex-Pres. Ill. Hort. Soc., Mt Morris, Ill. He writes: "This 2-year-old Stark's Golden Delicious is bearing 7 apples this year."

STARK TREES BEAR FRUIT

Trade Mark Reg. U. S. Pat. Off.

Stark's Golden Delicious

Official Scientific Investigator Says:

The leaders of the apple world—State Horticulturists and big Orchardists — journeyed long distances to investigate Stark's Golden Delicious trees.

As a result of this investigation, Prof. Wendell Paddock, Ohio's noted State Horticulturist, says: "Stark's Golden Delicious beats anything I ever saw. It produces apples very much like a peach tree produces its fruit, *from lateral buds on last year's wood.*"

Let us send you the full reports of all the famous men who have journeyed to Louisiana, Mo., to see this remarkable tree and its fruit.

Write for New Catalogue

Tells all about Stark's Golden Delicious and all our famous Apples, Peaches, Pears, Plums, Grapes, Cherries, Berries, etc. Send also for New 1921 Stark Seed Catalogue.

Address Box 102

STARK BRO'S NURSERIES

At LOUISIANA, MO. Since 1816

Largest In World—Oldest In America

The photo above shows 2-year-old Stark's Golden Delicious top graft bearing 40 apples in orchard of S. Swank, North Manchester, Ind.

A. Russell Poul, Belvidere, N. J., sent us above photo, saying: "This Stark Golden Delicious bore 12 apples at 15 months—over 100 at 27 months!

Prof. Howe shows in this photo below a Stark's Golden Delicious tree bearing in its 3rd year at the N. Y. State Exper Station, Geneva, N. Y.

S. Zangwirth, Oshkosh, Wis., says that the 2-year-old Stark's Golden Delicious tree shown in photo above bore 18 large apples this past season. "Can stand as much cold as Wealthy and Fomeuse (Snow)," he writes.

Mrs. Wingard standing by the wonderful 2-year-old Stark's Golden Delicious.

Above photo was sent in by H. D. Didier, Roanoke, Va., who writes: "My 2-year-old Golden Delicious bore 14 apples this season."

F. K. Wingard, Orange Cove, Cal., mailed us photo at left, saying: "This 2-year-old Stark's Golden Delicious bore 128 large apples this year (1920)."

STARK TREES

Reg. U. S. Pat. Office

STARK BRO'S NURSERIES, Box 102, Louisiana, Mo.

☐ Send me FREE Copy of your 1921 Fruit Tree Catalogue at once.

If you also want copy of big 1921 Stark Seed Catalogue, Vegetables, Flower and Field Seed, put x in square at left.

Name .....

St. or R. R. No. .....

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The ONLY Dahlia Awarded a Gold Medal by the American Dahlia Society

DAHLIA PATRICK O'MARA, GREATLY REDUCED IN SIZE

The Dahlia "Patrick O'Mara"

The sensation of the New York Show of the American Dahlia Society. Featured and praised alike by the daily papers and the horticultural journals.

Received Silver Medal, Society of American Florists, 1920; Gold Medal, American Dahlia Society, for best new variety, 1920; Medal, Toronto Horticultural Society, 1920. American Dahlia Society Certificate of Merit 1920.

☛ **Highest score at the Trial Grounds of the American Dahlia Society, 1920, at the Connecticut Agricultural College, *under ordinary field culture, which is the real test and shows what may be expected in any ordinary garden.***

The flowers are 8 inches or more in diameter, borne on long, strong, erect stems, firmly set at right angles close to the stems. This makes these superbly beautiful flowers invaluable for decorative purposes when cut, or for a g and display in the garden. The color is an unusually soft and pleasing shade of orange-buff, slightly tinged with Neyron rose. A rare Autumn shade that will be in great demand. The flowers are full to the center as perfect flowers should be. The petals are firm and in every way it is an almost perfect flower. It is a splendid shipping and a long keeping Dahlia when the flowers are cut. None better for commercial use.

Prof. Geo. W. Fraser, Connecticut Agricultural College, in charge of the Dahlia Trial Grounds, says: "Its growing, keeping and shipping qualities are excellent. Growers will find its habit, color, etc., something that has been greatly needed."

Orders booked now and ***plants shipped next Spring in the rotation in which orders are received.*** Price, $10.00 per plant, $100.00 per doz. Tubers will be sent on orders from far distant points.

Safe delivery guaranteed. Cash to accompany order.

RICHARD VINCENT JR. & SONS COMPANY

WHITE MARSH, MARYLAND

More than forty thousand persons, in one day, from all over the United States, visited our vast Dahlia fields last autumn

The Lure of the New

IT'S the love of the new, the search for better things that has been responsible for all progress from the very beginning of things. To satisfy this longing for the new, the House of John Lewis Childs adopted, scores of years ago, the policy to search for the worth-while new, in many lands, and bring it to America, regardless of work or expense involved.

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THE GARDEN MAGAZINE

JANUARY, 1921

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LEONARD BARRON, Editor

VOLUME XXXII, No 5.

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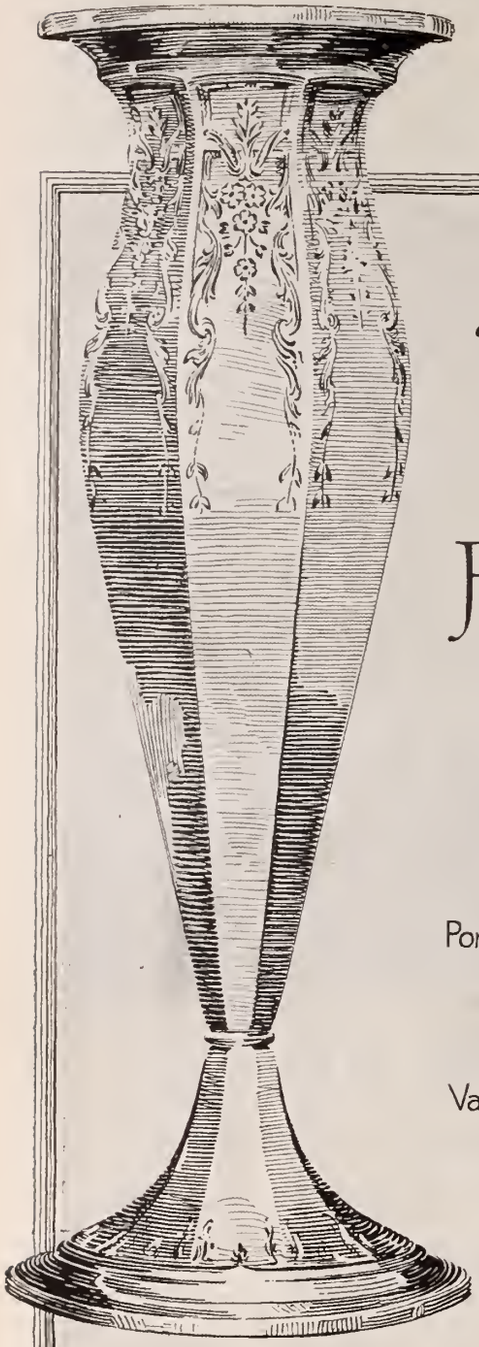

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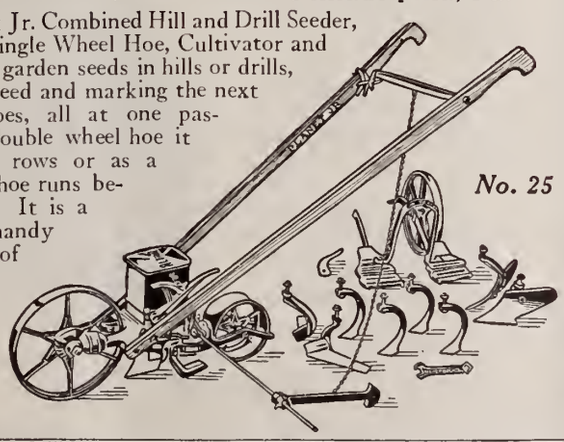

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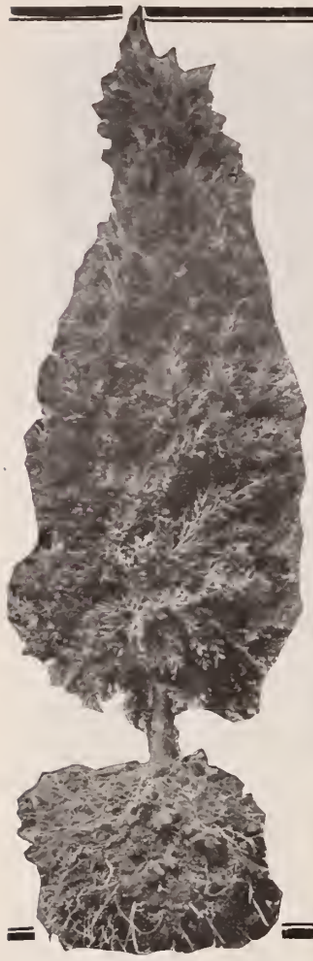

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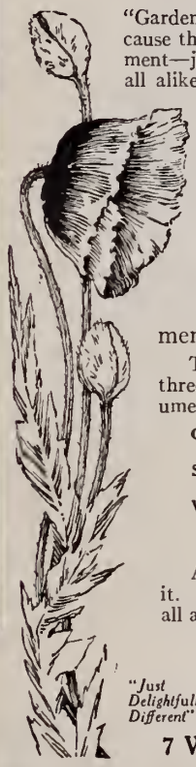
By Maurice Fuld



"Gardening without sentiment can never be successful because the very essence of it is lost by the absence of sentiment—just so, as we cannot administer our care to children all alike, for the children are not all alike, so, and exactly so must we care for our children in the garden."
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The Garden MAGAZINE

Vol. XXXII, No. 5 — January, 1921

J. Horace McFarland Co.

JAN 3 - 1921

"THE BRIGHT BEAMS OF FROSTY MORNING DANCE ALONG THE SPANGLING SNOW"
Shelley

Superbly beautiful bending under the weight of ice and snow yet danger lurks for these evergreens and the practical gardener realizes the necessity of their release before breakage occurs

Mattie E. Hewitt

"I FASHIONED ME A BORDER
OUT OF FLOWER BLOOM AND SOUL
AND SWEETENED IT WITH ANNUALS
TO MAKE A FRAGRANT WHOLE"

Amer Pindar

By a skilful intermingling of Annuals and Perennials the flower border can be made to assume a continuously festive air. Here the conspicuous foreground Annuals are Alyssum, Larkspur, and Verbena; while Hollyhocks and Hardy Larkspur shift the colour interest higher at the rear

J. Horace McFarland Co.

"BLESS ME, WHAT A DELIGHTFUL PROSPECT IS HERE! AND SO IT OUGHT TO BE, FOR THIS GARDEN WAS DESIGNED FOR PLEASURE—BUT FOR HONEST PLEASURE"
Erasmus

The possibility of treating the utility garden in a way that makes it attractive and alluring becomes here an accomplished fact. The four quarters into which a garden is normally divided for purposes of rotation and other practical reasons, are happily united by the introduction of a central feature

WHEN YOU MAKE YOUR PLANS

HENRY GIBSON

Considering the Needs of the Average Man Who Wants a Practical All-around Garden to Supply the Home Table While also Giving a "Setting" to the House with Flowers for Ornament and Cutting

THERE is indeed little, if any, relation between the size, the costliness or the simplicity of a home and its attractiveness in development and upkeep. It may be more difficult to decide on the placing and disposition of the several units that make up the features of the home when the place is quite small, because utility must needs be considered first of all; but the harmonious combination of practical utility and satisfying beauty is really within the reach of every home owner.

Some subdivision is at once necessary, but just what proportion of the ground should be given over to the cultivation of vegetables, fruits, and ornamental flowering trees and shrubs are questions that can be decided only by considering the size of the available area as a whole, and the personal predilections of the family for fresh fruits and vegetables, and decorative floral effects, for naturalistic views, for plant collections, etc. etc.—everyone to his taste.

The man with a hundred acres containing a vast expanse of lawn, flowering shrubs, and other ornamentals, seldom need devote more than a single acre to the cultivation of vegetables which may be taken as the maximum requirement for any household.

On a plot of an acre, one sixth given over to vegetables, and a similar area to the cultivation of fruits, the balance being devoted to lawns, shrubs, and flowers would meet the demands of any ordinary family.

On a plot approximately one quarter of an acre, an area 40 x 50 ft. would be the most that could be utilized for vegetables if other garden features are to be included. Fruit trees might well be planted as part of the ornamental features of the small place, and would thus serve a double purpose. Or again the 40 x 50 ft. plot may be set out with fruits, both large and small, and only the smaller vegetables grown between the trees and bushes.

In the arrangement of the ornamental features of the place, a good deal of liberty may be exercised and personal tastes indulged, but the ultimate object, a natural setting in keeping with the surroundings, should never be lost sight of.

THE proper way to begin, assuming there is a perfect freedom of action, is to make a plan of the ground, marking all the existing features of the place which it is desired to retain, such as large trees, shrubs, definitely located paths, etc. Then add the features that are to be introduced to fit your own fancies. The worst possible method of procedure is to attempt or imitate your neighbor's garden, for the inevitable variation which occurs in a ground plan by different placing of the house, as well as differences in the house plan itself will preclude any such adoption. Every place must be planned for itself. The lawn, the open foreground of the home ground picture is much more satisfactory when preserved in one unbroken surface, and any temptations to cut the centre to create flower beds should be avoided. Where sufficient room is allowed for unhampered development, hardy shrubs add character to the garden and afford an excellent background for flowers. It is permissible to plant flowers in beds bordering the walks, and Roses, both hybrid-perpetuals and hybrid-teas, are most useful for this purpose. The outside line of the garden enclosure may be hidden by judicious planting. A mixed plantation of flowering shrubs with a few pyramidal evergreens at vantage points is very effective; and flowering shrubs along the outside line of the garden add much to the beauty of the floral ensemble within, and the sinuous outline of the border plantation is in perfect

A SIMPLE GARDEN OF HARMONIOUS VARIETY

The dividing boundary of low shrubbery accented by taller kinds and a tree, yet allows a glimpse of the area beyond. The clipped hedge of Privet on the house front frames both house and garden

WHEN THE USEFUL IS ALSO ORNAMENTAL

Crops for the kitchen and flowers for the table, with fruit trees all in one combination make a friendly garden indeed

harmony with the naturalistic aspect of the garden from without. At desirable points, as where the "overlook" is pleasing, the planting should be low so as to admit of a peep at the lawn from without, and distant scenes are thus brought into the view from within, a peep into your neighbor's place will permit you the enjoyment of features to be found there. Lilacs, Deutzias, Japanese Snowballs, Hydrangeas, and similar shrubs, too numerous to mention here, which produce their flowers toward their tops are effective for boundary plantings. Berried plants should not be over-looked, and for low planting Japanese Barberry is invaluable. Berried plants serve to attract birds which are useful in subduing insects and are in themselves a delight as they help prolong the note of life in the garden through the fall and winter months. Flowering Dogwood, Photinia villosa, Hawthorns, Bush-honeysuckles, and Rocksprays are only a few of this class of plants. If the scope of the plantation admits of it, a few Red-stemmed and Yellow-stemmed Dogwoods, red-and-white Birches, and some Willows will add color and variety to the winter scene, which must be planned for in spring.

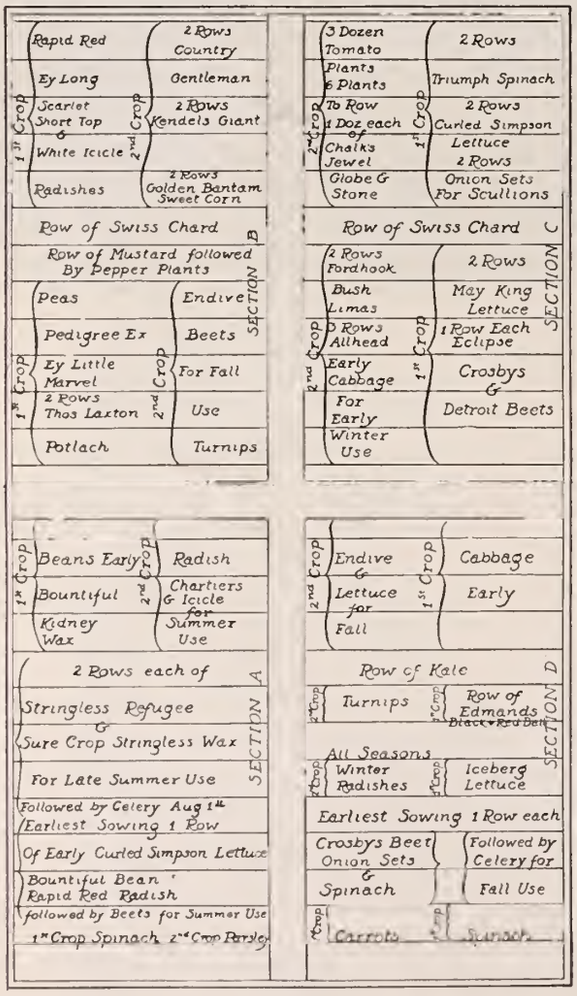
HERBACEOUS perennials are of course the least troublesome of the materials for flowering effects (when once established) but they require lifting and dividing every three or four years. In arranging them in the beds or borders the matter of balance should not be overlooked. The height, foliage, and bloom on one side should have a corresponding unit on the other, not necessarily of the same plant, but one of similar mass outline and color. And it is not essential that every part of the garden be in bloom at the same time; rather one part may be arranged for a climax at one season, to be followed by another special effort in another part later on, while the space occupied by the first becomes an expanse of green. Color arrangement is the special bugbear of every garden, but a few general points are to be observed to maintain harmony. Purples and blues should be kept in the background; lighter colors should be in the foreground; blues add to distance, and reds foreshorten. By paying regard to these facts the size of the garden is in effect enhanced, besides giving a pleasing graduation of color. When mass effects are sought only those perennials with a long season of bloom should be chosen.

Regardless of the care exercised in the selection and arrangement of perennials the garden as a whole will not be a success without the introduction of annuals, among which are some of the showiest and most useful plants, which can be raised from seeds at a very small cost. Many dull spots that would otherwise occur may be brightened throughout the summer

months by the introduction of annuals. Moreover, very striking harmonies may be produced by various combinations of annuals alone. For example, plantings of Pink Dianthus, Pink Petunias, and blue Ageratum, in scallops, with Sweet Alyssum as a ground plant in front of the bed is effective; Pansies may be used in alternating scallops in solid colors. In a long, narrow bed against a wall or high hedge or shrubbery, something worth while may be had from a combination of blue Ageratum at the edge of the bed, behind a line of white and pink compact Petunias, and farther back, three lines of pink Globe Amaranth and at the rear a row of early Cosmos. Or informal groups of white, blue, and deep yellow may be worked out, with white Cosmos, Annual Sunflowers, Orange King Zinnias, dark blue Bachelor-buttons. Asters, Stocks, Sweet-peas, Snapdragons, and a host of other annuals have their uses in both the embellishment of the garden picture and for cut flowers.

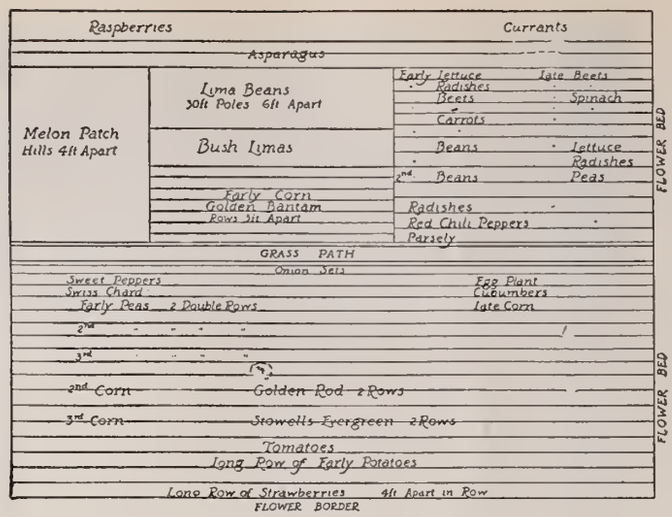
SELECT a permanent location for a vegetable garden preferably with a south or south-eastern exposure and with shelter on the north and west, if possible. Shelter can, of course, be provided by the planting of a substantial hedge, but on small areas this is not advisable, for most hedges, and particularly Privet, rob the surrounding soil of so much plant food that nothing will grow properly within several feet.

Nor should the aesthetic side of the vegetable garden be sacrificed for the mere utilitarian, particularly on the small ground where space is at a premium. It should and can easily be made attractive with a few fruit trees about the boundaries, and flowering shrubs, or evergreens at the intersections of the paths; or a flower border edging the path. A combination flower



FOR FRESH VEGETABLES A-PLENTY

Here's a planting plan for a four section garden providing for rotation and succession



A HOUSEKEEPER'S GARDEN

This plan has been proved by use and provides for the staple needs of a family

and vegetable garden is worthy of consideration, and will afford the planter abundant opportunity to test his skill.

The amount of vegetables grown must of course vary with the garden space available and the requirements or fancies of the family, but there should be relative proportions among the various types planted as far as possible. On the small plot reduce plantings of certain rank growing vegetables that require lots of space, and increase the proportion of those giving larger return for the area covered. It is essential that all the ground be kept fully occupied all the season, if maximum returns are to be had from the garden, and so as soon as one crop is removed something else should take its place. Selecting crops that are to follow early season crops demand some care, and the vegetable used for the first planting, or one of the same character or belonging to the same family, should not as a rule be used in that place at the second planting. Cabbage, Kale, Mustard, Brussels-sprouts, Cauliflower, should not follow each other because they are of the same family and subject to the same insect pests and diseases. This holds true also of Peppers, Egg-plants, and Tomatoes.

It is manifestly impossible to even suggest a definite list of types and quantities of vegetable seeds that would meet with general approval, insomuch as the desire of certain members of the family for certain vegetables to the exclusion of others will vary with each family, and because what would prove enough for one family would be much too little for another. But one actual seed order that was used for a family of four adults on Long Island and which gave them all the fresh vegetables they wanted and a surplus for canning, drying, and storing for winter, will serve as a practical basis. It was as follows:

Pole limas, 1 pint,
Bush limas, 1 pint.
Snap beans, 6 pints.
Beets, 4 ozs.
Cabbage
" Early 1 pkt.
" Late ½ oz.
Carrots 1 oz.
Cauliflower, 1 pkt. (Late)
Celery, 1kt p. (Early)
" 1 pkt. (Late)
Corn, 1 pint (Early)
" ½ pint (Late)
Cucumbers, 1 oz.
Eggplant 1 pkt.
Kale 1 oz.
Lettuce: ½ oz. (Early,)
" ¼ ozs. (Summer)
Muskmelon, 1 oz.
Onion sets 1 qt.
" seed, 2 ozs.
Peas, 2 qts. (Early)
" 1 qt. (Midseason,)
" 1 qt. (Late)
Parsley 1 pkt.
Parsnips ½ oz.
Radish 1½ oz.
Salsify, ½ oz.
Spinach, ½ lb.
New Zealand Spinach, 2 ozs.
Swiss Chard, 1 oz.
Squash, Summer, 1 oz.
" Winter, 1 oz.
Tomatoes: 1 pkt. (Early)
" ¼ ozs. (Late)
" 1 pkt. each, (yellow) Plum; and (red) Cherry
Turnips, 2 ozs.
Rutabagas, 1 oz.

The String or Snap Beans, Sweet Corn, Lettuce, Peas, and Radishes were planted at intervals of ten days to two weeks to maintain a regular supply of each in its season.

In order to make the most of the succession plantings the

various types of vegetables may be arranged under three heads: (1) Those that occupy the ground all season and can not be followed by others; (2) Early crops that are soon harvested and leave the space empty; (3) the late crops to follow others. There is yet another (4) group of permanent crops, like Asparagus, which are planted once for all.

The first group includes: Pole Beans, Pole Lima Beans, Cucumbers, Eggplants, Melons, Okra, Onions from seed, Parsnips, Pumpkins, Peppers, Potatoes (Main crop), Tomatoes, Squash, Sweet Potatoes.

Early crops which may be followed by others: Bush Beans, Beets, Cabbage (early plants), Cauliflower (early plants), Carrots, Corn (early), Lettuce, Peas, Potatoes (early), Radish, Spinach, Turnips.

Late crops which may follow others: Beets, Brussels-sprouts, Cabbage (late), Cauliflower, Celery, Corn, Kale, Peas, Spinach, Turnips, Rutabagas.

A GARDEN OF PLEASURE

The grass lawn is available for croquet, etc., and tennis courts beyond are pleasantly screened yet not obscured. On the left a border of flowers

PRACTICAL AND ATTRACTIVE

(Above) when flowers for cutting are wanted in quantity it is well to grow them in rows along with the vegetables, when individual needs can be supplied

(Left) Happy simple treatment of the country or small town home with a Lilac, and herbaceous plants massed on the corner screening a service lawn beyond. There is no enclosure and the distant scene is brought into view beyond the apple trees

COMMON SENSE IN PLANNING YOUR GROUNDS

E. C. STILES
Landscape Architect

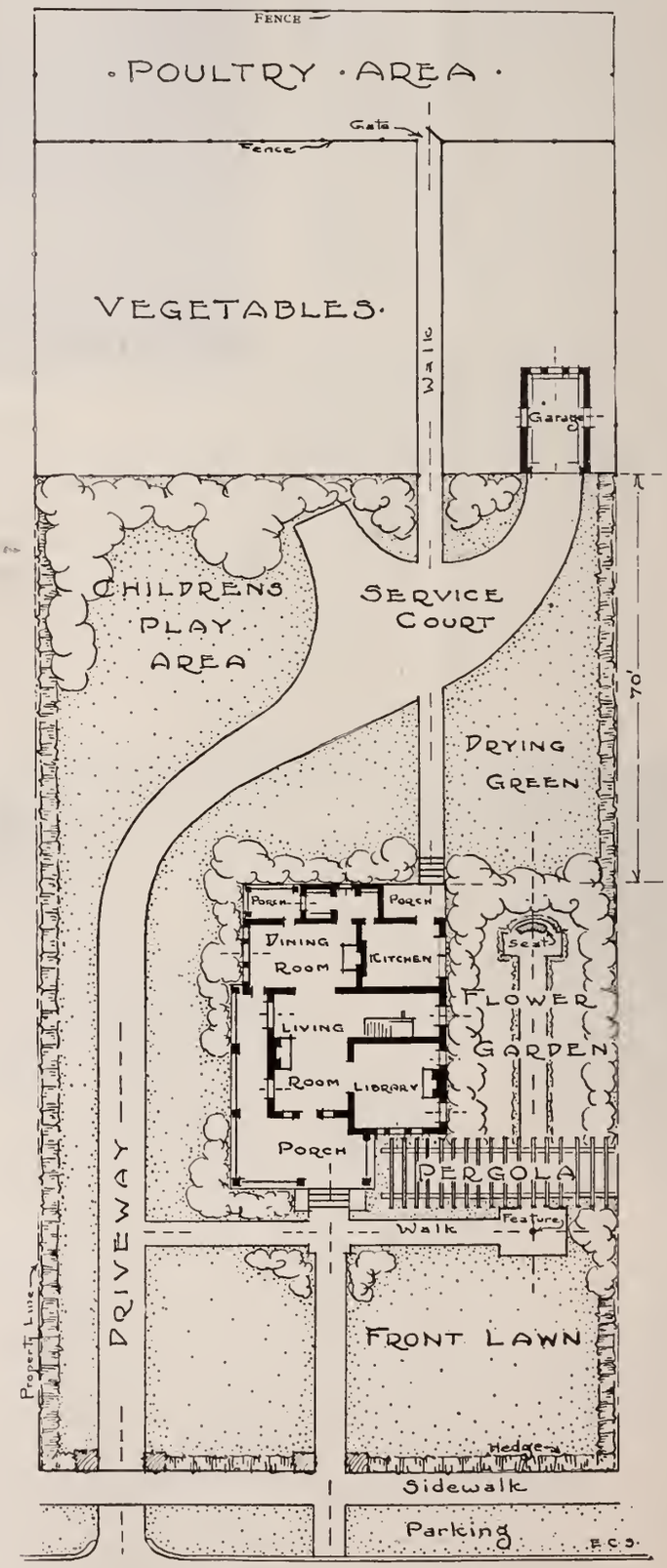
The Smaller the Place the Bigger the Problem—Demands of Utility to be Satisfied Before Details of Ornament and Personal Fancy

UTILITY is the factor of supreme importance in planning a small place. The principles of propriety, suitability, variety, etc., applicable in all good landscaping here become acutely significant because in dealing with limited areas the designer cannot afford even an occasional slip. A misplaced object, relatively unimportant on larger grounds where the interest is dispersed and an imperfect square yard or two is of no great moment, becomes on a small property both conspicuous and costly! With only a few hundred square feet at one's disposal the problem of utility is paramount. And so in making the plan for such a place this factor takes precedence over all others and not until it has been met, frankly and fully, should other considerations have play. When the owner has planned the most complete and advantageous use of his home grounds, he is at liberty to indulge his personal fancy in the matter of ornamental planting, garden features, and the innumerable other minor distractions which absorb every home-builder.

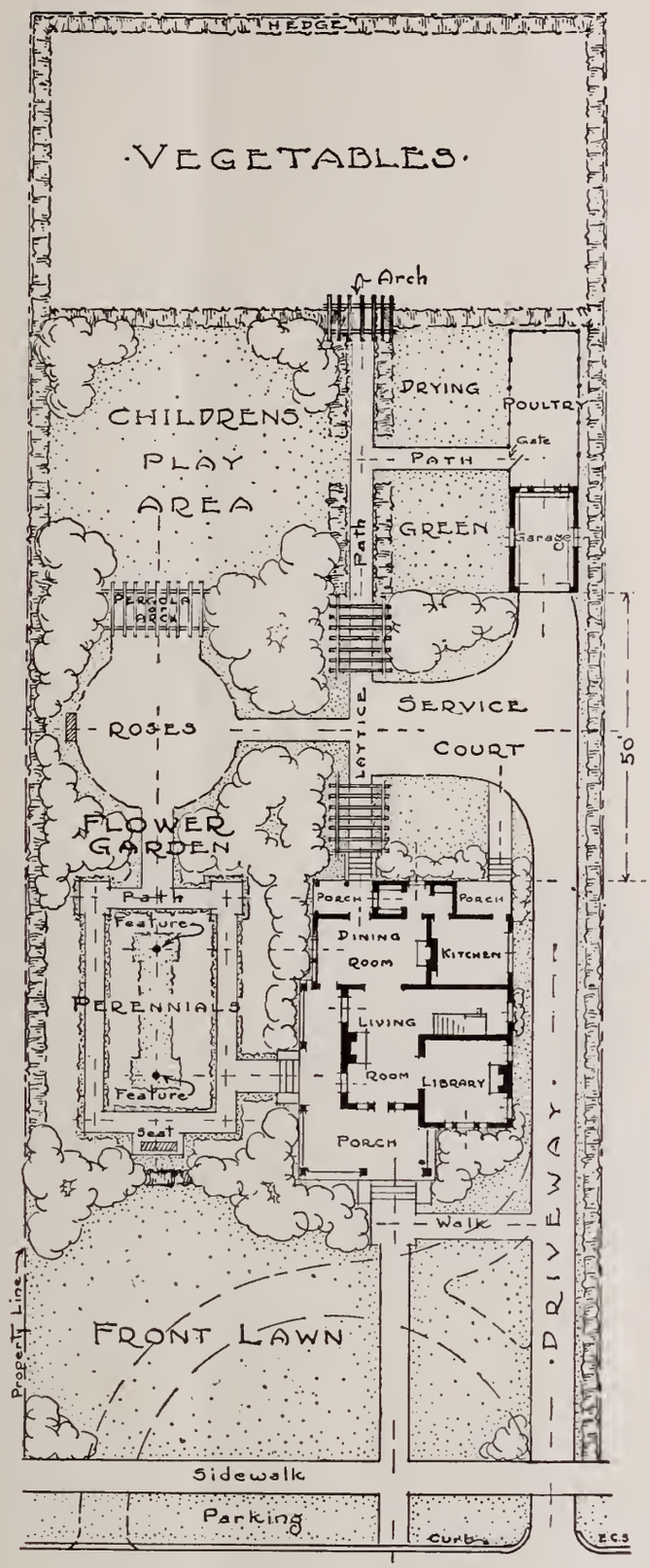
THE merely ornamental is seldom beautiful; a familiar truth which the circumspect small-property owner wisely accepts. Conditioned as he is by modern land values and building costs, he recognizes that the careful landscape plan, like the architectural plan for the house proper, in the long run justifies itself as a paying investment. Sample plans for specimen properties, as well as illustrated details of various landscape effects are frequently presented to readers, but this article is offered with the hope of meeting the requirements of those who wish to plan their own home ground or to intelligently criticize such plans with a definite assurance, when they have completed or accepted a design, that every available inch of ground has been put to its best possible use. In other words, this article is an attempt to set forth the governing principles of small-property design, not as applied to some particular area but as generally applicable to any small place irrespective of the size of the house or the shape of the plot. Design of this character is not merely a matter of personal inclination, but is resolved by its very limitedness into a few distinct phases which may be successfully treated by obedience to some simple rules of common sense.

THE first and most important question is of course the location of the house, which is the controlling factor of all other elements of the problem at hand. The distance from the street depends in most cases upon the position of the other houses along the street; but, if a new property on a new block, fifty to sixty feet will usually be found a satisfactory distance for lots of one hundred to two hundred feet frontage and a depth of one hundred and fifty to three hundred feet.

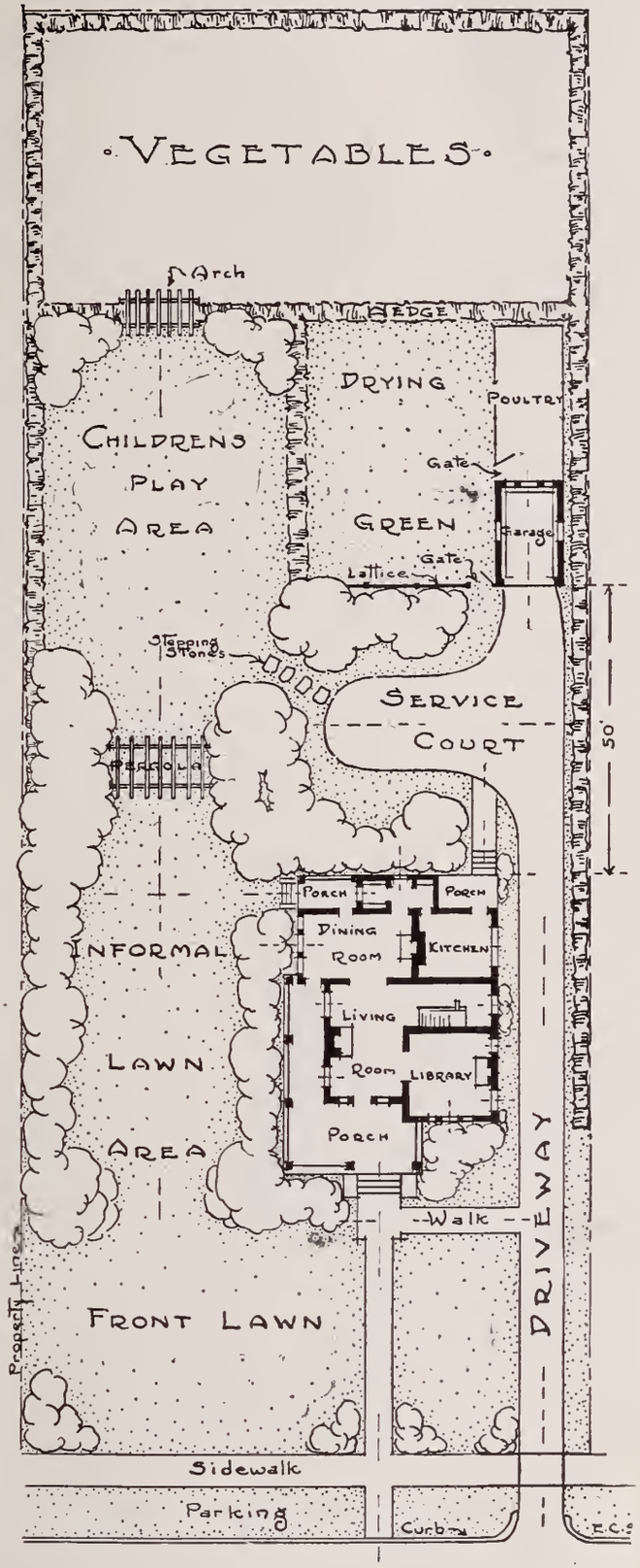
The next consideration is on which side of the property shall it be located, and the answer is *never* (except under the most unfavorable conditions in the matter of neighbors) in the middle of the lot, for the result on the average lot of small frontage is complete waste of development possibilities about the immediate living portions of the house. A location of fifteen to twenty feet from either side line meets the requirements of most suburban developments, and is in consequence the best situation as a rule. The choice of side-line is automatically determined by the kitchen and service portions of the structure, which should be adjacent to it so that one driveway, coming in at that point, may cover both personal and service requirements. Never allow the entrance drive to cut



Incorrect placing of the garage and the poultry yard, the swing across of the driveway, etc., all make for unnecessary steps besides wasting the space and destroying the full use of the land



Here is an elaboration of the plot with due regard to saving of labor in the offices, etc., and the combination of distinct features in the garden



Simple, yet sound plan for the naturalistic treatment of the plot, and into which more elaboration might be introduced by stages

PRACTICAL AND ECONOMICAL DEVELOPMENT OF THE PLOT SHOWN OPPOSITE WITH VARIATIONS ON FORMAL AND INFORMAL LINES

up your lawn area by bringing it in from the other side of your lot (sketch No. 1), unless the approach is equally good in both directions and you wish to use a semi-circular drive (dotted lines in sketch No. 2). The observance of this rule keeps the service portion of the grounds on the smallest and, therefore, least desirable portion of the property, and leaves considerable space for utilization on the living side of the property.

Having decided upon this much, draw up your plot of ground to any convenient scale, such as ten or twenty feet to the inch, and reduce your house plans to the same scale, locating them at the correct distance from the front line and from the nearest property line. Then draw axis lines through the centre of your doors and windows to determine the entrance points and general direction of your walks and the line of the best views from your windows.

NEXT in importance to the house comes the garage, and this should be located as near the dwelling as consistent with insurance regulations, usually about fifty feet. This is a convenient distance, being far enough away to materially reduce the fire hazard and sufficiently close to save steps and yet afford ample room for the garage court and immediate service area.

These initial points decided and the garage located upon your drawing there remain several undetermined minor factors which may be tabulated as follows:

Do you wish a flower garden? (Large or small.)
Do you wish a vegetable garden? (Large or small.)
Do you wish a poultry yard? (Large or small.)
Do you wish to devote some area to fruit trees?
Do you wish to provide for a children's playground?

Assuming that you wish all these features, their respective locations should be selected with a view to minimizing consequent undesirable conditions. For example, if you wish a good sized poultry yard, such an area needs screening and the best location for it is immediately behind your garage and running as far as necessary down that side of your property line (sketch No. 2), rather than across the rear (sketch No. 1), as this means added steps and a separation of service offices and outbuildings, which if kept together are more conveniently reached and much easier to screen off.

The space which you wish to devote to each must somewhat determine the location of the flower or vegetable garden, the fruit orchard, and the playground, but if possible it is well for several reasons to locate the playground near the service area. The children should be within easy call and at the same time where their destructive tendencies can do no great harm. It is usually desirable to screen the playground to some extent.

HAVING gotten thus far with your planning, it is well to revert to the flower garden proper—which is the feature considered first by most inexperienced designers. The question naturally arising is whether it shall be placed immediately next the house or at some distance in the rear. For the small property the former solution is, I believe, the satisfactory one as the available ground is not large enough to permit of the dignity of large lawn areas so that the garden takes on somewhat the character of an outdoor living room. The flower garden should not be permitted to extend any material distance beyond the front line of the house (sketch No. 1), as the lawn space should be kept, so far as practicable, intact and in harmony with other frontages along the street. Unbroken stretches of lawn and a certain unity of treatment are among the chief charms of the suburban block. The pattern for this garden will depend purely upon your own fancy or the inclination of your designer, but will take its cue from the axis lines of the steps which lead from the house into it; and its accent points, such as garden seats, small fountains, arbors, etc., should be in line with the axis lines which have been drawn through the doors and windows of the portion of the house which faces on that side of the property.

IT IS well to remember that a good hedge or planting screen along the front of the garden will lend this outdoor living room an air of privacy and seclusion and will materially aid in beautifying the front portion of the property. Pergolas, arbors, lattice fences, etc., are best placed where they serve a genuine purpose (as for example in sketches No. 2 and 3 in which they furnish interestin gtransition points from one part of the development to another), rather than interjected as purely decorative features without relation to the fundamental scheme (sketch No. 1). Used in this way they lose much of their value and *all* of their meaning. Remember also in enclosing the sides and rear of your property that hedges are not only more ornamental than fences, but that a well-established hedge is arriving at its best just when the fence begins to deteriorate in value. Also keep in mind that the rose garden is better situated at some little distance from the house and behind the flower garden proper (sketch No. 1), as its period of full bloom is a comparatively short one and during the remainder of the season the exposed soil in the bed areas shows up badly when placed in close proximity with living roomw indows. This holds particularly true in the South where lawns are hard to establish and maintain.

Finally there is the question of where to put the vegetable garden. In general, it rightly belongs at the rear of the property adjacent to service and playground areas, but if a combined flower and vegetable garden of large extent is desired it may, indeed often must, be established elsewhere with lawn-surroundings of an informal type.

After you have come to a definite decision on these main points and have located the various desired features upon the plan, you will be delighted to find how readily adjustable the remaining details are. You may incorporate any number of individual fancies into your composition and elaborate it in all sorts of pleasing ways without in the least disturbing the harmony of the whole, a harmony basically sound which has fully and fittingly utilized every available bit of space and that will be in itself a source of satisfaction and inspiration to further elaboration. It is too often forgotten that the proper and fit planning of the moderate sized property taxes to the full the skill and ingenuity of the worker.

"UNDER HIS OWN VINE AND FIG TREE"

LEWIS EDWIN THEISS

The Productive Plant as a Landscape Feature. How to Make Your Home Plot Help Supply Material Needs While Also Gratifying Aesthetic Feeling

IS AN Apple tree in bloom less lovely than a Catalpa? Can a Blue Spruce excel a Japanese Plum for artistic effect? Does a Privet hedge compare in attractiveness with a row of Currant bushes hung heavy with crimson fruit?

Well then, why, when we set about beautifying our home plots, exclude these and similarly useful trees, shrubs, or plants from the list of available decorative landscape material, as has in the past been all too commonly done! Plant material of definite utility value not only can but should, I believe, be employed by the home builder because—outside the pence-and-pocket book considerations which in these days of decreased food production and high living costs make it a simple act of wisdom—it is in the last analysis actually better landscaping.

It is better landscaping because a more complete expression of the essential spirit of home, and landscaping, to be good, must first of all further and reflect the meaning of the object which it frames. "Every man under his own vine and fig tree" —the ideal setting rooted in the far past and persisting through the centuries by virtue of its fundamental truth.

An appeal for the use of productive plants in home planting might be based wholly on the ground of economy, and I believe that the economic conditions that lie immediately ahead of us will drive future home makers to the extensive planting of productive trees and shrubs; for at the rate the countryside is being depleted of workers there will soon be too few food raisers to supply the nation's needs. A school girl very happily defined thrift as the management of one's possessions so that they constantly increase in value. I believe in thrift. I believe that as a matter of thrift and common sense we ought to make everything we have productive, in one way or another, materially, aesthetically, or both if possible.

FEATURING THE USEFUL IN THE PLANTING SCHEME

The Hickory and the Apple as twin ornaments wisely retained by the owner when he set about beautifying his home plot. The light arbor of rough boughs seems quite in keeping with the simple rusticity of the scene

THE PEAR, THE APPLE, AND THE CHERRY

on the home lawn of the writer who has already successfully practised what he now preaches!

passerby will exclaim: "What a beautiful home this is!" Whereas, if the yard is a collection of plants rather than a picture done in living green, the observer exclaims, "What excellent Lilac bushes these are!" One yard tells a story, the other is simply a horticultural exhibition.

We may make life as artificial as we please, and live as artificially as possible; yet the picture of a real home will always stir our hearts. If, then, we wish our home plots to possess the charm of individuality, and to make them spots of refreshment for ourselves and our neighbors, we must not neglect these three already mentioned requisite considerations:

1. The chief function of the grounds is to serve as an appropriate frame or setting for the house in which we live, our home.
2. The materials chosen should be those which afford the amplest medium of expression.
3. It is the part of wisdom to combine, wherever and whenever practicable, utility and beauty.

THE arts have kept in step with other phases of progress and the architectural monstrosities of a half century back have been succeeded by present day homes

THE REAR OF THE HOUSE

where one can almost gather apples from the upper porch

WE OUGHT to think of our home plots, it seems to me, as Mr. Frank Alvah Parsons, of the New York Art School, says we should think of our homes, which should not be museums for the collection of bric-à-brac and bizarre objects, but should contain only such things as harmonize with and reflect the character of the occupants. Similarly, our home plots are more than mere botanical gardens. The very fact that they are home plots means that they should not be botanical gardens. A botanical garden is primarily a place for the collection and display of plants of all sorts, without individual significance. The home plot, on the other hand, should have above all things a distinct meaning. It should suggest peace, comfort, plenty—not a clogging superabundance, but the satisfying plenty of honest personal effort. For fruit trees, and berry bushes, and a little garden space do suggest some toil—the pleasantly beneficial toil that adds so much zest to the carrying on of the home.

Concerning this matter of ornamenting the home grounds, Liberty H. Bailey says that if the planting is rightly done so as to produce a charming picture, the

THE STEPPING-STONE WALK TO THE SPRING

Girt with temptation nearly all season through, for there are Cherries (tree on left), Raspberries (left in front of Cherry tree), Apricots (small tree centre near house) and Grapes (right) to lure the water-carrier from the path of duty

A BLENDING OF OLD AND NEW WHICH CONVEYS THE HAPPY DECEPTION OF HAVING BEEN LONG ESTABLISHED

When the suburban development absorbs the farm why sacrifice the orchard? Why not, as this astute homebuilder has done, let it become a dominant feature of the lawn extension to which it lends delightful mellowness? The screening hedge and well-grown ornamental border assure a pleasurable privacy further accentuated by the two low steps of approach

of distinction. Landscaping, too, is passing out of that formal, unattractive stage of which we have had a surfeit into an era of picture making, intimate and delightfully suggestive of domesticity.

With the comforting assurance that mere imitation is no longer the rule, let us proceed to fashion our own grounds according to the dictates of personal preference. If we plant intelligently, striving always toward a definitely conceived end, we can not go far astray in the matter of taste; add to that a bit of individuality, expressed by deft handling of the responsive living material at our command, and we approach what is for us, as home builders, ideal landscape achievement.

Every home plot is as much an individual entity as every human being is a separate person. To realize the greatest possibilities of each, there must be separate, individual treatment for each. It is a poor home plot, indeed, that has no inherent landscape possibilities, though the owner may have to study long before he appreciates just what his particular piece of ground calls for, which feature to emphasize, which to subordinate, where concealing masses should be formed, and where little vistas should be opened or fashioned. Even the tiniest yards respond amazingly to thoughtful handling and can be coaxed into offering friendly shelter for many a favorite hobby of the owner who cares to express his personality through its ready medium.

After all it is the meaning behind the planting, not the planting itself, that is significant. Grounds ornamented (as many unfortunately still are), in conventional, by-the-rule mode—so many square feet of lawn, so many linear yards of ornamental borders, etc.—leave the spectator cold; he misses at once the warm personal note which is an integral part of every "home plot" worthy of the name.

EXAMINING the question from this point of view, one becomes keenly conscious of the fact that in landscaping the picture is the thing, not the materials it is made of; though, as we all know, some materials are more appropriate for certain uses than are others. In many of our home plots we have overstressed the materials and forgotten the picture. We have been confident that a Blue Spruce, for instance, simply because it is a Blue Spruce, or Peonies, or Spiraea Vanhouttei, because in themselves lovely, must necessarily make a yard so. The fact is that Spiraeas, Peonies, Blue Spruces, and all the other innumerable ornamental plants the gardener is heir to, like the colors on the artist's palette, have little meaning until properly combined.

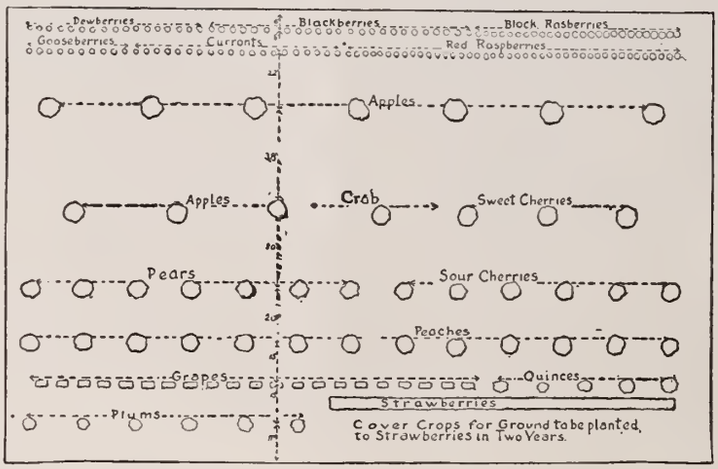
If, then, the picture rather than the pigment is of importance, why not make use of the widest possible range of landscaping material? Why restrict our effects to plants of the purely ornamental type? Why not include plants that are productive as well as beautiful?

PLANNING FOR A ONE ACRE FRUIT GARDEN

JOHN L. DOAN

Properly Balanced Quantities of the Different Kinds of Fruit Based on Family Requirements—Selecting Varieties on the Standard of Quality in Use

HUNDREDS, yes thousands, of the readers of this magazine who might enjoy an abundant supply of fruit of their own growing do not have it. They have the land, also the opportunity, but are content to buy from some commercial dealer; and that because of the idea that fruit tree planting is planting for posterity. Well, even if this were so, would it not be worth while? The fact is however, that you, yourself, can plant and have too! A single acre well cared for can be made to produce an abundant and varied fruit supply for a large family, with a considerable surplus besides. Some fruits are not at their best unless fully ripe before being gathered, and unless grown in the immediate neighborhood of the consumer this is usually impossible. In addition, it is frequently out of the question to purchase the fruit of varieties that are very superior in quality, because of a lack of health, vigor or productiveness, or because the fruit will not stand shipment well. The market growers' standard largely discounts the element of quality that is so essential to the home standard. The only way to be sure of a supply of such varieties is to grow them.



EFFICIENT LAY-OUT FOR AN ACRE OF FRUIT

A rectangle of 165 x 264 ft. is the most satisfactory shape to be planted in balanced proportions for family needs

A strong, naturally well drained, gravelly loam, is the kind of soil preferred by a majority of our common fruits. But even though your soil is not of the ideal sort for fruit growing, do not be discouraged; for good results can be had by handling it well. As to site: the surface of the land may be level or sloping; but a low spot where the cold air settles greatly increases the danger from late spring frosts.

A tract of land ten by sixteen rods (165 x 264 ft.) is exactly one acre and has been found to be a practical shape, better than a square, and it is preferable to have the length of the tract running east and west.

The accompanying plan shows a satisfactory arrangement for the different kinds of our common fruits and suitable planting distances for them. No row comes nearer to the ends than ten feet. This gives ample turning room for horse cultivation.

Six feet from the north side of the plot a row of brambles is planted, beginning with Dewberries at one end, or with a hybrid between the Dewberry and Blackberry. If the soil is light and sandy, Dewberries are preferable and seventeen plants of Lucretia, the leading variety, may be set out four feet apart. For a heavier soil the Blackberry-Dewberry hybrid known as the McDonald Blackberry is best. It is adaptable to different soils, succeeds over a large area, and bears an abundance of luscious fruit at about the same season as the Dewberry. A plant of Early Harvest Blackberry should be set at every fourth or fifth place to cross-pollinate McDonald. Next in this row plant thirteen Eldorado and a dozen Taylor Blackberry bushes for early midseason and late varieties, spacing them four feet apart. Plum Farmer and Black Pearl are good varieties, the first being in my experience slightly preferable.

Eight feet from row No. 1 plant another row of bush fruits, starting with ten Downing Gooseberry bushes set four feet apart and followed by twenty Currant bushes planted at the same distance. Perfection, Wilder, and Red Cross are productive, reliable varieties; and Diploma is promising. If you care to have any White Currants, plant the variety White Grape. The Black Currants are usually unproductive and are not popular—indeed, they can well be omitted. This row may be finished with forty-two Red Raspberry plants, set three feet apart. Cuthbert, the old standby, and Herbert, a rather recent variety, are both very satisfactory. If Yellow Raspberries are desired, cut down the number of red ones to thirty and set out a dozen plants of Golden Queen. If one should wish to have Red Raspberries in late summer and autumn, half of the space devoted to them may be planted to, say, St. Regis, also known as Ranere, the best known everbearing variety. Where it does well, in addition to a fair crop rather early in the season, it bears another lasting from August to October in favorable seasons. A good mulch of straw, leaves, or grass, placed around the bushes in June, will go far towards insuring the late crop in case of drought. The more recent introduction is La France, remarkable for the large size of the fruits.

Most of the bush fruits take kindly to shade, and the Gooseberry and Currant are much better off if they have a moderate amount of it. For this reason they are planted next to the Apple row.

Twenty-two feet south of row No. 2 plant seven Apple trees, spaced thirty-seven-and-a-half feet apart, the end trees being nineteen-and-a-half feet from the boundaries. Three additional Apple trees, a Crabapple, and three Sweet Cherry trees are planted in row No. 4. The Apple and Crabapple trees in this row are thirty-eight feet apart, the latter being thirty-two feet from the nearest Sweet Cherry tree; these last are thirty feet apart. The end trees in this row are twenty-nine feet from the boundaries.

In selecting varieties of Apples, choose those suited to the section and covering the season from mid-summer to late winter. The most suitable kinds of this, as well as of other fruits, may best be learned from the experience of successful growers in the neighborhood and from the recommendations of the State Experiment Station. The following lists, which are arranged approximately in the order of ripening, are suggestive only and like all similar lists are subject to selections of the planter's own

fancy. For the latitude of southern Pennsylvania (fortieth parallel) Early Ripe, Oldenburg, Williams (Williams Red or Williams Favorite), Primate, Summer Rambo, Smokehouse, Hubbardston (Hubbardston's Nonesuch), Stayman (Stayman's Winesap), York (York Imperial), and Rome (Rome Beauty) are recommended.

Grimes (Grimes' Golden) is in season with Smokehouse, but is short lived unless worked upon a healthier stock. Jonathan is a fine late autumn and early winter variety, but needs a warm soil. It may be planted instead of Hubbardston, if preferred. York and Rome are better keepers than Stayman but are valued chiefly for culinary purposes. For the latitude of New England select from Yellow Transparent, Red Astrachan, Oldenburg, Primate, Wealthy, Twenty Ounce, Hubbardston, Rhode Island Greening, Northern Spy, and Baldwin.

Tompkins King and Esopus (Spitzenburg) are varieties of high quality, but are unhealthy, exacting in their requirements, and not reliably productive, except under favorable conditions. There are of course other varieties that in suitable localities would be a desirable addition to any home orchard where quality is especially emphasized.

Transcendent and Hyslop are both good varieties of Crab-apple. Black Tartarian, Windsor, and Dikeman are suitable early, mid-season, and late varieties of Sweet Cherry. Napoleon, often erroneously called Oxheart, is a good substitute for Windsor with which it is in season. Schmidt and Lambert are other good midseason varieties. Black Tartarian is an active pollinator and some of the other varieties are often self sterile.

Row No. 5 which is thirty feet from row No. 4 has seven Pear and six Sour Cherry trees planted twenty feet apart. The blight makes the growing of Pears risky in some places. Those given in the list are, on the average, somewhat less susceptible to that disease than the general run of varieties. Tyson, Bartlett, Flemish Beauty, Howell, Seckel, Angouleme (Duchess), and Kieffer cover the season from August to late November.

Suitable Sour Cherries are Dyehouse, Early Richmond (two trees), Montmorency (two trees), and English Morello.

Row No. 6 contains thirteen Peach trees set twenty feet apart. The following varieties are satisfactory and succeed over a wide range of territory, Greensboro, Carman, Hiley, Belle of Georgia (two trees), Champion (two trees), Elberta (two trees), Fox, Smock, Krummel (two trees). Many varieties of high quality that have been omitted in this list may be substituted for some of those named; but too often such varieties lack in health, vigor, hardiness, or productiveness.

Row No. 7 is fifteen feet distant from row No. 6 and consists of twenty-one Grape-vines planted eight feet apart and trained upon a wire trellis, and five Quince bushes planted twenty feet apart. The following varieties of Grapes cover the season well: Winchell (Green Mountain), white; Moore Early, black; Brighton, red; Worden, black, (two vines) Delaware, red (three vines); Eclipse, black; Concord, black (four vines); Niagara, white (two vines); Caco, dark red; Pocklington, white; Salem, red; Catawba, red (three vines). Plant two bushes of Orange Quince and three of Champion.

Row No. 8, fifteen feet from row No. 7 and eleven feet from the south boundary of the fruit garden, contains six Plum trees. Half of the space east of it is occupied by two Strawberry rows one hundred and thirty feet long. Beside them is a strip of land planted to cover crops, which will be plowed and planted to a cultivated crop, a year before a new Strawberry bed is needed, to put it in good condition.

The European and Japanese Plums are usually preferred to our native varieties wherever they can be made to thrive. Any of the following list would be fairly safe to plant over most of the North, from the Great Lakes eastward: Red June (Japanese) Burbank (Japanese), Lombard (European), Bavay (European), Fillenburg or Italian Prune (European), and October (Japanese). There are also many varieties of high quality, such as Imperial Gage, desirable where they succeed well. Part of row No. 6 may be devoted to Plums and the list of varieties increased.

It is hardly safe to give a list of Strawberries, as climatic and soil conditions play so big a part in the success of different varieties. The following are tentatively suggested. Progressive, perhaps the best everbearing variety, yields an autumn crop the year of planting and another crop early the next regular season, superior in quality to most very early kinds usually recommended. Senator Dunlap, Marshall, William Belt, and Gandy are all staminate. If the Strawberries are grown by the spaced row system, and the plants placed as they develop, strong plants set in early spring can, if placed two or in some cases even three feet apart, readily fill their portion of the row with runners in an average season.

Spring planting is preferable to autumn setting in the colder parts of the North, though in much of it autumn planting is for most of the fruits mentioned fully as satisfactory. It is desirable to have orders placed well in advance of actual planting time, however, and to heel in any stock that may be delivered very early.

THROUGH WINTER'S WINDOW

L. M. BUSSEY

When, by pale morning light the garden
Looms through winter's window
And frost incrusted skeletons of trees and shrubs
Seem lifeless as they deck the snow,
The Spirit of the Garden still broods tnere
In Nature's withered forms.

Then Sons of Ceres fain would gaze
Through frosty pane, and mark the forms
That link the Harvest with the Spring.
They foster memories of planting days
And fancies that anticipate the call
To sally forth a partner with the Sun.

In spite of Winter's heritage,
The roots that hibernate out there beneath the snow,
The folded buds of favorite fruits and flowers
Are eloquent with sentiment to those
Whose hands conspire with Nature's handiwork
And fashion it to serve the needs of Man.

The Diversified Gardens of Mr. E. E. Baker

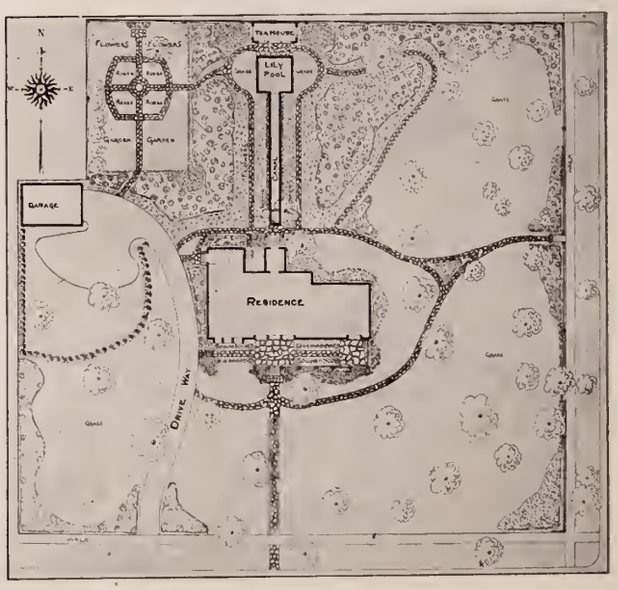
Kewanee, Ill.

Frederick Perkins, Architect

Though the bustle of business life is all around, the garden boundaries screen the evidences and hold within a series of different features that please the fancy or whims of the moment—formal water, rolling lawn, evergreen foundation, Roses, etc.

A cool water way with a Waterlily pool in the distance connecting the summer porch and the garden tea-house. Herbaceous flowering plants are set into the bed on either side with evergreens planted to soften the canal boundaries

The evergreen foundation planting of the house front



The place enclosed by suitable screen plantings is secluded from the passerby

Emerging from the formally treated Rose garden the view is across the Lily pool to the naturalistic lawn and effective boundary screen

Some large trees were happily retained when building was done and they lend the required air of age and unbalanced harmony that new gardens often lack. The figure embodied into the pool is an example of fitness in garden statuary

PLANTS AS AN INSPIRATION IN THE ART OF EARLY PEOPLES

WILLIAM ALPHONSO MURRILL
Supervisor of Public Instruction, New York Botanical Garden

Many Motives of Grace and Beauty Developed from Floral Forms Found Since the Earliest Times in Decorative Art Where They Continue to Feature Importantly

WHEN flowers and foliage first came to be used in art, it was more for their magical influence than for their beauty. Like the totem, heraldic animal, and mascot, the plant was supposed to give protection and power. The Lotus of ancient Egypt, product of the life-giving Nile, was held sacred as symbolic of the creation and resurrection; hence its wide use in a country where temple and sepulchral art ranked first.

The Cretans had developed a fine decorative art as early as 2,000 B.C., which dominated that of Mycenae, Tiryns, Troy, and other cities of prehistoric Greece and Asia Minor. The celebrated Minoan vases were beautifully ornamented with patterns of Daisies, Lilies, Crocuses, and Seaweeds, as well as with Lotus and Papyrus designs obtained from Egypt. Then came the invasion from southern Greece in 1400 B.C., which overwhelmed the Cretans and would have destroyed Egyptian culture also but for the Mediterranean Sea. Cyprus figured in art history mainly as a meeting-place where ideas from Egypt, Greece, and elsewhere were brought together and mingled; while Phoenician traders disseminated art culture throughout the entire Mediterranean region. Greek decorative art is preserved chiefly in vase-painting and architecture. Thousands of terra-cotta vases, made between 700 B.C. and 1 A.D., have been dug up about Grecian tombs—jars for holding wine, water, and perfumes, and for votive and funeral uses; cups of various shapes for drinking purposes; and handsome vases made for gifts and prizes and signed by the decorators as works of real art. The shapes were made from clay on the potter's wheel and the decorations drawn freehand with black and red paint.

Although Egyptian architecture is considered the grandest in the world, hardly a trace of it exists in the structures of the present day; while Greek architecture—the most beautiful—is the foundation of all modern building. Greek builders were gifted with an idea of structure and proportion; they drew from the best Egyptian, Assyrian, and Ægean models; they were inspired by progressive national ideals and the beautiful in nature; and they produced a classic temple style so perfect and refined that it became a standard for all time. The Renaissance was a revival of Greek ideas after a long period of Gothic domination; while the discovery of Herculaneum and Pompeii in the eighteenth century was a further powerful stimulus toward the general recognition of classic ideals.

Among the motives used by the Greeks, both on vases and buildings, were the meander or fret, wave, spiral, S-curve or line-of-beauty, rosette, guilloche or braid pattern, Lotus, Laurel, Vine, Acanthus-leaf, and figures of animals and human beings. Many of the so-called inventive or geometric patterns originated in the primitive manufacture by hand of mats, baskets, garments, etc., where squares, circles, and knots were formed in regular succession. The meander and spiral first appeared

CAPITAL AND FRIEZE

From the Temple of Castor at Rome, showing the egg-and-dart, bead-and reel, rosette, anthemion, acanthus-leaf, and other designs used in Roman architecture (Metropolitan Museum of Art)

A GREEK VASE

Substantial and refreshingly simple in outline and treatment, the band of laurel leaves its chief decoration (Metropolitan Museum of Art)

Metropolitan Museum of Art

FOUR CHARACTERISTIC EXAMPLES OF MINOR GREEK ART

These vases fundamentally similar in construction, assume individual significance largely through their varied decorative motives which include the familiar vine, laurel, wave, and anthemion

in basketry and became more varied on clay pots where the medium was more pliable; wattle-work, or the weaving of boughs for the sides of huts, has descended to our own day as a beautiful decorative motive for interiors; while dentils, mutules, modillions, and consoles represent the jutting ends of logs in primitive wooden houses. The rosette was probably designed by Egyptian artists from the top of the Lotus fruit, although the Daisy or almost any other flower would suggest the pattern. The palmette and the beautiful anthemion, or honeysuckle, the most important motive in Greek decorative art, were direct descendants of the sacred Egyptian Lotus flower. The egg-and-dart, also, originated in a border of inverted, alternating flowers and buds of the Lotus; its various forms arising from treating it as a leaf-motive. The bead-and-reel was imported from Asia Minor and probably descended from the papyrus-bundle molding of ancient Egypt.

Leaf-forms had been used before the Grecian period and had become conventionalized. The Doric leaf, for example, passed over from Egypt to Crete at an early date. The scale ornament soon became confused with Laurel and Olive leaves. The Grape had been employed to some extent in Egypt, but the Greeks invented the so-called vine pattern, in which the Grape, Ivy, and Laurel were similarly used—the first two on vases for wine because they were dedicated to Bacchus, and the last on vases for prizes, etc. In the Laurel, or common Sweet Bay of the florists, the leaves were broad and alternate, while the purple, cherry-like fruits were solitary instead of clustered like those of the Olive.

The acanthus-leaf motive was invented rather late, but toward the end of the Fifth Century B.C. its use became frequent and after that it ranked among the first of all decorative motives. The Acanthus was a common wild plant related to the Burdock, and its employment in art was probably associated with its use on graves. The leaves of Acanthus spinosus, used in the Corinthian capital, were especially crisp and prickly, while those of A. mollis corresponded more closely to the later conventionalized types found in Roman architecture. The rinceau, a pattern of great importance, was invented by the Greeks in the Alexandrian age by combining the S-line, spiral, vine motive, and acanthus-leaf.

After the Greeks were conquered by the Romans in 146 B.C. countless art treasures were brought to Rome and Greek artists

THE "BLUE LOTUS"

Serving as a basic motif for much of the ancient decorative art and perhaps the most important flower thus used, the Blue Lotus, native of Egypt, is in reality a Water-lily (Nymphaea)

THE "EGYPTIAN LOTUS"

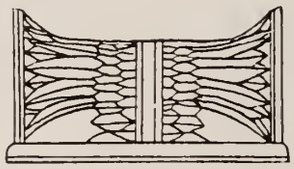
Popularly so-called was in fact unknown to the ancient Egyptians but in the Orient held high place as a sacred plant. It is a Nelumbo

were employed on the finer decorative work. The core of a building was erected of cheap materials by slaves and the ornament applied externally like veneer. Greek delicacy and restraint gave way to freedom and flexibility, while the invention of the arch led to changes in the roof which foreshadowed the pointed architecture of later times. Attention was paid to secular buildings as well as to temples, and classic ideas were distributed to all the world by the force of the Roman arms. Great advances were made in carved ornament, using the older Greek motives but amplifying them and adding a few new elements. The anthemion, rosette, and acanthus-leaf persisted in many forms, while the use of garlands or festoons of flowers and fruits was greatly extended, and the rinceau was developed into the most decorative and prolific of all patterns except those derived from the Lotus.

Lotus-and-bud border from a Rhodian vase

A very simple rosette pattern from Athens

Forms of lotus and lotus-bud, anthemion, vine, and acanthus-leaf used in Greek decorative art



Pulvinus decoration from Pergamon, composed of bundled and over-lapping lance-shaped leaves

Early Christian decorative art, taken in the broad sense, would include the work of all early Christians, whether in Italy, Asia Minor, Syria, Thrace, or in that portion of Egypt inhabited by the Copts. The term is generally applied, however, to the art of Christians in Rome during the period extending from Emperor Constantine to Gregory I, or from 300 to 604 A.D. These people were at first poor and persecuted, and their early art was found in the underground passages of the catacombs, where they met in secret for worship and burial ceremonies. It was not a new art in any sense. There were no inventions, either in form or ornament, but the symbols of pagan art were given new meanings and adapted to Christian purposes. The Vine was no longer dedicated to Bacchus, but to Jesus; the Cypress tree came to mean the death of the sinful nature, or baptism; the wreath and festoon were transferred from pagan sacrifices to Christian burial; winged genii became angels; and Hercules became the Good Shepherd with a lamb on his shoulder.

After the Roman Empire was pronounced Christian, in 312 A.D., religious art predominated, mainly in the form of the baptistery and the basilican church. The architecture of religious edifices received little attention, but the decorations were considered very important. There were splendid pavements for the floors; handsome mosaic patterns for the walls; and all the fixed furniture, including the altar, pulpit, choir seats, etc., was ornately carved or otherwise embellished. Figures were not allowed for a long time, however, owing to their resemblance to pagan idols.

Byzantine decorative art, with its centre at Constantinople, was similar to that of the early Christians at Rome in its purpose and symbolism, but decidedly more progressive and productive of much richer results. Byzantium had been a Greek colony and was full of the Greek spirit, with deep regard for form and structure, to which was added an oriental love of brilliant coloring and surface ornament. The dome, also, was an oriental feature which contrasted strongly with the vaulted arches of the Romanesque style. Hagia Sophia at Constantinople, erected in 500 A.D., and St. Marks at Venice, built in 1100 A. D., are wonderful examples of Byzantine architecture. They consist of central cores of coarse material overlaid with marble veneer and decorative mosaics of the richest description. Boxes for incense, enamels, vessels of silver and gold, textile ornaments, illuminated manuscripts, and other objects are also of the finest quality and highly decorated with designs in which the fret, anthemion, vine, acanthus, and rinceau patterns appear with great regularity.

Metropolitan Museum of Art

GENUINE EXPRESSIONS OF A LESS FINISHED ART THAN THE GREEK

These pieces of Cretan pottery, their patterns inspired by such widely diverse forms of life as the Daisy and the sea shell have nevertheless a certain crude dignity and charm of their own

ANNUALS TO FILL THE GAPS

LESLIE HUDSON

Old Friends that are Ever New, Which Come to us in Improved Strains of Increasing Beauty and Usefulness to Make the New Garden Full and the Old Garden Gay in Dull Midsummer

A BORDER OF FRAGRANT PANSIES

"TESTED and true!" Can there be a nobler tribute of loyalty and affection? It is a tribute to the fealty of both him who gives and him who receives. The tested friend will be relied upon in the future for he rings true, and you know in advance what he will do. Yes, indeed, old friends *are* best even in these days of modernism. So I sing the Annuals for the Garden of Everyman; and though there be newcomers to lure us into adventure with chance and fortune, and perchance worth rubbing up an acquaintance with, yet say I at this time, among the newcomers are not a few that are but the younger generation of the old familiars—or mayhap the old people themselves in very fact—but arrayed in the raiment of the present day.

Let us not forget the Annuals that have served us so well, and served too our fathers and mothers, and our grandparents, and our great-grandparents and goodness knows how many "greats" away back into the uncharted past. And always these Annuals have made the garden gay and joyous. We cannot even think of an old garden without conjuring up pictures of Poppies and Nasturtiums and Sweet-peas and Bachelors-buttons or Corn-flower or Ragged-sailor or whatever else you may fancy to call it. Indeed the Annuals express gaiety and light and sunshine in a way that the more sedate "herbaceous perennials" or "spring-blooming shrubs," or "berry-bearing plants for winter cheer" do not.

ANNUALS give quick results, and easily! You purchase a few packets of seeds and sow them right where the patch of color is wanted, and the rains from heaven with the sunshine do the rest. And don't forget that sunshine, for you cannot get these Annuals to work their greatest wonders of transformation on a spot where the sun never shines. Left to themselves, nearly all the Annuals bedeck the garden around the season of midsummer dullness that falls like a pall on the too permanent border. Why worry so continuously about the absence of herbaceous perennials to blossom forth in July and August when there are at hand so many Annuals that will "do the trick." Yes, and more, for by succession sowings outdoors the season can be extended later, and by forehanded sowings with slight protection the season can be advanced. You can't gather figs from thistles, nor may you cut Peonies in September, but you can have Poppies early and late, and Pot-marigold, and Pansies, and oh, a host of others—almost everything in fact excepting perhaps that tragic fairy-like queen of the fall, the Cosmos, and even the tropic visitor to the north is tractable to a degree if in its early days it is given the warmth of its native land.

FOR easy gardening—great results from least effort—give me the Annuals. "But," you say "they are not permanent, you have nothing in hand for your labors." "Bless your soul! I have had, the full measure of profit, a hundred fold, in the same year. Should I ask more? Are you fair?"

Annuals are safe material for the new gardener who wants to get experience in handling plants because one season's study will teach a lot of lessons. They are by far the best for any one to learn the principles of forcing on. Sow seeds in shallow boxes—flats—in the dwelling room or in a seed bed made in a coldframe outdoors in March. You will have plants ahead of those that will come from sowing outdoors as soon as the ground is fit to work. Or sow indoors, in the kitchen window in February for flowers in early May—that is of course assuming there is no greenhouse. Give a fibrous loam with some sand added to make it lighter (more open and more easily drained) about two to three inches deep and keep lightly covered after sowing and once watering till the plants appear and the rest is simple, provided the light is good. The only drawback to the kitchen window starting is the tendency to draw, and develop long drawn out stalks. In fact later out-door-sown plants that are sturdy and stocky are far to be preferred.

THERE be three classes of Annuals, which it is well to remember: 1, Hardy; 2, Half-hardy; 3, Tender. Most works of reference and all seed catalogues clearly indicate the

Phlox, Sweet Tobacco, and Carnations in a Tuxedo garden

Verbena in mixed colors on the rockery edge

proper classifications of their offerings which makes it easy to settle the manner of handling any untried plant.

The Hardy Annuals are the simplest to use as they will flower from sowing in the open where they are to grow, which is well for Poppy, and Lupin and similar things that dislike being transplanted. Better to sow them where wanted and thin out the stand to give room to the individual plants. Just as is done with the Radishes in the vegetable garden, thin continuously and successionally as the plants develop, till the flowering stage is reached. And they may even be sown in the fall.

Half-hardy Annuals are those that naturally inhabit a warmer region than the one where they are being grown as cultured plants. The term, like many others used by the gardener, is relative only, but is generally true over the greater part of the country. These we sow indoors in February and March (or perhaps in a coldframe outdoors in the fall) and many of these may be sown outdoors later in the spring, after the weather is settled, to give bloom in late summer.

The Tender Annuals will not endure frost and have a long season of growth and must be started indoors from January to March to be really worth while; except in the South where they become in fact half-hardy. All such are best grown in pots for ultimate transplanting into the open about Memorial Day. We are speaking as gardeners here for in fact most of these tender Annuals are really longer lived than one year, but their growth is checked by the approach of cold so they die while yet young; for examples Scented Tobacco, and Scarlet Sage, and Ageratum. A true Annual matures seed and dies because of that fact, like the Sweet-pea and Poppy.

For filling gaps in the hardy garden before the late things come into growth and after the early bulbs etc., have served their mission Annuals may be sown just where wanted, or they may be grown elsewhere in frames, flats or pots and transplanted as occasion needs. The latter way is the best so far as the general finish of the flower garden and borders is considered, but it involves a little more work which, however, is not necessarily a drawback. The results and effects are certain. It is all wrong to banish the Annuals from the border on the mere fact that they are Annuals. The quality of fragrance which should surely belong in any garden may be lent by a generous sprinkling of Annuals—the Sweet-pea has this quality in addition to other merits of high order—color, and form, and size; Mignonette is justified for its perfume alone, though it transplants badly; and the Sweet-scented Stock, as inconspicuous as it is fragrant, a wonder plant in a hidden corner whence its odor may be wafted on the breezes.

From the purely practical standard of utility for the decoration of the house and porch there are Annuals that will serve—not everyone will answer however and a selection of actual named varieties and strains is worth while if the house needs are to be seriously considered, for pure color, large size, good form, and lasting quality are essential. A selected list, based on experience, appears on another page.

ANNUALS FOR THE GREENHOUSE

BENJAMIN GOODRICH

IS THE usefulness of Annuals as fully realized as it ought to be? Their value as a ready means to fill the gap of mid-summer in the greenhouse? One thing that struck me very forcibly in England was the great extent to which the usefulness of Annuals is increased by potting many kinds for greenhouse display. This display, of course, is rather transitory; but it provides, at the expense of little money and little pains, welcome dashes of color. As a matter of fact, though this is seldom appreciated here, Annuals are indispensable fillers for the greenhouse as well as for the summer garden.

To me Clarkia was the greatest revelation. Though a very old annual, it is scarcely known in American gardens and I have seldom seen it indoors here. In England, on the other hand, it has been fostered until it has developed into a flower that is nothing short of superb. There are two kinds, C. elegans and C. pulchella, the one being normally about two feet high and the other only half as tall. The former is the better for greenhouse culture, as under favorable conditions the plants can be developed into wonderful wide-branching specimens four feet or so high. Such specimens of the best double varieties, like

Scarlet Beauty, Firefly, and some of the unnamed salmon, purple, and pink shades, not to mention pure white, are a sight not soon to be forgotten. To produce these four-footers, as thickly studded with blossoms as a Flowering-almond bush, for May bloom, the seed should be planted in September. Grow the seedlings slowly, with only a little heat, and pinch back to six inches and again to nine in order to get a bushy growth—which should be allowed room for a four-foot expansion. Plenty of space is also needed for showing off the flowering plants, as the long branches are too graceful for very close massing. The pulchella type comes in both pink and white, and double and single. What is known as the dwarf kind is quite compact and thus extremely good for greenhouse massing. All the Clarkias are fine for cutting.

Another almost forgotten Annual is Nemophila. The particular kind that caught my fancy was N. atomaria atrocaerulea Blue Bell. This deep blue flower, the white eye surrounded by small black spots, is really charming when potted. Nemophilas have a height of only four to six inches and are for dainty rather than showy effects. There are at least three good blue varieties to choose from, beside purple, lilac, and white ones.

Strawflowers were another old Annual which I especially noticed. One kind that masses extremely well is Rhodanthe Manglesii, in both pink and white. I also saw the double Acroclinium album and A. roseum used similarly. Strawflowers sound stiff for indoor use, but somehow they seemed to fit in very well. No doubt Helichrysum, the showiest of all the everlastings, which we do sometimes see in our gardens, would be even better in pots. The colors, in the choice varieties, are really beautiful. Indoors they would have also an opportunity to attain to full perfection; which usually is not their lot in the open, as the seed must be planted early under glass to get ahead of Jack Frost. Xeranthemum annuum album, which continues in bloom a long time, also ought to be worth a trial.

Of the somewhat newer Annuals one, at least, is not likely to be grown to full advantage excepting under glass. This is Nemesia, a newcomer from South Africa of uncommon beauty and variety of color. I have given it a good trial out of doors and have studied it in other gardens, but nowhere have I seen a

Nemesia, pot grown, as seen at the spring flower shows

plant worth mentioning in the same breath with a fine pot-grown specimen. Instead of garden scraggliness, there develops a symmetrical plant that is one solid mass of scarlet, crimson, rose, orange, lemon, sky blue, or white. A single plant, small though it be, is in itself an arresting sight. I like the dwarf compact Nemesia for the solid sheet of color that it gives the greenhouse bench when massed, but there is greater grace to the slightly taller type, the flower heads of which stand out with more or less individuality. Single blossoms of this type are often an inch across. The blue Nemesia is the daintiest of all. Use with it the white or one of the yellow varieties. Seed of the Nemesia should be sowed with little heat. Allow about four months from the time of sowing for full bloom. And plant only the best seed obtainable.

My observation of Schizanthus has been the same as in the case of Nemesia; the really worth while plants were grown in pots under glass and indeed they have been conspicuous features of some of the recent big flower shows in New York. But I can in truth safely say that I never really saw this lovely Annual,

Tall Nasturtiums trailing over the greenhouse framework

sometimes called "poor man's Orchid," until I ran across it in the King's conservatories at Frogmore, in the winter garden of Witley Court, and at the London International flower show. Each time the myriads of floral butterflies gave startling proof of the plant's great possibilities when properly encouraged. These, in the first two instances, ran up to a height of three feet while in the last mentioned display the compact type, only about a foot high, was represented as well. The wisetonensis, pinnatus, and retusus types are all good for pot culture. For cutting, use the large-flowered strain; the blossoms are quite like little Orchids. As a rule the pink and white kinds are best indoors. There is a very good mauve, with a paler centre, but the muddy purple and near-magenta shades are poor mixers. Sow Schizanthus seed in September for early bloom and at the end of January for late bloom.

Cockscomb, a good old fashioned Annual that is a stranger to most modern gardens, is an excellent summer filler in the greenhouse or the conservatory living-room. By far the most decorative kind is Celosia plumosa, especially in some of the finer yellow shades. When plants are developed to perfection, they will produce veritable cascades of color. But there is much

to be said for the giant and dwarf types with the real Cockscomb, red or yellow. These seem less stiff and plushy indoors than in the garden. To get good Cockscomb bloom, sow the seed in February or March in a hotbed—with plenty of heat. Pot in due season in eight-inch pots and leave in the hotbed until the combs are produced. These will be finer and heavier if the roots of the plant are allowed to become pot-bound.

The Canterbury Bell is not an Annual, but counts as one under glass. Plant the seed in a coldframe early in May, transplant for the summer's growth and pot in October. Do not attempt to force; the bloom will come along about two months ahead of the outdoor season. There is no finer filler than the Canterbury Bell and it should be used liberally wherever there is greenhouse room. Whether the ordinary or the Cup-and-saucer type be used is less important than sowing seed of the several shades separately. Use pink, mauve or purple with white, or mauve with pink or purple if only two kinds are planted.

China Asters are good indoors, but serve their purpose best if used for early autumn display. The plants may be lifted in the open and potted. Any of the larger-flowered kinds may be potted and for low effects the dwarf "bouquet" type is excellent. Plant colors separately and avoid the deep rose shades as a rule. The color pairing just suggested for Canterbury Bells is a good one for China Asters. In either case it is well to use only two kinds each year and thus have plenty of variety.

Of the annual vines the Tall Nasturtium is the showiest. If trained along the rafters it will bloom all winter. Where more than one kind is used, plant the dark red and the straw color, or two others that go together equally well. The Cypress-vine (Ipomoea quamoclit) is a daintier annual climber and it has the advantage of excluding less light. Plant both the red and the white. For dense foliage effect Cobaea scandens is all that could be asked in the way of luxuriance and its dull purple bells are quite handsome.

Several of the Annuals are of value for special uses. Thus the Summer Cypress, or Belvidere (Kochia tricophila), is admirable for formal definition indoors. In a pot this diminutive "Cypress," two or three feet high, assumes a certain appealing elegance. It will be liked better indoors than out. So will the Spider-plant (Cleome pungens). One specimen of this in pale pink will give a bold effect, as the height is four feet or so and the spread about the same, and even in a large house a little of it goes a great way. The blossoms are quite remarkable and worth close observation. Plant Nicotiana alata, or as it is more commonly called N. affinis, for its evening fragrance as well as its pretty little stars. The type is white, but there are colored forms known as N. Sanderae, among which is a really good pink. For day fragrance use the annual type of wallflower (Cheiranthus Cheiri). It blooms in four months from seed and may be had in red, yellow, and cream tones. Very fine for fragrance also is Exacum affine, a biennial with pretty lilac blossoms that can be brought into bloom in six months from seed. Another kind, E. macranthum, has larger blossoms.

For an intense deep blue, Lobelia ramosa (tenuoir) is the best Annual. This is taller than the common bedding Lobelia, about a foot, and the blossoms are much larger. There are pale blue, rose and white varieties as well. The Annual Chrysanthemum—especially Morning Star, a fine yellow; Celsia arcturus, yellow with purple anthers, which may be brought into flower in six months from seed and stays in bloom a long time; the dwarf blue Centaurea called Victoria; Phlox Drummondi, especially the white—sow it in September or October for Easter bloom; Alonsoa grandiflora and A. Warscewiczii, scarlet flowers a foot or two high that are prized abroad for potting; Dimorphotheca aurantiaca, in the new hybrids; Clintonia elegans, a dainty blue flower; Arctotis grandis, a very handsome Daisy for pots; Chinese Pinks, especially clear colors like Vesuvius, Crimson Belle and Snowdrift; Petunias and the common Balsam are still more in a list that might indeed be doubled.

There is, in fact, an embarrassment of riches to draw from. The great point is to become familiar with the whole range of available Annuals and choose sparingly rather than lavishly. One or two favorite flowers, perhaps, may be used as fillers every year but the wise plan will be to let a few seasons intervene between repetitions; you do not want any Annual to become tiresome.

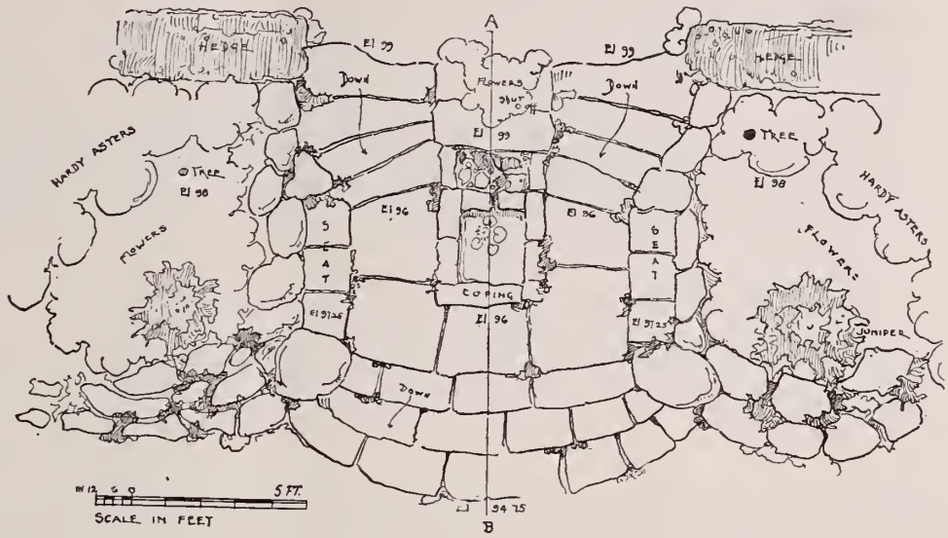
SPECIMEN SCHIZANTHUS, POT GROWN

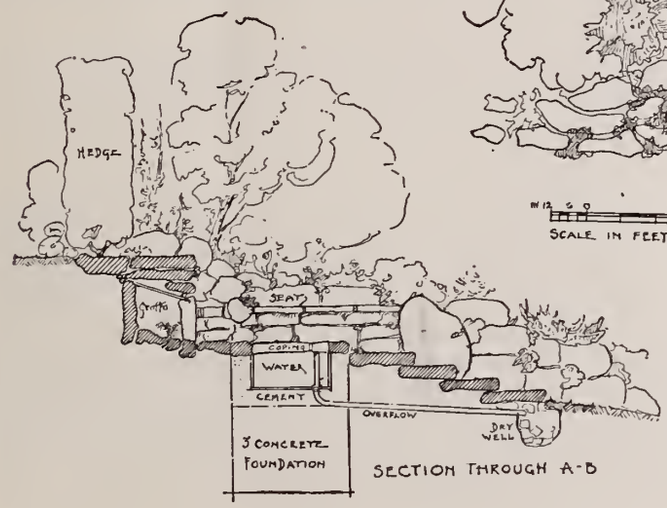
One of the spectacular exhibits from Mr. Adolph Lewisohn that have always been a feature of the international Flower Shows in New York. There is only one plant in the pot

THE MAKING OF A ROCK GARDEN

ELIZABETH LEONARD STRANG

THE average rock garden is as incongruous as a bird bath in a brickyard. Velvety lawns and billowy masses of dense foliage are impossible as a background for a stony ledge of rock outcrop, no matter how lavishly planted. The first requisite, if happy results are to be achieved, is a topography and environment, either sympathetically disposed by nature toward this type of garden, or so constructed and planted as to reproduce in miniature, a scene suggestive of the native environments of the rock and alpine plants for which it forms the setting. Roughly grouped, rock gardens are of two kinds: those which possess the rugged spirit of nature's ungardened demesne, and whose potential points of beauty are stressed or softened as circumstances warrant by the skilful gardener; and those frankly artificial, which are, none the less, possessed of character, meaning, and beauty. Almost any country estate will provide the former; the latter, to which this article is chiefly dedicated, belongs to the large suburban plot.





THE PLAN AND ITS SECTION

Primarily a connection between two different levels these steps were treated as a rockery feature with water introduced and proper drainage for the overflow. It became the dominant feature of the garden and a centre of attraction

The accompanying plans and photograph illustrate a garden of the second type, which, though artificially created out of materials at hand, combines in a pleasurable whole both ornamental and utilitarian features. Even the grotto has a practical reason for its existence, because it conceals the projecting arm of pipe by which the water system of the garden on the upper level is drained before the advent of winter.

The rockery was the logical outcome of the definite need of a link between two totally different parts of the grounds in question. On the upper level, adjacent to the dwelling, was a square, formal garden of the English type, with rose arches, sunken panel, and brick accessories in harmony with the architecture of the house. A few feet below it, but cut off by a high Privet hedge, swept a pretty spread of lawn dotted by fruit trees, which, acquired some years after the garden was made, had never been connected with it save for an indirect path at the side. As shown by the photographs, the flight of steps chosen to bridge the hiatus was more than a mere link: it became the landscape keystone of the whole plan.

Despite the fact of brick having been used in the garden, and being therefore applicable here, stone was finally selected as the material for the structure, both because there was a large available supply of boulders and slabs, and because of their greater harmoniousness with near-by rock outcrops.

A necessary preliminary step was to remove a large garden seat which blocked the axis on the upper level. Next, a gap was made in the hedge, the shrubs cleared from the bank below, and the topsoil stripped from the opening thus made. The first work of actual construction was to lay the lower flight of three heavy steps, which were bedded firmly in loam, each round overlapping three inches in the one beneath. As the slabs were very heavy it seemed unnecessary to go to the expense of a concrete foundation except for the pool; and, furthermore, loam in the crevices was necessary for the growth of the plants.

Flush with the third step a spacious stone platform was laid around a hole four feet deep and about two by three feet in area, designed to serve as the site for the pool. To assure a foundation of at least three feet of solid concrete this was filled to within a foot of the top with a mixture consisting of one part cement, two parts of clean sand, and three of broken stone one inch or less in diameter. In this was bedded at one of the lower corners a stand-pipe like those seen in pantry sinks, with a two inch drain-pipe leading to a dry-well, or hole, two feet square dug below the bottom step, filled with stones and sodded over.

Since the water supply pipe ran very close, it was a matter of but a few hours' work for a plumber to install a jet at the spot where later the back wall of the grotto would be. By the mere turning of a stop-cock a strong stream can be thrown or throttled down to a gentle drip, according to the dictates of fancy. As the pool fills the surplus water runs into the over-flow. When necessary to empty the pool, the stand-pipe is pulled up and the water allowed to run out at the bottom.

While the concrete foundation was hardening—a matter of three days—the two narrower flights of steps diverging upward from the level of the pool were completed; also the simple little seats and rockwork at the sides. Then a rectangular bottomless box of required size, the top of which came flush with the stone platform, was made to serve as a form for the pool proper,

cement being poured between the sides of the box and the wall of the hole. When this was firm, the box was removed and the interior walls and bottom smoothed off with a mixture consisting of equal parts of cement and sand; the bottom with a slant toward the standpipe for proper drainage. A coping of small stone slabs was cemented to the edge of the pool.

The next stage was to harmonize the rockery with its immediate surroundings. This was brought about by retaining walls at the sides, placed in a manner to resemble the adjacent outcrops. The stones were laid in tiers, bedded in the earth, and tipped backward and downward with the object of catching and holding the rain water for the plants, which, as this part of the work progressed, were put in place and firmly tamped in loam, care being exercised not to put a plant in a pocket with an air space behind it, or a projecting bit of stone which might cut off the moisture. The plants on the remainder of the structure were put in after it was completed, loam having been firmly packed in the wide joints between the stones.

Last to be built was the grotto, with its roof of flat slabs and little channel leading to the pool making quite a realistic brook.

Now followed the general planting which completed the scheme and tied the new garden to its background. On the upper level, between the two flights of steps, literally on the roof of the grotto, tall plants such as German Iris, Funkias, and Sedum spectabile, designed to be viewed from the garden, were placed. At the outside of the steps, Funkias masked the bare lower branches of the Privet hedge. Inserted in the cracks of the upper steps and the walls of the grotto were the following rock plants:

Arabis alpina
: Rock-cress 6-8 in., early Apr-June. Gray foliage; white flowers.

Aubretia deltoidea.
: Wall-cress, 2-10 in., mid-Apr. to late May. Trailing plant thickly covered with violet-purple flowers.

Saponaria ocymoides
: Rock soapwort, 6-9 in., late May to Aug. Pink; foliage dark green.

Nepeta Mussini
: Grey Catmint 2 ft. July, Aug. Luxuriant gray foliage; violet flowers. Grows much smaller in rock garden. Also an excellent edging in the flower garden.

Tunica saxifraga
: Saxifrage-like Tunica, 6-10 in., June-July. Quantities of tiny pink flowers above minute dark green foliage.

Cerastium tomentosum
: Mouse-ear Chickweed, 3-6 in., June. Large white flowers, silvery foliage.

Underneath, in the cool drip of the grotto, were little Ferns, and the tiny white Viola blanda brought in from the woods. There was also Veronica repens, a prostrate plant covered in May with racemes of minute blue flowers.

At the edge of the pool was an accentuative group of the tall white Siberian Iris. In the water, a single plant of the dwarf white Water-lily (Nymphaea pygmaea); Pickerel-weed (Pontederia cordata), with its blue flower spike and erect arrow-like leaves; and Salvinia braziliensis, a feathery floating aquatic to be removed to the aquarium in winter.

In the broader cracks of the stone platform were creeping Thyme (Thymus Serpyllum), whose downy leaves give forth an aromatic scent when trodden upon; several kinds of dwarf Sedum, and the rosette-like Sempervivums or House-leeks. These plants are best fitted to endure the direct rays of the sun.

The retaining walls of rock on each side of the broad lower steps were sparsely planted with the following, for crowding in such a situation is an abomination·

Arabis alpina
: Rock-cress, 6-8 in., early Apr-June. Gray foliage; white flowers.

Phlox subulata
: Moss-pink, 4-6 in., late Apr. to late May. Prostrate plants with moss-like foliage. White and lavender varieties only.

Dianthus plumarius
: Garden Pink, 8-12 in., June. Gray foliage; fragrant white or pink flowers.

Myosotis alpestris
: Alpine Forget-me-not, 3-8 in., May to early June. Blue flowers branching erect as the plant grows older.

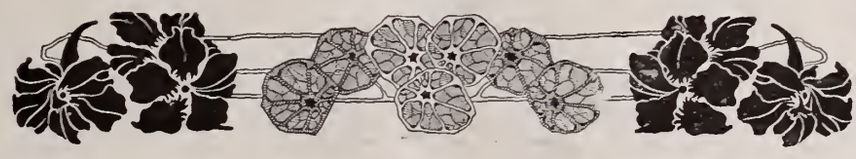
The sloping banks between the retaining walls and hedge afforded an opportunity for somewhat larger planting effects. Behind, and overhanging the seats were two Flowering-crabs with Ground-junipers at their feet, which gave a sense of permanency not furnished by herbaceous plants alone. In front of these were planted the following:

NOW THE FEATURE OF THE WHOLE GARDEN

The steps connecting two levels become a rockery with plants set in the crevices, and a convenient place to linger and dream

Muscari botryoides
Grape-hyacinth, 6-9 in., April-May. A vivid blue. If undisturbed multiples rapidly.
Aquilegia hybrida
Hybrid Columbine, 1-1¼ ft., mid-May to July. Large flowers of pink, blue, and creamy white.
Cheiranthus Allioni
Orange Wallflower, 10-12 in., May. Erect plant with flowers of intense orange.
Linum perenne
Blue Flax, 1-1½ ft., mid-May to Aug. Delicate light-blue flowers; grass-like foliage.
Hosta Funkia, lancifolia
Lance-leaved Day-lily, 1-2 ft., late July to early Sept. Flowers of lilac blue above dark green leathery foliage.
Heuchera sanguinea
Coral Bells, 1-1½ ft., June to late Sept. Delicate panicles of small red flowers on red stems; foliage semi-evergreen.
Oenothera missouriensis
Missouri Primrose, 10 in., June to early Aug. A profuse bloomer, large solitary yellow flowers 5 in. across, each lasting but one day.
Statice latifolia
Sea-lavender, 1½-2 ft., late July to early Sept. Clouds of tiny lavender-blue flowers in large spreading spikes; foliage springing from the root.

Back of everything a tall, encircling frame of New England Asters followed the downward slope of the bank, a final autumn crowning of the rock garden.



PINKS FOR BORDER AND ROCK GARDEN

LOUISE BEEBE WILDER

AMONG plants suitable for growing along the edges of borders, in dry retaining walls, in the joints of paved paths or on rock work, none offer such variety, beauty, or such gratifying certainty of success as do the various species of Pink. True, among them are some, like Dianthus glacialis and D. alpinus, that require a considerable degree of cultural knowledge and skill, but for the most part they are very easy to grow. Their almost universal demand is for sunshine and very free drainage; all are impatient of standing moisture especially in winter. A position between two stones suits them well, or the surface of the earth around them may be covered with stone chips to check evaporation in summer and to keep the collar of the plant out of the damp in winter. The soil best suited to them generally is loam freely admixed with sand and grit. At least twice during the year a dressing of sand and leaf mold should be worked in about the tufts with the fingers. This serves to encourage fresh growth and to protect the plants from drought, generally keeping them in a healthy condition.

At the present time, on account of Quarantine No. 37, the only way to procure a comprehensive collection of Pinks is to raise them from seed, and happily this enterprise offers few obstacles. Seed sown in pots or pans of sandy loam germinates quickly and the young plants grow sturdily, flowering usually the second year. It is not always possible to procure seed that comes absolutely true to name owing to the readiness with which the different species cross, but it is seldom that any Pink comes amiss, and often we attain, quite unexpectedly, something choice and delightful. Pinks are to be found scattered about the plains and mountains of Europe, in many parts of temperate Asia and in North Africa. The only species we have here is D. Armeria, the Deptford Pink, a not very desirable little biennial, which is not a true native. The following is a selection of the best to begin with:

D. arenarius, the Sand Pink, is one of the most easily grown and delightful of the family. It forms thick mats of rather short, bright green foliage, very narrow, and bears for many weeks during the summer pure white, fringy blossoms that are exceedingly fragrant. A charming plant for the edges of stone-rimmed borders or for the rock garden. It is one of the most long-lived.

D. caesius, from compact tufts of grey-green, narrow leaves, sends forth in June veritable explosions of single, bright pink, fragrant blossoms. This beautiful pink is at home upon the precarious ledges of the Cheddar Cliffs in England and is a true crevice plant. It likes a position where it will be well out of the way of winter damp—a ledge of the rock garden, or a niche in the sunny wall. A little old mortar mixed in the soil about it increases its comfort.

D. cruentus flowers for many weeks during the summer and is very brilliant. It grows in neat tufts of narrow leaves from which it sends up tall, naked stems terminating in small, Sweet William-like heads of bright crimson flowers. It is almost the least troublesome of Pinks, satisfied with any sunny position, but it lacks the charm of fragrance and is not to be considered of the first order, though attractive enough for out of the way positions. D. atrorubens is a good deal like it.

D. deltoides, the Maiden Pink, is a little plant for which many uses may be found in the garden. It is a native of Great Britain and grows in low, dense spreading mats, the leaves small and dark green and the small, bright pink, crimson-spotted blossoms produced in the greatest profusion. There is also a white variety with a faint pink eye and little freckles on the petals. The low dense growth of the Maiden Pink makes it a good edging plant and it is also delightful planted at the top of a retaining wall or in the crevices of the wall-face. It is admirable for carpeting sunny banks where it is difficult to care for grass and grows neatly between the joints of stone-paved walks.

D. graniticus and **D. caucasicus** are closely allied to D. deltoides, differing mainly in their larger and more clearly colored blossoms. All of these are easily raised from seed, easily grown and perfectly hardy, but they are too strong-growing and pervasive for rock gardens save where there is plenty of room.

D. Prichardii, on the other hand, while it is of the same type as deltoides, is of the compact, neat habit which renders it a desirable rock plant.

D. dentosus, the Amoor Pink, is a beautiful Russian species revelling in a position where it may fling its lax, grey-leaved

THE FRAGRANT CHEDDAR PINK

Equally at home in the American garden as on the cliffs of Cheddar, England, this fringed Pink (Dianthus cæsius) is an ideal of what a rockery plant should be

branches over a warm stone. The blossoms are very large, single and of a warm magenta tone. A delightful plant for the rock garden or wall top.

D. integer is one of the prettiest of the smaller Pinks, bearing its dainty fringed white blossoms with great freedom. Its habit is neat and close and it is essentially a plant for the rock garden where it likes a position in full sun and a soil rather poor and gritty.

D. neglectus is one of the gems of the family. It grows in tight little hummocks of glaucous foliage from which issue slender stems four to six inches high carrying one, sometimes two, brilliant pink single blossoms with a bluish tone at the centre. These close at night disclosing the fact that the under sides of the petals are buff-colored. D. neglectus is very floriferous and a well grown plant presents a fairly dazzling appearance. It requires to be grown in full light and in a soil nicely compounded of leafmold, loam and broken stones.

D. petraeus, a lovely fringed Pink, very fragrant, is a good subject for the sunny border edge or the rock garden. The flowers are light pink and the bright green shoots spread over the soil forming tufts of narrow foliage.

D. chinensis asper, The European form of the species often referred to as D. Seguieri, is an erect little bush from twelve to eighteen inches high with flat pointed leaves, bright green in color, and warm crimson blossoms spotted purple at the throat and with toothed edges. It is one of the very easily grown Pinks, and flowers continuously throughout the summer.

D. subacaulis is a diminutive species from the alps of Dauphiny, growing in small glaucous rosettes that increase to broad, close-growing tufts. The small pink flowers are borne on stems not more than three inches tall and in great profusion. It is a plant for a choice corner of the rock garden in stony soil and sunshine.

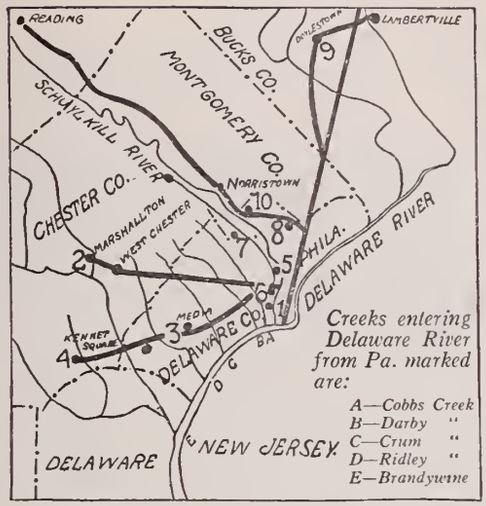
D. superbus is a beautiful plant flowering nearly all summer, and is one of the few of its family that will tolerate partial shade. It grows anywhere from a foot to two feet in height, has erect leafy stems like those of a Sweet William and pale lilac-pink blossoms fringed almost to raggedness with little greenish spots at the base of the petals. It is suitable either for border or rock garden but should be treated as a biennial, raised from seed every year, as it is apt to be short lived.

D. sylvestris should be much better known, for it is one of the most brilliant and effective species and not difficult to grow. In spite of its descriptive name it requires full sunshine and enjoys a well drained gritty soil. In such a position it forms close tufts of narrow, slightly bluish leaves, and flowers most generously. The blossoms are rather large, toothed, and of a most delightful pure pink tone, blue spotted at the base of the petals and with conspicuous lilac anthers. It is a charming plant for the rock garden or for a crevice in a sunny wall face.

THE OLD GARDENS OF PENNSYLVANIA

III.—PAINTER'S ARBORETUM, NEAR LIMA, DELAWARE CO., PA.

JOHN W. HARSHBERGER
Professor of Botany, University of Pennsylvania



The figures in the map indicate the locations of the gardens and their sequence in the series

THE rolling country in Delaware and Chester Counties, Pennsylvania, has long been noted for its flora, and the number of its citizens who have followed botany and horticulture as an avocation is considerable. Among the lovers of plants, who have left substantial record of their fascination in this direction, none stand out more prominently than the Painter brothers, Minshall and Jacob. The merit of the Painters consisted in their arboretum planted by their own hands on a property of five hundred acres, settled by Jacob Minshall in 1701. It passed later to the Painters, Enos Painter marrying Hannah Minshall. Enos and Hannah (Minshall) Painter, the parents of Minshall and Jacob Painter, died about 1840; the property then became the possession of their sons, who planted it to trees. The birth of Minshall was on March 6, 1801, and of his brother Jacob on June 22, 1814 Both remained bachelors and lived together on the old farm, where they continued to develop until the early seventies the planting that was actually begun in 1825.

A small stream, joined by another one on the grounds, enabled the brothers to plant a number of trees which thrive best in a wet soil, such as the Deciduous Cypress (Taxodium distichum) placed at the confluence of the inlets. These trees, now grown to large size, are interesting because of their highly developed root formation with abundant knees which follow the stream banks some distance away from the buttressed tree bases. The forest, for to such dimensions has the original arboretum grown, furnishes a fine specimen of Cryptomeria japonica, and near by, a Cedar of Lebanon (Cedrus libani) whose girth measures eight feet six inches. A widely spreading Maiden-hair tree (Ginkgo biloba) with a trunk five feet four inches in diameter stands in front of the roomy, broad-verandahed house. The success of the California Redwood (Sequoia sempervirens) in the Eastern states is attested to by a tall fine tree in the southern part of the garden, and not far off along the highroad is the finest specimen in the East of the Big Tree of California (Sequoia gigantea), unfortunately mutilated a few years ago by some vandal who cut out its top for a Christmas tree. Here also, growing in the forest shade are representative specimens of Balsam (Abies balsamea), Papaw (Asimina triloba), Yellowwood (Cladrastis lutea), Franklinia (Gordonia pubescens), Silver-bell (Halesia tetraptera), Varnish-tree (Koelreuteria paniculata), Sweet-gum (Liquidambar styraciflua), large-leaved Magnolia (Magnolia macrophylla), and Princess Tree (Paulownia imperialis).

The Maples represented in the collection are of the English, Norway, Sycamore, Sugar, and Silver species. The Magnolias form a list of seven or eight different kinds: Magnolia acuminata, conspicua, Fraseri, glauca, macrophylla, purpurea, tripetala. The Oaks (Quercus) were not neglected in the planting operations of years ago and are now represented by fine trees of Q. alba, falcata, macrocarpa, phellos, and robur, respectively the white, Spanish, Mosscup, Willow, and English species. The hardy shrubs have succeeded remarkably well in the rich soil

HOUSE IN PAINTER ARBORETUM

The porch of which is sheltered by a sturdy Dwarf Box and a Trumpet-vine whose ambition remains undiminished by age

LARGE BALD CYPRESS

(Taxodium distichum) In the arboretum near the stream, where the swampy character of the ground has caused a knee development not usual when the tree roots in dry soil

and under the protection of the taller trees. A ramble along the woodland paths will enable the visitor to notice the presence of Spice-bush shrub, Judas-tree, Leatherwood (Dirca palustris) Silver-berry, Oak-leaved Hydrangea, Laurel, Yew, and many wild and introduced herbaceous plants.

Between 1840 and 1850, although the brothers remained at home, they were able to obtain many plants by exchange with Thomas Meehan of Germantown, John Evans of Radnor township, with the Hoopes Brothers of West Chester, and others. The old arboretum to-day is a most fascinating place to visit, and fortunately for the preservation of its trees and shrubs, it lies off from the ordinary lines of travel.

Minshall and Jacob Painter, its founders, were strong, able men physically and mentally. Minshall was rather tall, heavily built, broad shouldered, and of fine figure and carriage. Jacob was shorter, and quite fat. They were keen observers of nature and deeply interested in all human progress, both scientific and literary. They spent a considerable time in their little, fireproof library building between the large bank barn, built of stone, and their old homestead. On the second floor of this building, their books and papers were kept. They read the books of Darwin, Huxley, Spencer, Tyndal, Draper, and other scientific men of their day. The botanists entertained a good many friends during the summer and they enjoyed showing their visitors the rare trees and other plants which they had been successful in growing. Dr. Samuel Trimble of Lima, who knew the brothers well, says: "I shall never forget the pleasure they took in showing me around the grounds, calling attention to almost every tree and shrub we passed, though it was almost impossible to get through the growth in many places."

On the death of Minshall Painter of apoplexy August 21, 1873, and of his brother Jacob on November 3, 1876, the place passed to their nephew, John J. Tyler, who though he does not spend any of his time there, has succeeded in preventing serious depredations of its trees and shrubs. The brothers lie buried in the Cumberland Cemetery adjoining the meeting house they attended. A marble monument on the grave of Jacob Painter is inscribed with two verses which express their love of plant life.

On one side:—

My brother, round thy place of rest
Well may thy once loved flowers entwine,
No heart that throbbed in mortal breast
Was kinder or more true than thine.

On the end:—

For thee no more shall vernal Spring
Renew the leaves on trees and bowers;
For thee no more shall Flora bring
Her choicest gifts of rarest flowers.

It can be truly said that the Painter arboretum includes some of the best grown and most interesting trees in cultivation in the eastern United States. It has become the rendezvous of tree lovers and classes in forest botany. The writer has led a number of botanic classes to the grounds and great interest is aroused on the part of the students in getting acquainted with some of the trees which are natives of distant California, China, and Japan. The preservation of this remarkable collection of trees should be insisted upon.

THE FINEST CALIFORNIA BIG TREE IN THE EAST

This splendid Sequoia gigantea at the edge of the Painter farm bordering the highroad has, by throwing out a lusty double tip, repaired as well as nature will allow the damage done it a few years ago by some citizen, who, selfishly sentimental, cut out its top for a Christmas tree

WALKS AND TALKS AT BREEZE HILL—III

J. HORACE McFARLAND

Wherein Is Reflective, Critical, Philosophical and Friendly Comment Inspired by Personal Experiences in a Pleasure Garden

WHEN I began, in 1910, to work out a garden at Breeze Hill the dominating features, aside from the great Button-ball and several Pines and Spruces, were some old Arborvitae hedges, averaging about twelve feet high, which had bordered an entrance road and marked a farm division of the former vineyard enterprise. These were probably planted about 1875, allowed to grow at random, and then—when their stems had reached a diameter of an inch or two—had been ruthlessly sheared off at three to four feet.

The result was to induce a heavy, spreading sidegrowth, as the younger shoots sought light on either open exposure. No further training occurred, and consequently, at the time when I began to occupy Breeze Hill, they were decidedly picturesque and informal in aspect, and much more decidedly weak and decadent. Mr. Manning, who supplied the first landscape suggestions, insisted that they formed a salient and distinctive feature which must be retained.

THE NATIVE ASHY-LEAVED HYDRANGEA

The ashen gray effect of the under side of the leaf when stirred by the breeze gives a pleasing sensation of coolness in summer time. H. cinerea (or H. radiata) is native from North Carolina to Tennessee

A Tale of Evergreens and Maples

A DOUBLE row edged the farm lane curving to the west house entrance which became "Lovers' Lane," and was dedicated to native plants exclusively. But, where the Arborvitaes had failed, there were bad gaps in the hedge which it seemed necessary to fill. Three times young Arborvitaes were planted in those gaps; three times they died. (I now know why.)

Then came the possibility of getting a half carload of West Virginia Rhododendron maximum to fill these gaps, both in Lovers' Lane and in the hedge south of which, on the old greenhouse site, I was establishing what has since become the "Center Garden," of a semi-formal character. I provided leafmold from the Pocono Mountains (at $4.13 per cubic yard, delivered—I now make it at home for nothing!), and in due time the great Rhododendrons from the wild came and were planted.

The planting was done by a nursery worker in whom my confidence has decreased. I think he planted too closely, for he set the plants—rather "leggy," it is true—over each other. But with much leaf mulch and much watering they took hold, grew, bloomed, and seemed happy. They fitted the hedges, and gave the impression of age and permanence that I like.

It will be noticed that I use the past tense. The Rhododendrons that remain are not now happy, and all too many of them have died and been removed. Therefore I sorrow!

"There's a reason," I believe, and that is why I am telling the tale, which may warn others. Three husky, self-planted Norway Maples were in the Lovers' Lane Arborvitae row when I came on the land, and it was their hungry roots that had done for the near-by evergreens. One I removed, but as the other two supplied a desirable note of foliage, shade and color, they were permitted to remain. To keep them from absorbing all the Rhododendrons' food their roots were literally "fenced in" with slate and concrete. This protection has proved effective against the Maple roots. Another protection, however, has proved to be disastrous. It was against the fierce northwest winds, which hit those Rhododendrons.

The nurserymen proposed the hardy, quick-growing, good-looking Privet (Ligustrum Ibota), as a shield to the neighboring Rhododendrons. The Privets grew apace, and beautifully; their flowers and foliage alike attractive. They tempered the winds all right, but too late I found that their hungry, insatiable, fibrous roots, far worse than those of the Norway Maples, had robbed the Rhododendrons of water and food, in the end killing many of them.

Robber Roots of Respectable Shrubs

THE LESSON is easy to read, though it is hard to endure. The thoughtful planter must consider the root systems of the plants he uses, and whether they will work together or whether one will, in Nature's ruthless way, wipe out another. I have found, for example, that the Thunberg Barberry hedges about Breeze Hill—full eight hundred feet of them—are growing far taller and thicker than is their presumed normal habit, because of the abundant fertility I have supplied to the borders inside. It is necessary each year to cut down into the ground with a sharp spade all along these husky plants, to discourage for a short time their fibrous, foraging yellow roots. Five to six feet high, six feet through, in nine years!

The Arborvitae hedge is slowly going. As I have before remarked last winter was very hard on these evergreens. Spread

as they are, despite the wiring which I have laboriously done, a heavy snow bends them to the ground, and further hurts them, I fear. But they are superbly beautiful under the snow, as I find when I go among them striving to release them from their white burden. I am trying to replace those that die with Hemlocks, which, equally beautiful, seem to grow more comfortably.

A Little-Known Rudbeckia

VISITING one September day that wonder-place along the harsh shores of Lake Michigan, which includes only two or three actual acres and looks like a generous park, a dainty garden, a good city back-yard, a woodland dell, and other things as attractive, but best of all like the outdoor and indoor home one comes to associate with W. C. Egan, I was hit hard by a veritable blaze of bright yellow that bordered the driveway. Greetings over, the question was asked and answered. "Rudbeckia triloba," said Mr. Egan. "It is a hardy biennial, it self-sows, so that I have only to weed out what I do not want. In a corner it has not yet reached, I just shake a few seed heads I have taken from the plants when they bloom out in the fall." Then he went on to tell me how serviceable this biennial Rudbeckia is as an indoor decoration, the entire plant, in full bloom, being lifted and "tubbed," for it grows beyond pot-size in a season.

Three to four feet high, the veritable bushes of R. triloba were completely covered with flowers somewhat smaller than those of the commoner R. hirta and its varieties, and having, of course, the characteristic central, nearly black cone. The habit is wholly different from that of other Rudbeckias in its compactness and uprightness, giving it a decorative quality of its own.

Of course Mr. Egan promptly offered me plants, which I as promptly accepted—for what is the use of good plants if friends can't exchange them?—wherefore Breeze Hill has this year used R. triloba. One group I put with Heliopsis Pitcheriana, which it has followed in bloom and improved upon in effectiveness. Another surrounded a Buddleia, and they are making together a beautiful contrast as I write in mid-September.

A Good Fall White Daisy

BLOOMING very pleasingly and abundantly, and of the same height but with a looser habit than Rudbeckia triloba, is Pyrethrum uliginosum, a white-flowered daisy-like plant that next year is to be planted right with it. I owe this good September bloomer to some seed from F. H. Horsford, who doesn't care much about beaten paths when he finds anything worth while. It has been in flower for many weeks, and has brightened its little corner effectively, nestling under the unique and beautiful foliage of Hydrangea quercifolia.

A GOLDEN GAMUT IN FALL

The native Rudbeckia triloba is compact and upright, self sows freely and may be lifted when in full bloom (September) for indoor use

OAK-LEAVED HYDRANGEA

Another of the lesser grown shrubs, but excellent for semi-shade. The white flower effect in summer is succeeded by rich crimson foliage in the fall

I hoped that this would keep flowering until its blooms were in contrast with the rich hues usually developed in the Hydrangea's leaves by the first cool nights. This year, however, we didn't have any cool nights, and the Pyrethrum bloomed itself through before the Hydrangea leaves began to turn, not in color but in their form. They have curled up in consequence of the two freezes in the midst of soft and open weather which have made this fall a peculiar fall. The expected has not happened, and that is one of the many items of interest that makes the garden a real joy to me.

The Oak-Leaved Hydrangea

WHY do not more garden folks have this notable American shrub? Is it because we are so seriously infected with the disease distributed by nurserymen under the name of Hydrangea paniculata grandiflora? Has this flamboyant, tiresome shrub poisoned us against all the other better Hydrangeas? I know that one can hardly obtain the really lovely Hydrangea paniculata, the fertile form, because of the way in which the grandiflora pest has spread from its proper Newport environment, but H. quercifolia is so utterly different that it ought to appeal to all who plant for merit and beauty rather than for the monkey reason of imitation.

The habit of the Oak-leaved Hydrangea is commendable especially in that it keeps itself clothed with its thick, leathery, and impressive foliage clear to the ground. This foliage opens rather

late in spring from the rugged branches, which have an effect quite their own by reason of their distinctive habit of growth and because of the fawn-colored bark which loosens in thin shreds. (This twig color is a valuable winter-garden resource, by the way.) The leaves soon assume the deep green hue which they hold until the fall brings the transformation to rich dark crimson. Early frosts do not shake loose these crimson banners, which tend to flatten at right angle to the dominant light—my plants face west and they display all the leaf surface to the west. A hard breeze curls the foliage, which eventually browns and drops, after a career of continuous decorative service of about seven months.

The flowers are of course white in effect, made up as they are of both fertile and sterile elements. They are good, and on a par with another neglected American Hydrangea, H. cinerea or radiata. Breeze Hill would be poorer in its livable garden adjuncts if it were deprived of Hydrangea quercifolia.

A Word for Hydrangea Cinerea

WHILE I am singing the song of the native Hydrangeas I may properly add a stanza on this plant, almost indentical in foliage, with the familiar "Hills of Snow," the sloppy trade name for Hydrangea arborescens grandiflora, itself a far finer shrub than the overplanted "p. g." I have been scolding about. The worth-while distinction of cinerea is in the pure white under-surface of its leaves. Planted in half-shade (and it needs shade, as do most Hydrangeas), where the prevailing wind will ruffle its foliage, a charming effect is obtained.

SOME NEW PLANTS FOR THE WINDOW GARDENER

E. I. FARRINGTON

THERE are novelties among the house plants, as well as in the garden. Some of them, to be sure, are of little worth, but others have enough merit so that they can be recommended to all window garden enthusiasts. Among the most interesting of the newer plants is the Godfrey Calla, which is practically ever blooming, if it gets the right care. This Calla is so much better than the old time aethiopica that it is likely to supplant it among florists as well as in private homes. It makes an excellent cut flower, also an attractive and satisfactory house plant. Unfortunately, some inferior stock is on the market, but a good plant is a prize.

The Godfrey Calla seems to be a cross between Little Gem

A LARGER-FLOWERED FAIRY OR BABY PRIMROSE

The variety Townsendi of Primula malacoides is like the type in all respects but size of flower. The color is lilac pink to white

A SMALLER-FLOWERED CALLA

More tractable, because smaller, the Godfrey Calla is also a very practical window plant because it blooms early and profusely

and aethiopica. It has the special merit of flowering much earlier than the hitherto common form, as well as being much more profuse with its blooms. A well grown Godfrey will yield three times as many flowers as the Callas commonly seen in window gardens. As a rule, the flowers are not so large, but in very rich soil they will be quite as large as those produced by C. aethiopica as generally grown. On plants as sold in the stores in 8-inch pots, the flowers are usually of only medium size; but after all size is not something to be striven for with a Calla and especially for one to be grown as a window plant. The smaller the flowers are, the daintier and more artistic for growing in the house, and the smaller plants are easier to handle.

Like all Callas, the Godfreys require good feeding, so that liquid manure and an occasional application of bone meal will help to make them grow and bloom. The new Calla will keep growing all the year round, but it really deserves a short rest on its side under a friendly shrub out of doors in midsummer. Then if potted up in the fall, it will start blooming freely when very small. It is commonly described as a dwarf plant, but in the course of time grows into a large specimen.

Another house plant which the average housewife does not know is Primula malacoides Townsendii. This is a Baby Primrose, but with very much larger flowers than most kinds have. The flowers are a soft pink, and borne very freely, although like all other Baby Primroses, this variety does not flower so steadily as either the Chinese Primrose, or Primula obconica. An unusual feature of the flower clusters is the large size of the individual blossoms, many of which are as big as a twenty-five cent piece. This new Baby Primrose seems to have all the merits of the other kinds, in addition to charms peculiarly its own.

The Coleus makes an admirable house plant. It will grow almost anywhere, but only keeps its rich color when given a sunny situation, for which reason it ought to have a bright south or east window. Coleus slips will often grow for months in water. Indeed, I have a hanging pot made beautiful all winter by drooping sprays of Coleus, having nothing to live on but the water in the pot, which is frequently renewed. A new and very charming Coleus is called Trailing Queen. It is unusually variegated, grows rapidly, and looks remarkably well in a hanging pot or basket, although it can also be used for trailing over the side of an indoor window box. This is one of the most pleasing of the minor acquisitions among the newer plants.

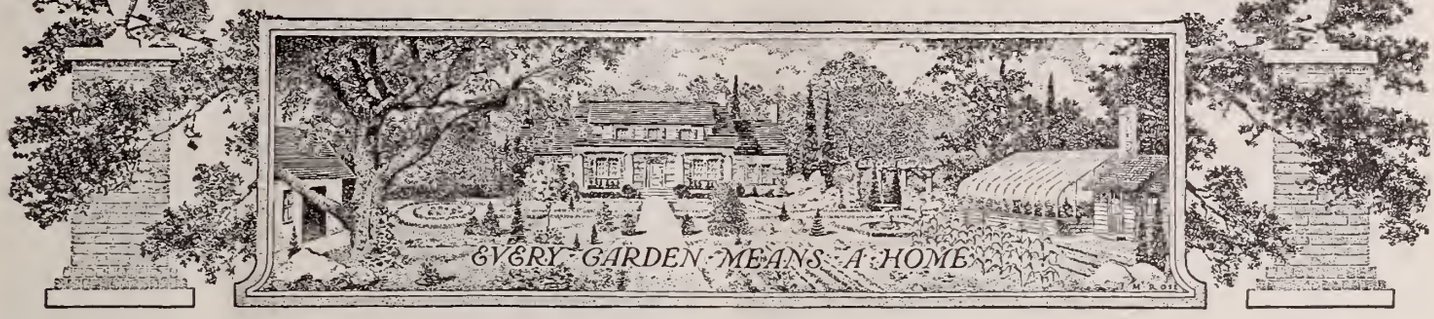
One other plant which ought not to be overlooked is the Macawii Fern. This Fern, which was originated in the vicinity of Philadelphia, belongs to the now very numerous "Boston" family, and is very handsome, even when small. It is unusually hardy, standing more rough treatment than almost any other Fern of its kind. If a single Fern is to be chosen for the decoration of a living room or dining room, no better selection could be made.

COMES YET ANOTHER OF THE BOSTON FERNS

Macawii is the identifying name of this latest addition to the numerous and ever increasing family of Boston Ferns. It is a rugged, hardy form and makes a compact sturdy plant for the table

AMONG OUR GARDEN NEIGHBORS

EVERY GARDEN MEANS A HOME



AS WE ENTER the new year, and are looking forward to the spring activities outdoors, it may be worth while to pause a while and look backward for comparisons. And what do we see? In the readjustment of affairs that is going on people have been making new homes in the country and suburbs, many old places that have stood vacant for years have been reoccupied by new people. There has been a great shifting of population, and the end is not yet.

Already the influence of this commotion has had its reaction on the nurseryman. An unprecedented activity in planting and garden construction work has been felt, and but for the phenomenally "open" fall weather there must have been an accumulated congestion to strangle spring movements. The making of gardens about the new homes that was so active in the fall will be even more active as spring opens, for very many people still defer their planting to the beginning of the year. Activity in fall work that the nurseryman has experienced indicates a corresponding volume of activity for the seedsman in spring.

The home owner, too, approaches the matter with a new appreciation of the garden and its meaning. Garden Clubs, which almost ceased to function as such during the war period, have returned to their normal course and find much work to be accomplished. The individual members are busy in making up for the time lost during the recent years and the new year opens with an activity, sane and sound, that justifies the feeling that 1921 will see the greatest increase of soil production and decorative gardening interest that the country has ever experienced.

FLOWER-PAINTINGS that look like flowers are rare indeed. Every student of every art school "paints flowers" to his or her satisfaction, but in fact misses the mark by an infinite distance. Instead of getting a flower portrait we get a splotch of color that may bear some relation to the tint of the original but lacks form, detail, texture, life, and personality to such a degree that it is a composite expression of a general impression rather than a portrait of an individual. Fact is, such a painter does not know of what he paints and produces a more or less pleasing pattern of color effects based on nature's models, but never a flower portrait that a gardener can recognize.

Come we now to one, however, who transcends in floral accuracy while yet not shedding one degree of art value.

The American public, or at any rate that portion of it which loves flowers and apprceiates fine art, owes much to those enthusiastic citizens pledged to the service of horticulture as "The Garden Club of America" at whose urgent invitation Mr. Frank Galsworthy, deserting his own garden in England, has come to linger for a while—and to paint—in ours!

Those of us fortunate enough to have seen the first exhibition of his paintings at the Anderson Galleries are glad to learn that this privilege is to be extended to other cities besides New York, and it is to be hoped that no one appreciative of fine floral portraiture who is within walking, motoring, or railroad distance of the chosen cities will miss this rare opportunity to see flower paintings that really portray flowers. Mr. Galsworthy has a genuine affection for flowers and a thorough knowledge of them as a cultivator; to him a Tulip is not merely a Tulip it is a Rembrandt, a Darwin, with individual charms and eccentricities of actual varieties keenly noted and cherished. Dom Pedro and Mahoney lose their Doctor Jekyll-and-Mr. Hyde-like character under such trained observation. Then in addition he has in superlative degree the all too infrequent faculty of portraying both truthfully and artistically the blossoms he knows and loves.

There are good horticulturists—quite a number of them here and there all told; there are artists—reasonably good ones—in even greater number; but the horticulturist who deserves the title of artist, or the artist who may justly also be called a gardener is an unusual, almost a unique "find!" Again thanks to The Garden Club of America for its perspicacity! We have Mr. Galsworthy; let us enjoy him, and learn from him.

For learn we can—and much. Take for example the exceedingly simple sketches of the Narcissus family; perhaps no one who has not himself tried to paint can fully realize the mastery of medium and material which lies beneath that surface simplicity. A few strokes made, a few tones used—but just the right ones. To imprison on a sheet of paper the living sinuosity of the Narcissus leaf with one sweep of the brush is the trick of a practised hand; this Mr. Galsworthy does and does repeatedly in his four score or more sketches of varieties of Narcissus. These sketches, quite aside from their artistic value, have special interest for the gardener including as they do a number of varieties seldom—and some never—seen in this country. One variety, very convincingly portrayed by Mr. Galsworthy, rather startlingly displays a reddish tinge in the rays of its perianth, a suggestive first step, perhaps, toward that fantastic dream—the red Daffodil. Its name is Red Guard Barrii.

The Flora Medal was last year awarded by the Royal Horticultural Society for these and similar sketches of the Tulip and other flowers, thus setting the official seal of approval upon Mr. Galsworthy's work in this field by a group of qualified experts.

Wandering among the pictures proper the conviction grows apace of the artist's oneness with nature, his understanding of her spirit and her daring. How else could he have ventured upon (what for lack of a more accurate word may be called) color schemes that hold neither contrasts nor harmonies but are simply fragments of juxtaposed color, to all appearance without "malice aforethought," random blooms running riot as they sometimes do in our gardens if we let mother nature get a stride or two ahead. The group of "Perennial Phloxes," sweeping the gamut of reds from magenta through crimson-scarlet to salmon, is a conspicuous example of his fearless handling of difficult and unusual color problems.

This fearless freedom in his use of color has been a matter of progressive growth, as Mr. Galsworthy himself will tell you. He early discovered the futility of pigment timidly laid on, and with the increasing assurance of experience has arrived at a method comparable to nature's own in the matter of results. It is no insignificant achievement to reproduce, consistently and effectively, the brilliancy, piquancy, and gaiety of the living flower in its many forms; and without any loss of breadth and splendor to make the reproduction so faithful in every detail that the gardener immediately exclaims: "Ah, there is my favorite Le Mahdi! and here's Coquelicot——!" Even artificial lighting, the enemy of all water-color, has not succeeded in draining these flower portraits of their sparkle and their life.

That Mr. Galsworthy's interests extend beyond the realm of horticulture is hinted by "The Old Pitcher" in which the Anemones stand and by other bits of pottery affectionately introduced on occasion. Mr. Galsworthy's career as an architect of established standing is reflected in some skilfully rendered interiors, but it is as gardener-artist, as student, lover, and portrayer of flowers that he has created for himself in the world of horticulture and of art a place, unique and distinguished.

THE preliminary report of the Committee on Quarantine Revision appearing on page 267 of this issue will be received by many as an excellent statement of the "status quo." It is interesting to note the reference to the stated outline of policy by the Bureau of Plant Industry, looking toward a time when all foreign plant material shall be excluded, and which justifies a feeling entertained by many people that the Quarantine No. 37 was not imposed in good faith, on its own merits, but as a means toward an ulterior end. Since the committee report was issued an answer has been made by Doctor Marlatt, on behalf of the Federal Horticultural Board in which the report is stigmatized as "misleading if not absolutely incorrect." Doctor Marlatt, for the first time since the discussion has developed, deigns to give some specific figures as to the permits issued, number of plants imported, etc., but the attitude of the Board is reflected in a concluding statement that "Certainly no backward step can now be taken by this Department." The letter claims "a policy of great liberality" with respect to permits to import; but the fact remains that the Board abrogates to itself the soleright to determine what the trade needs without considering those in the trade. No question of "liberality" to individuals should be at issue—rather each one on terms of equality—justice to all alike.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

A Floral Roman Candle

To the Editor of THE GARDEN MAGAZINE:

THERE is one way that I can always create a floral sensation in my garden. I mean by that, excite the voluble "ohs" and "ahs" of my visitors. That is by growing the Tigridias. Truth to tell, these are among the most gorgeous and interesting bulbous flowers, and yet not one garden in a hundred contains them. I think that amateurs who buy the bulbs often forget that they are not hardy, and so lose them the first winter. Of course they must be lifted in the fall, as soon as the foliage has ripened, and taken to a cellar for winter. With careful handling, making sure that they do not decay during the winter, they can be carried along from season to season, and even increased by means of offsets.

When it comes to planting, they can be handled just about like Gladiolus, but it is well to run a little sand into the holes under them if the ground is at all heavy. Really, they like light, sandy soil best, and it should be chosen when possible. Moreover, they must be given a position in full sun, and preferably where they are protected from sweeping winds. It is true that the flowers are evanescent, lasting only for a day, but one follows the other in such quick succession that this fact is overlooked. Somehow, these Tigridias always make me think of a floral roman candle. Nothing more showy can be imagined than the immense brilliant flowers, and yet their bright hues are not gaudy or objectionable.

How many gardeners have thought of growing the Tiger flowers in pots after the manner of Freesias? This can be done readily enough, and has an advantage even in summer, because the pots can be taken indoors when hard winds or a period of bad weather comes on. The species pavonia is the kind most commonly grown in this country. This is the Shell-flower, and as handsome as any.—E. I. FARRINGTON, *Mass.*

Fruit Varieties for the Home Garden, and Why

To the Editor of THE GARDEN MAGAZINE:

IN "The Assets of the Fruit Garden" in the September GARDEN MAGAZINE objection is made to Baldwin, Ben Davis, Gano, Winesap and Rome Apples. What varieties does Mr. Hartill recommend? I would also like to know what are likely to do well in a very dry, sunny situation and which in a dry shady situation? Are dwarfs advisable? What is the best early Peach? Plum? Apple? Should Cherries be planted in spring or fall? Are Apricots hardy in the outskirts of New York City? Are there any trees immune to diseases? How can I know Pear blight? What bites the tips of young Peach branches? —C. A. GARDIN, *New York.*

—I did not intend to give the impression of unqualified disapproval of Baldwin, Ben Davis, Gano, Winesap, and Rome Apples. They are splendid commercial varieties. But in the home garden quality should be the first consideration. Soil and climate must primarily determine selection: but the following suggestions may prove helpful: Oldenburg —early, excellent for cooking; Wealthy—autumn, exceedingly hardy; Gravenstein—fall and early winter; ranks 100 per cent. in quality; Delicious, Spitzenburg, Cox Orange, Pippin—mid-winter, among very best; Yellow Newtown—late winter, unsurpassed.

TIGRIDIA PAVONIA

Variously called Shell-flower, Day-lily, Peacock-lily, etc., this iridaceous plant with gorgeous scarlet and gold flowers may be handled like Gladiolus

OLD BOXWOOD

Planted one hundred and forty years ago in northern Virginia

Dry soil is a drawback to successful fruit growing. A heavy application of manure, or green crops (such as Soy Beans) plowed under before any fall planting would improve moisture conditions. For the sunny situation try early Strawberries; in the shady, Currants (Cherries, Fay, Perfection, Red Cross, Red Dutch, and Wilder are good varieties).

Dwarf trees are well adapted to the home fruit garden, especially where the area to be planted is small. For commercial use dwarfs have usually proved unprofitable. Dwarf apple on Paradise stock, makes a smaller tree than on Doucin stock. When ordering specify which.

Satisfactory early varieties of Peach, Plum, and Apple are: Peach—Carmen, Champion, Early Crawford; Plum—Abundance (about the best of the Japanese), Reine Claude (mid-season variety of excellent quality), Bavay (fine quality late-season variety); Apple—Early Strawberry (season August), Benoni (August and September).

Fall planting is advisable for the sour varieties of Cherry; for the sweet varieties spring planting is preferable. Apricots are generally considered as hardy south of the forty second degree of latitude. In favorable localities they are hardy on Long Island and along the lower Hudson River Valley.

The New York State Institute of Applied Agriculture at Farmingdale, N. Y. and other state colleges and experiment stations, etc., issue pamphlets on gardening, pruning, growing fruit trees and other kindred subjects, which furnish much information on fruit tree diseases. Pear blight or fire blight may infect blossoms, twigs, trunk, fruit, in fact any part of the tree. During the growing season it may be distinguished by the presence of dead twigs, lines, or fruit spurs. Affected bark is dark in color and the tissues beneath the bark are discolored. If such a condition is discovered, cut out the infected portions, regardless of how severe the cutting may have to be. Sterilize the tools used and the wounds with a solution of corrosive sublimate, one part to one thousand parts of water.

The killing back of young Peach shoots is probably caused by the Peach twig borer. The larvae of this insect live over the winter in the tissues of the crotches of the limbs. At about the time that the buds swell the larvae come forth and feed on the young shoots. To control: spray with winter strength lime-sulphur just at the time the buds begin to swell in the spring.—Leonard R. Hartill.

Behold this Buxom Boxwood

To the Editor of The Garden Magazine:

IS IT any wonder that we grit our teeth in desperation when we look at such a hedge as is pictured in the accompanying snapshot, and realize that Boxwood is one of the myriad materials that may no longer be imported as a result of Quarantine 37 rulings? One hundred and forty years ago these plants were brought from Holland and set out along what used to be the entrance pathway to one of the typical, old-time Southern mansions of northern Virginia. I say "what used to be the entrance pathway," because the bushes have become so dense and huge that they have practically come together in several places and effectually blocked the passage. Consequently another entrance is being constructed among some other specimens equally beautiful but spaced farther apart, and these, the owner tells me, are to be dug out and disposed of.

I remember the magnificent effect created by the 300-foot double row of dense, rich green foliage from a brief visit I paid to the farm ten or a dozen years ago. I would have guessed, then, that the bushes were six feet high in places; now, I am told, they average nearly eight feet, not only in height but in width as well. Had it been kept clipped, or were the rows half as far again apart, this planting would, I am convinced, be an invaluable source of dignity, atmosphere and distinction that no home, least of all the one that it has been a feature of all these years, could think of doing away with. Yet here it is, like the pig in the fairy tale, growing so huge that it threatens to oust the family.

Judging by a sprig that was sent me with the picture, this is the typical Buxus sempervirens or Old World Box Tree. In its present locality it is particularly hardy, vigorous, perfect in color and, what is a little unusual in regard to old Box, easy to transplant. Even under the Virginia sun it retains its rich, fresh color the year round; and such damage as is occasionally done by storms is soon repaired by the thrifty new growth, which speaks well for its vigor and vitality. I can well believe that it enjoys the reputation of being one of the most extensive and luxuriant growths of Box in this country—possibly the finest of all. And I cannot help wondering whether this is one of the things that the Federal Horticultural Board optimistically tells us, "can be satisfactorily grown in adequate amounts in this country." If so, who is doing the good work, and where?—E. L. D. S., *New York.*

Victoria Regia var. Cruenta in California

To the Editor of The Garden Magazine:

THIS variety appears to be the hardiest of all and has made very satisfactory growth in Santa Barbara in the open air. Two plants are still growing here in the pool in the gardens of the New Persian Hotel, The Samarkand. The plants were raised from seed and were planted out in the pool here in July, each in a cement box 3 x 3 ft. square. During the season the leaves have attained 3 feet in diameter and have had twelve blooms and at the time of writing (Oct. 28, 1920) one plant has six leaves and is still in bloom.

The size of pool in which the Lilies are growing is about 200 x 100 ft. and the shape is irregular; one side represents the Pacific Coast and the pool formerly represented the Pacific Ocean as the scheme, now converted into a rock garden, was originally a relief map of North and South America used in connection with a boys' school. The building has now been added to and re-modeled for an exclusive hotel.—Albert R. Gould, *Santa Barbara.*

VICTORIA IN CALIFORNIA

The huge pads floating on the surface of the water, need a pond of large size

A Blue and White Grouping

To the Editor of THE GARDEN MAGAZINE:

ONE corner of my garden which is devoted mostly to blue flowers contains a lovely grouping of Phlox divaricata Laphamii and Iberis sempervirens. They are in the front of an ordinary border and the soft plumbago blue blossoms of the Phlox overtop the white of the Candytuft by just enough to make the combination very effective. The rather thin foliage of the Phlox seems to need just such a sturdy growth as the Candytuft makes to cover its lower stems and a prettier foil for the delicate blue blossoms than the green and white of the latter could hardly be found. A little shade helps the Phlox and the Candytuft seems indifferent. Their long period of bloom (about six weeks) very nearly coincides, although the Candytuft is really lovely two weeks before the Phlox is out much, while the Phlox is still blooming when the other is forming seed pods. During the last part of their bloom they are joined by some light blue Iris which is much the same shade as the Phlox. A near-by group of Iris tectorum carries the same shade of blue in the centre of the blossoms, reaching deeper tones in the falls.—LEILA B. STAPLETON, *Oroville, Cal.*

CANDYTUFT, PHLOX, AND IRIS

So grouped in unison that mingled soft, dull blues of Phlox and Iris and the glistening white of the low growing Candytuft make a color combination delightfully delicate and cool. The strikingly different types of growth also offer interesting contrast

Irises Blooming in Summer

To the Editor of
THE GARDEN MAGAZINE:

MY JAPANESE Irises (Iris Kaempferi) were transplanted, in north central Ohio, two years ago, as late as November fifth, in good clay loam heavily enriched with rotted cow-manure. Some were in fact actually set right in small masses of the manure. Around each plant, to prevent the caking of the soil, was later put a small quantity of well decomposed street sweepings containing a considerable proportion of sand. Early in December a mulch of leaves six or seven inches thick was applied. This was removed about April first. During the droughty spells of the following summer the plants were heavily watered. For the second winter the mulch was again applied, as it should be annually. The past summer has been rainy and cool. Without artificial irrigation, after blossoming profusely at the regular season, my plants continued, all of them, to bear blooms, nearly as large as the mammoth ones of early July, all through the summer without interruption and in number more than one half as many as in the regular season. The last were brought into the house September third.—FRANK B. MEYER, *Ohio and Maryland.*

Seedling Dahlias

To the Editor of
THE GARDEN MAGAZINE:

I THINK my experience with seedling Dahlias last season might interest some of the readers of this magazine. I had about thirty of them, and, while not all were desirable, yet at least two thirds of them would average quite as beautiful as those from purchased roots, and the remarkable thing about these seedling plants is that they were in bloom earlier than those from roots and were also larger and stronger plants. I had at least three that were fully six feet tall. I did not have either greenhouse or hotbed in which to start the seedlings, but started them in a suitable place outdoors where, in case of threatened frost, I could cover them. I don't think I will bother so much hereafter with roots. This is my second experience with seedlings. It is a great pleasure to be expecting these beauties, all the time realizing that you do not know exactly what you are going to get.—A. W. FOREMAN, *White Hall, Ill.*

[And, of course, it has its disappointments too.—ED.]

TO EVERY FRIEND OF AMERICAN HORTICULTURE

A Preliminary Report by the Executive Committee Appointed at a Conference of Representatives of Horticultural and Other Societies, Held June 15, 1920, in the American Museum of Natural History, New York City

ON AUGUST 20, 1912, the Congress of the United States enacted a law entitled "An Act to regulate the importation of nursery stock and other plants and plant products, to enable the Secretary of Agriculture to establish and maintain quarantine districts for plant diseases and insect pests, to permit and regulate the movement of fruit, plants, and vegetables therefrom, and for other purposes."

Under the provisions of this law the Secretary of Agriculture, at the request of the Federal Horticultural Board, issued, in 1918, Quarantine Order No. 37, which, after due notice and hearings, became effective on June 1, 1919.

Designed for the admirable purpose of protecting the United States against the admission of additional insects and diseases injurious to plant-life, the regulations promulgated from time to time under the quarantine **have in effect acted as an embargo preventing the importation of any plants or seeds except those permitted by narrow and seemingly arbitrary rulings.** Further, permits to import under these regulations have been granted or refused in such fashion as to make the Federal Horticultural Board the controller of horticultural research and commerce in a way hard to square with the necessities of an adequate quarantine.

Under these regulations **all importations of plant material,** whether received at Boston or New Orleans or New York or San Fransicso, **must first go to Washington for examination and fumigation,** being then forwarded to the consignee at his expense; and the delays incident to this procedure and the treatment to which the plants are subjected, have in some cases injured them and in some cases completely killed them.

While it is true that the Federal Horticultural Board theoretically will issue a permit to any one for the importation of plants he may desire, it is also sadly true that in certain cases either such **permits have been arbitrarily denied or so long delayed that the opportunity has passed.** It is also a fact that the requirement of a bond to follow the importations for two years **operates as an effective embargo to plant importation by amateurs.**

The official acting for the Federal Horticultural Board determines **the quantity of any plant which in his wisdom it is proper to admit** for propagation purposes, and there seems to be no logical basis for his determination.

Few realize that the present quarantine was issued after the Bureau of Plant Industry, on Feb. 26, 1918, had submitted to the Department of Agriculture a report in which it was stated that in

order to protect the country against dangerous plant pests and diseases **"the time seemed to be at hand for the inauguration of a policy that would gradually result in the exclusion of all foreign nursery and florist stock."**

Various appeals by individuals and associations for the modification of these and many other apparent inequities proving ineffective, and the beneficial research work of the great institutions of America, such as the Missouri Botanical Garden in St. Louis and the Arnold Arboretum of Harvard University, having been either stopped or disastrously checked in so far as such operations are dependent on plants obtained from beyond the borders of the United States, the horticultural societies of Massachusetts, New York, and Pennsylvania called a Conference which met in New York on June 15, 1920. At that conference there were present the representatives of forty-five societies interested in horticultural advance in America, including virtually all the amateur and scientific associations interested in promoting the study and use of ornamental and economic plants in the United States.

The general sentiment of the meeting was in favor of an adequate and reasonable quarantine, but strongly opposed to inequitable regulations, and to the practical imposition of an embargo against plants from abroad. The discussion showed great respect for the probity of the Federal Horticultural Board, but it was believed that this Board did not adequately realize either the ultimate result of the quarantine as enforced or the fact that the quarantine was in effect an embargo rather than a quarantine.

The outcome of this meeting was the appointment of a General Committee, consisting largely of private individuals interested only as amateur horticulturists, which appointed a small Executive Committee to consider the situation and to formulate a report and a definite plan of action.

This Executive Committee now deem it prudent and necessary to make this, its preliminary report.

This committee and those whom it represents agree that it is important to prevent the importation into this country of insects and diseases injurious to vegetation. It believes that necessary and reasonable regulations will be obeyed and supported by all patriotic citizens, but that if such regulations prove, in practice, to be drastic, unreasonable and not actually essential to the end in view, and definitely damaging to the progress of horticulture in America, they should be modified. It is the function and purpose of this Committee to investigate, and to make constructive recommendations in consequence of such investigations.

Horticulture, this Committee holds, is an important agent of civilization. It believes that the love and cultivation of flowers and plants attaches men and women to their homes, and develops in them better and more stable citizenship. It is the hope of this Committee that the people of the United States, rich and poor, may be able, under proper regulations, easily to obtain all the plants needed to beautify their homes.

For centuries the skilled horticulturists of Europe and Asia, through the assistance of their inherited knowledge and labor, working generation after generation upon the same subjects and in the same homes and establishments, have developed horticulture as it has been developed nowhere else in the world, and as we in our new country with our high labor costs and lack of inherited knowledge have not been able to develop it. Thus Europe and Asia have produced and furnished this country with many beautiful, rare, and valuable plants. Under the present quarantine regulations those are nearly all barred, because under them only a limited number of certain arbitrarily specified plants can be imported. With the contemplated total embargo in force, it would never again be possible to secure for the United States any newly discovered, rare, interesting, valuable exotic fruit or ornamental plants, whether species or hybrids.

It should not be difficult to show the necessity for modifying **a quarantine which prevents the importation in any quantity of plants with sand or soil on their roots,** no matter how carefully they have been inspected, fumigated, and treated abroad, and yet which takes no account of **shiploads of soil brought in as ballast** from any port, tropical or otherwise, regardless of the fact that this soil is never inspected, fumigated, or treated, and may contain insects and germs of diseases dangerous to human beings or plants.

If, as we believe is the fact, **a sane and efficient quarantine is desirable,** the officials of the Government owe the people a whole duty and not a half duty. A quarantine defined by carefully studied law and not by incidental official regulations established under a broad law, protecting not merely through the exclusion of incidental plants but through the exclusion or treatment of other disease- and insect-bearing media, would, if properly proposed, be supported by the people. If the necessity is shown, we believe that the Federal Horticultural Board, or some other executive agency, will be provided with funds to establish quarantine stations at enough ports of entry adequately to protect the nation, and to serve at the same time the proper desires and convenience of its citizens. It is our confident belief that **well-equipped and carefully administered quarantine stations should be established at a certain number of ports of entry,** such for example as San Francisco, Seattle, New York, New Orleans, and Boston. Unless some such action is taken, the extension of the present system of exclusion by regulation under a blanket law will undoubtedly result in the total embargo against further horticultural progress in the United States which the report of the Bureau of Plant Industry above referred to seems to have had in mind.

Time has been lost and animosities engendered, and valuable imported plants and seeds have been destroyed since the quarantine became effective, because **no well-prepared and adequate presentation of the facts** has been made to the officials of the Department of Agriculture; and it is no reflection on those officials to propose for them assistance in the gaining of information, which must be gathered slowly, carefully, and at different times and places, to show the facts and the effects concerning this plant quarantine which is so dangerously near to plant-exclusion.

It is, therefore, the proposal of this Committee to send a capable investigator, furnished with all requisite entomological, pathological, and other expert assistance, wherever it may be necessary to gain information, interview individuals, compare notes, and obtain statements and affidavits, upon which the facts can be adequately presented to the Federal authorities at Washington.

It is the purpose of this Committee, when such information has been gathered and when the law under which quarantine regulations have been promulgated has been carefully studied in connection with the situation, to arrange for such argument and presentation, in the belief that there should result a modification in some respects and an extension in others of the quarantine regulations tending to place horticulture once again on a firm footing with relation to the rest of the known world, and to **make it possible for any citizen of the United States, willing to provide the necessary safeguards, to import such plants as he may reasonably require.**

To accomplish the objects above set forth, the Massachusetts Horticultural Society, the Horticultural Society of New York, and the Pennsylvania Horticultural Society have made substantial primary subscriptions, believing that those interested will add the considerable additional amount required.

It is confidently believed that **those who are opposed to a Chinese Wall plant-policy for America,** who think that we are entitled to other plants which may be discovered anywhere as valuable to us as have been the apple, the lilac, the potato, and countless other familiar but exotic plants in use to-day, **will aid the work of this Committee** in contributions and in effort.

☞ You are therefore asked to evidence your interest by a substantial subscription, to be sent to the Treasurer of the Committee, Mr. T. A. Havemeyer, 50 Broad Street, New York City.

Great care will be used in expending the funds of the Committee, none of which will be devoted to lobbying or the obtaining of influence. All expenditures will be authorized by the Committee, and all payments carefully audited. In addition to their own contributions, the members of the Committee serve without pay and pay their own traveling and other expenses.

Communications and information regarding this matter may be sent to any member of the undersigned Executive Committee, or to its Secretary and Attorney, Mr. Herbert W. Schlaffhorst, care of Massachusetts Horticultural Society, 300 Massachusetts Avenue, Boston, Mass.

EXECUTIVE COMMITTEE OF THE GENERAL COMMITTEE

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1328 Broadway, New York City.

John C. Wister,
President American Iris Society;
Secretary American Rose Society,
606 Finance Building, Philadelphia, Pa.

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of the THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in a *normal season* is taken as standard; but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

JANUARY—THE MONTH OF FORETHOUGHT

WHILE activity in the outdoor garden is at its lowest ebb make every preparation possible in anticipation of the rush of spring work. Real success in gardening is only reached by having thorough and well considered plans ahead. Arrange, re-arrange, and again re-arrange the details of the coming year's work (on paper) until the desired combinations and sequences are obtained. If your place is the best planned, and best kept in town, the example will spread so that your town ultimately becomes a better and more beautiful place to live in. Beauty pays in actual dollars and cents as well as in other less tangible ways.

Lawn

Have the materials on hand ready for the work of renovation in the earliest days of spring.

Purchase only the best seeds from reliable seedmen who have a reputation to maintain.

Use sheep manure, bone meal, and high grade humus for topdressing; and consider the matter of putting in a new sprinkling system for proper watering. All arrangements should be made now.

Pruning and Spraying

Continue these outdoor duties as weather and circumstances permit, using lime-sulphur or miscible oil both at the full strength while growth is dormant.

Supplies to Be Ordered

Bird baths, bird houses, new fencing, pool for the gold fish, new seats, vases, and baskets for summer flowering plants need to be considered now.

All required nursery stock, perennials, seeds of annuals and vegetables should be ordered as soon as the lists can be made up after the catalogues have been studied.

Vegetable Garden

Time is not infrequently lost during the actual planting season by planning the vegetable garden for convenience in planting, whereas convenience in cultivation is more essential. Planting is done but once, while cultivation is done several times during the life of the crops. Arrange the various rows as far as possible to a uniform width so that you do not have to change the width of the cultivator every few rows. On each occasion this has to be done time is lost. Moreover, plan to hill up several rows at one time and save taking off the hilling accessories too frequently. Get the necessary tools and implements, including wheel hoes, seed drills, etc.

Give air to the celery on all favorable occasions.

Remove the covering from the cold frames on good days.

Rhubarb, Asparagus may be taken into the forcing house.

Look over glass in the sash for coldframe and hotbed. Rebuild or order new ready-made ones.

Where cover crops are grown systematically, satisfactory results may be obtained by the use of commercial fertilizers alone, but if the soil "lacks body," i. e. "deficient in organic material" don't depend upon fertilizers alone. Get some barnyard manure. If the commercial fertilizer requirement is not great, better purchase it ready mixed. Get some nitrate of soda; it is a fine plant stimulant when used with discretion as soon as needed on crops that appear to be standing still instead of growing.

In the Greenhouse

There is a busy month ahead preparing for the early vegetables which are to mature in frames. Early Cabbage, Cauliflower, and Lettuce may be sown now with this end in view. Also Onion, and Leeks for exhibition purposes.

Forcing Peas and Potatoes

While it hardly pays to grow Potatoes in the greenhouse in view of the early dates on which new southern Potatoes are available, yet, where one has room, a few of an early variety may be grown in pots or on a bench. A cool temperature is absolutely essential at the beginning—it is better to start at 40 degrees than higher. As time passes, however, they respond to a rise in temperature, consistent with increasing growth. Tubers used for this mode of culture should be allowed to develop sprouts in shallow flats in a light but cool position near the glass in order that the sprouts may be sturdy. Give drainage in the bottom of the pots and light porous soil covering the sets about two inches. By using ten or twelve inch pots sufficient room will be left to allow of topdressing as growth increases.

Early Peas may be grown under similar conditions and soil, adding a little bone meal. Sow about ten seeds to a pot and thin out later to half a dozen plants. After planting, both Peas and Potatoes may set under the bench until the growth is a few inches high, when give all the light possible.

Spring Flowers

Seeds of English Daisies, Forget-me-nots, and Pansies, sown now will make nice plants for spring plantings. Seeds of Vincas, and Pentstemons, Verbenas, Aquilegias, Snapdragons, and Shasta Daisies may be sown for bedding.

Wallflowers potted last fall and wintered in frames should be brought into a temperature of 50 degrees.

Hardy Phlox lifted last fall, as well as Hardy Larkspurs placed in a carnation house will furnish new growth for cutting in four or five weeks.

Sow Stocks and Clarkias for flowering indoors in late spring.

Start Hydrangeas for Easter in a temperature of 50 degrees.

Give Gardenias 60 degrees at night at this season.

Plan out now how many summer bedding plants will be needed, for propagation indoors should be commenced.

The Lorraine and Cincinnati types of Begonias may be propagated by cuttings, and the stock of Bedding Begonias of the fibrous type increased by cuttings and sowing seed, as also Lobelias and Petunias.

Take cuttings of Fuchsia, Heliotrope, and Stevia, each from the young wood.

Canterbury Bells do well in a temperature of 45 degrees; plants for Easter flowering and later may be brought in from the frames.

Primulas obconica and malacoides, should be kept free from seed pods, and carried along in a temperature of 50 to 55 degrees.

Look over stocks of Cannas and remove any that are not keeping well.

Start into growth Rambler Roses for Easter decoration. Forty-five degrees is enough for the first couple of weeks, and gradually increase as growth develops until a maximum of 60 degrees is reached.

Start Spireas toward the end of the month.

Calla Lilies in pots will need top-dressing, or feed twice a week with liquid cow manure.

Asparagus Sprengerii is a prodigious feeder and requires frequent topdressing, or application of liquid manure. If young plants are needed sow now.

Look over the stock of Geraniums, give them room and light so that strong, sturdy cuttings may be produced for propagating later on.

Giganteum Lilies will now have several inches of growth. Keep free of insect pests, and give a temperature of 60 degrees at night.

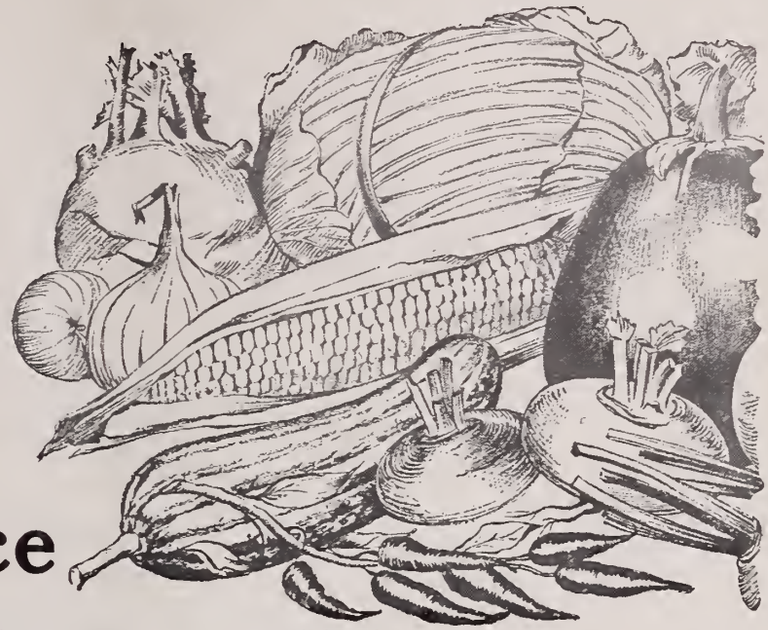
For Cut Flowers

A change from the winter flowering Roses and Carnations is always welcome by April and May for indoor decoration, and Shirley Poppies and Hunnemannias sown about the middle of the month will give something that cannot well be bought. Neither is capable of standing shipping, but cut when partly open will last for days in water. Neither stand transplanting very well and are best sown where they are to flower in the benches. Allow twelve inches between the rows and six inches between the plants.

Produce

Food costs to-day are nearly double those of 1914, but there has been little or no increase in the cost of your home garden. The air and the rain and the sunshine are just as free to everyone to-day as in 1914, and the results are just as big.

If your income has increased in proportion to the general rise in prices, you can get the full benefit of the increase by continuing to produce your summer's food yourself. If it has not, you have a double reason for a garden of your own.



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Make your 1921 garden a better garden by giving it better attention and better seeds. We can help you to both; our full experience of seventy-five years is at your service in every way. The name "Henderson" on a packet of seeds means that everything we have learned in all those years has been done to make them the best that can be produced. Start your garden right with Henderson's Tested Seeds and follow our instructions for bigger yields.

Produce

Our Diamond Jubilee Catalogue, "Everything for the Garden," is the finest we have as yet issued. It is really a book—168 pages—a beautifully embossed cover in colors; eight pages in three colors; a full hundred new process color half-tones and over a thousand half-tones direct from photographs. It is the last word in garden help.

Produce

To demonstrate the superiority of Henderson's Tested Seeds we have made up a Henderson Collection, consisting of one packet each of the following six great specialties:

Ponderosa Tomato	Henderson's Invincible Astors
Big Boston Lettuce	Henderson's Brilliant Mixture Poppies
White Tipped Scarlet Radish	Spencer Mammoth Waved Sweet Peas

As a special introductory feature, we make the following unusual offer: Write for the Diamond Jubilee Catalogue, enclosing 10c for mailing, and without extra charge we will send you this remarkable "Henderson's Specialty Collection" with full cultural directions.

Every Empty Envelope Counts as Cash

This collection is enclosed in a coupon envelope which, when emptied and returned, will be accepted as 25c cash payment on any order for seeds, plants or bulbs amounting to one dollar or over. Make this year a "better garden" year.

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I enclose herewith 10c for which send catalogue and "Henderson's Specialty Collection" with complete cultural directions, as advertised in Garden Magazine.

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ANNUALS FOR CUT FLOWERS

ALL kinds that are showy and effective in the garden are not really practical as cut flowers, for example the Shirley Poppy, which in fact is one of the most gracious of all as a flower, still is not ideal for cutting because it is not an easy keeper. Would that it were, but their "fugaceous" nature—to use the proper technical term—is such that the flowers fall to pieces quickly. The old time English gardener used to help matters a little by using "flower gum"—a thin alcoholic solution of shellac—squirting a drop or two from a syringe-like contraption on to the base of the petal. But the American has an aversion to such devices (or he just won't be bothered) and rather than fuss over the blossom in such a way will discard it and hunt around for something different so Annuals for cutting must be of sturdy lasting nature. There are many such, and there are poor and indifferent varieties of some that demand exactly the same care and time to grow as their more suitable associates. Hence, when cutting is the object, selections must be made for size and color as well. The accompanying list is suggestive, subject to individual variation, of course, but it has the one practical advantage of having been used and proved.

(Figures indicate the height in inches)

BLUE and PURPLE. Ageratum Mexicana, 18; Aster Giant Branching, 28; Aster Comet, 18; Aster Crego 24; Aster Victoria, 21; Centaurea cyanus (Corn-flower), 18; Nigella Miss Jekyll, 12;

LAVENDER. Aster Giant Branching, 24-30; Aster Victoria, 18; Stock Giant Perfection 24; Stock Ten-week, 14; Stock Queen Alexandra, 18; Sweet-pea, Lady Grisel Hamilton, 60; Sweet-pea Asta Ohn, 60;

YELLOW and ORANGE. Antirrhinum Golden Queen, 18; Calendula Orange King, 12; Calliopsis Golden Wave, 12; Eschscholtzia Golden West, 12; Gaillardia Perfection, 24; Marigold Orange King, 24; Nasturtium Tall Jupiter, 48; Nasturtium Dwarf Golden Queen 12; Scabiosa, Golden Yellow, 20; Sunflower Miniature, Stella, 36; Stock Giant Perfection, yellow, 24; Zinnia Double Golden-yellow, 24;

RED and SCARLET. Antirrhinum Coal red, 20; Antirrhinum Crecia, 20; Aster Giant Branching, 24–30; Aster Comet, 18; Aster Daybreak, 24; Aster Victoria, 18; Carnation Margaret, 18; Chrysanthemum The Sultan, 18; Cosmos Giant Red, 48; Dianthus Midnight, 12; Eschscholtzia Crimson King, 18; Gomphrena (Everlasting) 12; Nasturtium Tall King Theodore, 48; Phlox Drummondi Stellata Splendens, 12; Phlox Drummondi Coccinea 12; Poppy D'ble paeony-fl'w'd Persian, 18; Scabiosa Blood red, 30; Stock Red Giant Perfection 24; Stock Crimson Column, 18; Sweet-pea, King Edward Spencer, 60; Sweet-

(Continued on page 284)

TOWNSEND'S TRIPLEX

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¶ Our collection includes all the best, every one having superior characteristics. These have been selected out of thousands of the named sorts from all sources.

¶ Many people prefer high-grade mixtures. We have them in Pinks, Reds, Yellow, Whites, selected when in bloom. Very meritorious. Our Primulinus Hybrids mixed, are recognized as a superior type. Very early, tall, large, interesting. Our customers consider our Primulinus Hybrids "the tallest growing and largest blooming!"

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and it will be a pleasure to mail it to you. Pronounced the most unusual plant catalogue published. Unusual, *not* so much in style of presentation, as in the information and unique character of the plant material it offers. Whether it's a Fern, rare or popular, or a Perennial, quaint, curious or common, so long as it has proved its worth or hardiness, you'll find it offered in this catalogue which is gladly mailed free to every reader of Garden Magazine. You may write to the office nearest you—either New York or Southwick, will gladly comply promptly with your request.

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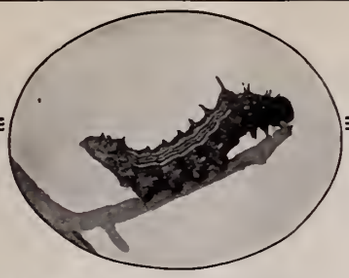

Hammond's Hints on Healthy Gardens

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Insects and blights endanger your garden yields. Some of them are unavoidable—they have to be fought. What to expect in the way of pests and fungus diseases, how to combat all, is described in

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For nearly forty years the recognized standard advisor with thousands of homegardeners and truckers throughout the country. Describes the most widely occurring bugs, blights, and plant diseases, and suggests dependable remedies with which to make the garden a source of greater pleasure and profit. Write for your copy to-day.

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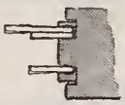
This 5/8 inch dead air space between two layers of glass forming the transparent blanket, is a patened feature. It retains heat overnight and repels the cold.



Sunlight Double-Glazed Sash

for Earlier and Hardier Plants with half the work and cost

No More Covering

No More Doubt

No More Broken Glass

No More Trouble

You don't have to worry any more about the frost getting to your plants even in the coldest weather because *Sunlight Double-Glazed Sash*—consisting of two layers of glass, with a 5/8 inch dead air space between, forms a transparent blanket over the entire bed.

This protector admits all the light and heat from the sun but repels the cold. No covering is needed, hence no mat or shutter nuisance, and all the work is done by one person. No worry, no trouble, no danger of broken glass. *Sunlight Double-Glazed Sash* mean a successful garden with strong, healthy, hardy plants.

SUNLIGHT Double-Glazed Greenhouses

If you want to work indoors, get one of our small, inexpensive *Sunlight Double-Glazed Greenhouses.* They are made entirely of cypress and glass, require no expensive heating outfit and can be operated at very small expense. *Sunlight Double-Glazed Greenhouses* come ready to put up and are easily erected by anyone.

Our Free Illustrated Booklet explains everything in detail, gives prices and valuable information about Greenhouse, Hotbed and Cold Frame operation. Send for a copy—and get your order in early.

SUNLIGHT Double Glass Sash for Hot-beds and Cold-frames

SUNLIGHT
Double-Glass Sash Co.,
Division ALFRED STRUCK CO., Inc.,
Established 1860
927 E. Broadway, Louisville, Ky.

SUNLIGHT DOUBLE-GLAZED GREENHOUSES

Kunderd's New Ruffled Gladioli

PROBABLY every true gardener knows Kunderd's specialty by this time, but not all of them know that his 1921 offerings include eighty new Gladioli never before introduced. These new sorts are entirely distinct in type and coloring; and you should not fail to have some of them to embellish your garden for 1921.

Kunderd's 1921 Catalogue

describes these new introductions and illustrates many of them, eight in natural colors. It includes 44 pages of descriptions and cultural directions; truly a most welcome aid to anyone who likes flowers. Copies are free while they last; send now if you wish one.

A. E. Kunderd

The originator of the "Ruffled Gladioli"

Box G, Goshen, Indiana, U. S. A.

Our Special Service For Those Truly Interested

¶ We want to help you make your garden truly serve its purpose. In the sense, as used here, your garden may be any planting, from a simple, vine-clad pergola, to a wooded estate of many acres. Each brings its problems, and we delight in helping Garden Magazine readers solve their problems. Moreover, this service is gladly rendered free—it carries no obligations. Tell us, please, what your plans are. We shall heartily co-operate to materialize them.

Free Catalogue Now Ready

¶ At best any catalogue is but an index of certain kinds of merchandise. We stand prepared, however, to supplement all information our catalogue gives, with more definite data. We want to help you to a real insight into what the plants and trees we sell, will do for you. Will you favor us with your catalogue request? Will you let us help you get more joy out of your garden? We anticipate the pleasure of serving you.

"Successful for over a century"

American Nurseries
Singer Building
New York

To Have or Not To Have A *Rock Garden*

That's the question of the hour. The Rockery has arrived. Its inimitable charms have finally won the hearts of garden lovers the country over. There remains but to decide *where* to put *your* Rockery (any sunny spot will do) and which plants to favor (over a thousand kinds to choose from). It is the purpose of these messages of ours to acquaint you with

The Jewels of the Hardy Plant World

The month's subject is Lavender Cotton (*Santolina incana*) a dwarf, evergreen, sweet smelling herb with delicate silvery white foliage. Frequently used to emphasize borders, but in our opinion, most attractive as specimen plants, in the Rockery. Price $2.50 per dozen. This is but one of

Over a Thousand Different Kinds to Select From

We believe ours to be as complete and as large a stock of hardy plants as can be found in this country. Whether you want a few specimen plants of a rare species, or thousands of one and the same kind for planting in masses, we can serve you. During the growing seasons, our nurseries are always open to visitors who are welcome to make personal selections. Write for our catalogue TO-DAY.

PALISADES NURSERIES, Inc.
Sparkill, New York

DAHLIA SEED Fenton's Hybridized Dahlia Seed

The World's Best. The only dahlia farm in the world that makes a specialty of Hybridized Dahlia Seed. 100 seeds Hybridized with Black Pearl $3.00. 85 seeds selected from 50 crosses $1.00. 35 seeds selected from 15 crosses 50 cts. What do you get for your $3.00? You get from 50 to 100 beautiful dahlias no two alike. Seed planted Feb. 1st will flower 22d of June. Seed planted July 1st will flower in 81 days. Tubers of The Black Pearl $10.00. Greens Wonder $5.00, to be delivered April, 1922. Tubers of No. 97, a bronze wonder, $5.00. Order now.

FENTON'S DAHLIA FARM
771 Buena Vista Avenue San Francisco, California

A Few GLADIOLI that Always give Satisfaction

To introduce our stock we offer **selected** No. 1 size bulbs of the following varieties postpaid east of the Mississippi River: America (Lav. Pink), Halley (Salmon), Mrs. Frances King (Orange Scarlet), 40c per doz. Pink Perfection (clear Pink), 75c doz. Schwaben (Sulphur Yellow), 65c doz. Willie Wigman (blotched White), 45c doz.

H. M. BARRETT & SON, Cranbury, N. J.

A Glimpse Into the Future Shows Great Things to Come!

The most fascinating aspect of horticulture and gardening, are its constant changes. In plant life, nothing is permanent. A type or class either improves, progresses, or stands still and sooner or later is relegated to the scrap heap.

Each year brings forth its crop of new creations, bidding for public favors. The new crop of novelties in Roses, Chrysanthemums, tender and hardy bedding plants, holds many meritorious aspirants. Among these, few compare in downright merit with ***Ada Finch***—

Most Exquisite *Dahlia* Ever Created

Like a gigantic Daffodil, its nevertheless graceful form instantly captivates the hobbyist. Never again can we speak of a clumsy Dahlia, for in creating ***Ada Finch,*** the breeder has forever silenced the tongues of those who would cynically speak of the Dahlia. Among our many new finds discovered during the recent visits to Europe, this new Dahlia ranks first. Through subsequent announcements we shall familiarize you with other new and rare acquisitions.

A catalogue will be mailed in due time to all customers of record, and those among Garden Magazine readers in search of the latest and best among the season's plant novelties.

Learn to think of Totty's as Headquarters for the Unusual among Novelties

Charles H. Totty Company Madison, New Jersey

Dog Kennel *No. 4 Poultry House for 200 hens—5 units* *No. 3 Poultry House for 30 hens*

THE winds of winter hold no terrors for the chicken fancier who has a Hodgson Poultry House. His chickens are well cared for because his Hodgson Poultry House is draught proof, easy to ventilate, easy to clean, made of red cedar, and vermin proof. Hodgson Poultry Houses arrive in painted sections ready for you to set up. And you do not need the help of a skilled workman. Write for our illustrated poultry catalogue to-day.

E. F. HODGSON CO., Room 311, 71-73 Federal St., Boston, Mass. 6 East 39th St., New York City.

HODGSON PORTABLE HOUSES

Improved European Filberts

The Only Thing of the Kind in the United States

A Great Nut Delicacy, Big, Meaty Filberts (Hazel Nuts), Grow them in your own Garden

FOR years we had enquiries for an improved Filbert as grown in Europe, and in 1912 we imported a selection of the finest European Varieties of Filberts that bore abundantly as far north as Riga, Russia, and obtained a European Nut Expert to begin experiments here. Success crowned his efforts and we now offer Our Pedigreed Varieties of European Filberts, marking a great advance in Nut Culture in America.

These Filbert Bushes Combine Beauty with Profit

They make handsome shrubs for the lawn and have an important place in ornamental landscape plantings. Set out along the edges of walks or drives they will soon rival the celebrated Nut Borders of European Gardens.

Plants bear the second or third year after planting and at the tenth year yield 20 to 25 pounds per bush.

Thrive in any moderately rich, well drained soil, with very little cultivation and succeed over a wide range of territory and latitude. Are HARDY and ADAPTED TO THE MORE NORTHERN STATES where other kinds of Nut Trees will not fruit successfully.

Customers in practically every State report Complete Satisfaction with these plants. Dr. E. F. Horine of Louisville, Ky., writes: *"The trees which I purchased from you last fall were quite satisfactory and have made excellent growth. Particularly was I impressed with your Improved Filberts, as more than half the trees bore from one to six nuts this first fall after planting. Kindly quote prices in dozen lots on your Improved Filberts."*

Write for FREE CATALOGUE telling all about these improved European Filberts and our Complete Assortment of FRUIT and ORNAMENTAL TREES, SHRUBS, ROSES, BERRY PLANTS, etc.

L. W. HALL COMPANY, Inc.
America's Exclusive Producers of Improved European Filberts
463 Cutler Bldg., Rochester, N. Y.

Splendid Nursery Stock of all kinds

Stokes Seed Catalog

true as Sir Galahad

For 40 years STOKES SEEDS have been noted for *reliability*. This quality is reflected in our catalog. It is truthful in mentioning weaknesses, conservative in praising points of merit. The usual confusion of varietal names is avoided by using the name given by the introducer. The origin, history, culture and use of nearly every item is clearly stated.

A copy will be sent free on request.

Stokes Seed Farms Co. *Growers*
Organized 1881 as Johnson & Stokes
Moorestown, New Jersey

A Garden of Gladioli
Blooms All Summer Long

You can't get any plants more profuse in worthwhile bloom, nor can you find any flowers superior for cutting. Spikes placed in water will bloom for weeks at a time; those in the garden will flourish over a long period. To acquaint you with some of my varieties, I make the following Special Offers:

SPECIAL OFFER NO. 1
24 Bulbs for $1.00 Postpaid

3 America, lavender-pink.
3 Crackerjack, dark red.
3 Golden West, orange.
3 Halley, salmon-pink.
3 Meadowvale, white.
3 Novelty, pinkish buff.
3 The Pearl, soft pink.
3 Ida Van, salmon red.

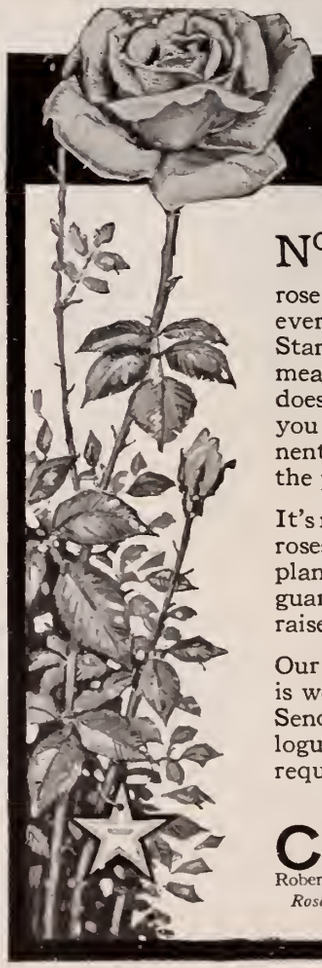
SPECIAL OFFER NO. 2
16 Bulbs for $1.00 Postpaid

2 Bernice, yellow buff.
2 Black Hawk, deep scarlet.
2 Candidum, snow white.
2 Chief Oshkosh, delicate pink.
2 Czar Peter, wine red.
2 Master Wietze, dark violet.
2 Minnesota, creamy pink.
2 Summer, mauve lilac.

Cultural directions will accompany every order

My new 1921 "Glad" Catalogue, containing the color description of over 130 varieties, several Special Offers and some excellent mixtures, will be mailed free upon request.

JELLE ROOS
Drawer A,
CONCORD, MASS.



CONARD STAR ROSES *BLOOM or your money back*

NOWHERE else can you buy plants that take the guess-work out of rose growing — absolutely. For on every Conard Star Rose you get our Star Tag Guarantee. This not only means your money back if the rose doesn't bloom, but it also retains for you the name of the rose on a permanent celluloid tag which you leave on the plant.

It's not the guarantee which makes our roses bloom, but the *quality* of our plants, which enables us to make the guarantee—hardy field-grown plants raised by famous rose specialists.

Our little book, "Success with Roses," is worth dollars. Price to you, 10c. Send for it. Send also for big catalogue of over 200 varieties, free on request.

CONARD ★ ROSES
& JONES CO. Box 24 WEST GROVE, PA.
Robert Pyle, *Pres.* A. Wintzer, *Vice-Pres.*
Rose Specialists—Backed by over 50 years' experience

"HOMES-PERGOLAS AND GARAGES" build with Columns of quality. When writing for catalogue enclose

10c. for Cat. "H-33" on PERGOLAS and GARDEN ACCESSORIES.

15c. for Cat. "H-47" on EXTERIOR and INTERIOR COLUMNS.

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Main Office and Factory
Elston and Webster Avenues, Chicago
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6 East 39th Street, New York City

Are We Approaching Dahlia Perfection?

"Murray Hill"— *⅓ Natural Size—*

My new New York group, named after the five magnificent hotels, Biltmore, Commodore, Murray Hill, Belmont, and Ansonia, will cause you to believe we are. Enormous flowers of the Peony and Decorative style, of deep rich shades and beautiful texture, they are bound to captivate the most exacting hobbyist.

This is but one of several groups of my *new things* obtainable only from me. Please write for complete catalogue to familiarize yourself with all I have.

George L. Stillman, DAHLIA SPECIALIST **C21, Westerly, R. I.**

NOVELTIES for 1921

New Everbearing Raspberry

White Queen—We are pleased to offer, for the first time, this wonderful new Raspberry. Bears from August until well into November. The extra large white fruits are free from seed and acid. Flavor is superb. Plants attain height of 6 ft. Awarded Special Certificate of Merit, New York Chrysanthemum Exhibition, Engineers' Building, N. Y. C., Nov. 4, 1920. $10.00 a dozen; $75.00 a hundred.

Gladioli

New Primulinus Hybrids—Orange Brilliant, Intense Orange. $3.00 dozen; $22.50 a hundred.

Golden Glory—Clear Primrose Yellow. A distinctive Gladiolus. $2.50 a dozen; $17.50 a hundred.

Sweet Pea Novelties

Mascott's Helio—Rose Pink mixed with bronze. Unusual. Pkt. 12 seeds, 40c; 3 pkts. $1.00.

Bridesmaid—The finest salmon pink Sweet Pea. Robust grower producing four and five magnificent flowers. Pkt. 12 seeds, 40c; 3 pkts. $1.00.

Giant Attraction—A warm Shell Pink much superior to Attraction.

Sensation—Rich dazzling scarlet. Pkt. 12 seeds, 40c; 3 pkts. $1.00.

1 pkt. of each of these Sweet Pea Novelties for $1.50

Flower and Vegetable Novelties

Our Catalogue gives full description of our 1921 novelties in vegetables and flowers. We will be pleased to send a copy to all Garden Magazine readers. Ready now.

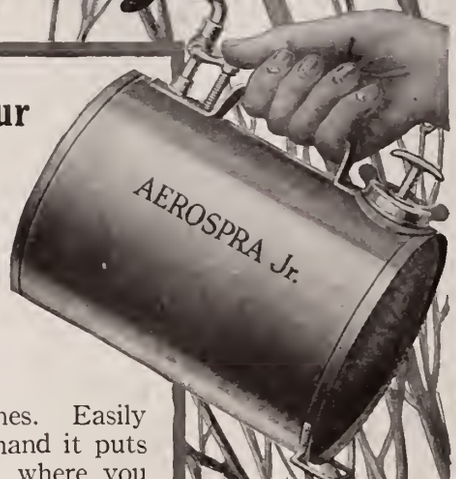
WILLIAM M. HUNT & CO.

148 Chambers Street New York City

Deming Sprayers

Protect Your Shrubbery

HERE'S the handiest little compressed air sprayer made for spraying your hedges, roses, berry bushes and vines. Easily carried in one hand it puts the spray right where you want it. Spray is regulated by thumb pressure.



THE Aerospra Jr. here illustrated is only one of twenty-five Deming Sprayers of different types and sizes. The new 1921 Deming Catalogue illustrating all these sprayers will be sent free upon request.

"Spraying for Profit" an 80-page illustrated book which tells you how to recognize the principal fungous diseases and insect pests, what remedies to use and how to make and apply them will be sent upon receipt of 10c in stamps to cover our cost.

THE DEMING COMPANY, 317 Depot Street, Salem, Ohio

HODGSON *Portable* HOUSES

Wind and Weather Proof

Strong walls of Washington Red Cedar on a framework of best quality Oregon Pine keep you warm and snug if your home is a Hodgson Portable House. For real comfort convenience and practicability there is nothing like them. They come to you in numbered sections—ready painted—and in a few hours at most are ready for the movers to bring in the furniture. All kinds of weather are the same to a Hodgson Portable House. Doors and windows fit in place without warping, and there is no danger of draughts. As time goes on you can add a room or so as needed. If you own a car you'll find that a Hodgson Portable Garage is the best answer to an important question. Write to-day for the handsomely illustrated catalogue.

Play House

Garage

Bird House

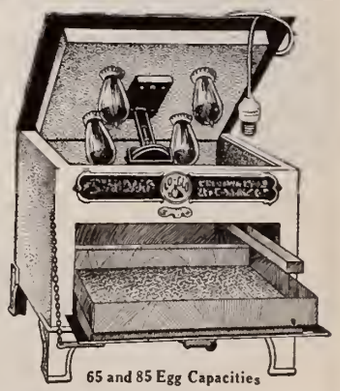
E. F. HODGSON COMPANY

Room 228, 71-73 Federal Street Boston
66 East 39th Street New York City

Cottage

Hatch by ELECTRICITY

The Modern Method


65 and 85 Egg Capacities

Write NOW for our 1921 free descriptive catalogue A. It will give you a straightforward story of the development of an idea that marks the greatest advance of recent times, in the hatching and rearing of poultry.

We refer to the application of electricity through the agency of the LO-GLO Electric Incubators and Hovers.

The LO-GLO Electric Incubators have been brought to the highest state of perfection, and mark a marvelous advance in modern hatching.

All of the objectionable features of incubation along the old lines have been eliminated, and a new system has been evolved, which is economical, efficient, and dependable.

Among the many superior features, we draw your attention to the following.

Perfect Control of Heat, Moisture and Ventilation; Economy of Time and Cost; Simplicity of Operation; Elimination of Labor.

Beautiful in appearance, compact, fireproof, can be placed anywhere, and is in its place everywhere, endorsed by the first breeders of the land, the LO-GLO comes to you without a rival.

The LO-GLO Stands Alone

The use of the LO-GLO Electric Incubators will change drudgery to pleasure, failure to success, expense to profit, and you have our word that if any of our machines fail in any particular, the money you have paid will be refunded without question. A trial will convince and convert you.

LO-GLO ELECTRIC INCUBATOR CO., Inc.
76-A Greenwich Street New York, N. Y., U. S. A.

Livingston's Famous Tomatoes

STANDARD everywhere—at Agricultural Colleges and Experiment Stations, among all gardeners and truckers, and finest for private gardens. We originate varieties for all climates and conditions, for local or distant markets. Hundreds of acres, tons of high grade seed, 60 years of experience as growers, all mean surest satisfaction and profit to planters of Livingston's True Blue Tomato Seeds. All size packages put up under United States registered Trade Mark seal. No other genuine Livingston grown. Order direct from us and protect yourself.

Livingston's Four Big Specials

Livingston's New Manyfold
Our latest introduction. Heavy cropper. Grown in clusters of from five fruits upwards. All marketable size. Early to mature. Bright red—solid. Excellent quality. Pkt. 15c, ½ oz. 55c., oz. $1.00, ¼ lb. $3 25, lb. $12.00.

Livingston's Stone
The greatest canning tomato in the world. Large, bright red, perfectly smooth. Big yielder. Finest flavor and best keeper in cultivation. Ideal for canning and catsup. Pkt. 10c, ½ oz. 25c, oz. 45c, lb. $5.50.

Livingston's Globe
The greatest shipping tomato known. Finest early purple tomato in existence. Very distinct in shape, firm fleshed, of delicate flavor. Splendid for slicing and shipping. Pkt. 10c, ½ oz. 25c, oz. 45c, lb. $5.50.

Livingston's Beauty
Greatest of all purple-colored home market sorts. Strong grower. Very productive. Large. Ripens early, has firm flesh of excellent quality. Pkt. 10c, ½ oz. 25c, oz. 45c, lb. $5.50. Special prices quoted on larger quantities.

Eight entire pages in our New 1921 Catalogue devoted to tomatoes

New, Big Catalogue FREE One of the finest seed guides published. Gives truthful descriptions and helpful cultural directions of the best, reliable sorts of vegetable, flower and field seeds. A copy of this instructive 96-page book is ready for you now. Write for it to-day.

The Livingston Seed Co., 1100 High Street, Columbus, Ohio

Weeber & Don

Masterpiece Asters

WHEN the earlier summer flowers are waning, and the garden begins to lose some of its bright masses of color, it begins its blooming—modestly at first, till when the garden is bereft of most all its bright blossoms, it bursts into a perfect riot of bloom. Pink, white, blue, crimson and rose, it makes the brown beds gay with its glory. And such blossoms! Perfect in shape, immense in size, extremely double, with extra long, sturdy stems rising from the midst of its rich, green foliage.

Well grown Masterpiece Asters grow three feet high, branch freely and are healthy, vigorous bloomers, producing on each plant from ten to twelve perfectly double and elegantly shaped blossoms measuring from five to six inches across, on stems two to two and a half feet long, beside a goodly number of flowers not so large but quite as perfect in form and beauty. They begin blooming in late August and continue uninterruptedly through September and October. For cutting, in beds, in borders or anywhere, these Asters cannot be surpassed.

The following colors are available:—

	Pkt.	1,000 seeds
White	20 cts.	75 cts.
Flesh Pink	20 cts.	75 cts.
Rose	20 cts.	75 cts.
Dark Blue	20 cts.	75 cts.
Light Blue	20 cts.	75 cts.
Crimson	20 cts.	75 cts.

All colors mixed 20 cts. pkt., 1,000 seeds 60 cts.

Catalogue Yours Free for the Asking

Brought thoroughly up-to-date, with many true-to-nature illustrations from photographs, it brings to your home dependable information on the subject of Seeds for Your Garden—Sturdy Seeds—the kind that help to joy and crops. Your free copy awaits your call.

TRADE MARK WEEBER & DON REG. U.S. PAT. OFF.

Weeber & Don, *"Sturdy Seeds"* 114 Chambers Street New York City

Buist's Seeds Produce
Quick and Positive Results

The quantity and quality of your garden crops is principally in the seed.

The high quality of Buist's seed is due to over 93 years of scientific selection and development, yet this year they are sold at materially reduced prices, with no sacrifice of quality.

Buist's—Record—Growing and Supplying seed of the Highest Grade since 1828.

Buist's 1921 Garden Guide

Send for the Garden Guide now. It's free. Tells how to make a kitchen garden supply your table with delicious fresh vegetables of the finest quality and flavor.

Free Flower Seeds with orders of 50 cents and over.

BUIST'S SEEDS

ROBERT BUIST CO.
Seedsmen
Department P. PHILADELPHIA, PA.

Seed Book FREE

Every year, for 34 years, thousands of people have adopted Olds' Catalog as their farm and garden guide. The carefully tested and selected seeds it offers have produced heavy field crops and successful gardens everywhere. Customers have long since learned that

Olds' Catalog Tells the Truth

Its descriptions, both in word and picture, are truthful in every respect. You can positively depend on garden, flower and field seeds, potatoes, plants and bulbs listed in this book being exactly as represented. All seeds conform to the strict Wisconsin seed laws. When you buy Olds' seeds, good yields are assured from the seed standpoint. You take no chances.

Write for This Book To-night
A postal will do. But don't delay. Start right with right seeds.
L. L. OLDS SEED COMPANY
Drawer 26, Madison, Wis.

If you want the finest

DAHLIAS

the Giants—true to name—we have them.

Send for our catalogue which will be issued early in January.

SOMERHOUSEN DAHLIA GARDENS
Chestnut Hill Philadelphia, Pa.

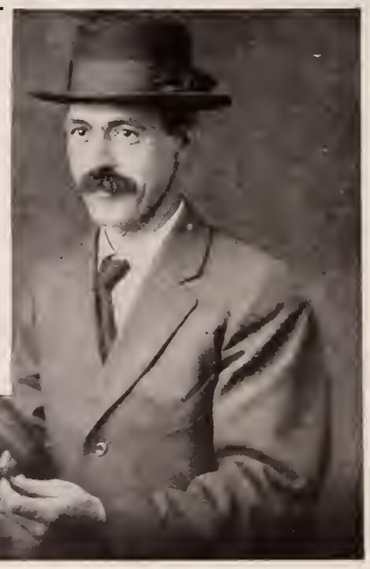
Edith Ripley Kennaday
Consultant in
Practical and Decorative Gardening
Naturalistic Plantings
Perennial Plantings Shrubbery Plantings
The charm of little gardens and the balance and beauty of larger gardens are due to careful thought and consideration
STUDIO 22M 119 East 19th Street, New York City

Nevins' "Success With Small Fruits"

Do you know that you can obtain more health, pleasure and profit from a garden of strawberries and raspberries than from any equal amount of land on your place? My beautiful new Catalogue greets you with a smile, and tells you something about ourselves and our favorable location where soil and climate combine to produce plants of superior quality.

WHAT IT TELLS:

It tells: How to select varieties best adapted to your soil and needs. How to prepare the soil for planting. When to plant. The different systems of small fruit growing. How to plant. How to care for the patch. How to pick and market the fruit so as to obtain the highest prices. How to renew the patch. It is a Fruit Grower's Guide and whether you buy your plants of us or not you will need this helpful book—Nevins' "Success with Small Fruits." Send for your copy to-day. A postal will bring it.



Elmer H. Nevins
Bush Fruit and Strawberry Specialist
Ovid, Mich.

De Lue's GOLDEN GIANT SWEET CORN
TRADE MARK REGISTERED
New Early Hybrid

This new corn has been before the public for three years and thoroughly tested throughout United States and Canada in comparison with all other varieties of sweet corn, and particularly with the once popular Golden Bantam. It has been pronounced superior to all others.

The most particular attention has been paid to the quality, for earliness and great size would count for nothing without this crowning virtue. It is because of the extreme tenderness, combined with the exquisite rich sugary flavor that the Golden Giant has become the standard of perfection for sugar corn the world over, and when you consider that its admirers report that it is one or two weeks earlier, and two to three times as large, and better in quality than its own parent, the Golden Bantam, you may be sure that it has well earned the title **"The New Master of the Fields."**

DeLue's Golden Giant excels all other early varieties in size, productiveness, and quality, and all the late varieties in quality and early maturity.

It is the one corn for the home or market gardener who wants the greatest amount of highest quality corn in the shortest period of time from the smallest piece of land.

The Other Fellow's Opinion

Mr. P. P. R. says: Boston, Mass., Apr. 27, 1917.
"I have had a great many years in farming and never in my experience have I seen a corn that produces such large, well formed ears and a corn which was as juicy, tender, and sweet."

Mr. W. B. H. Rohinson, Ill., Sept. 1919.
"I distributed the corn among several of my customers and the experience from all of them was the same; that the corn ripened about two weeks earlier than any of the rest; that it was better than the Golden Bantam or any other that was raised around here."

Mr. W. H. H. Winnipeg, Canada, Dec. 3, 1919.
"My friend, Dr. ——, and I found your Golden Giant Corn a howling success. The best corn by a long way, in every respect, that we ever had. There was more growth from one seed of your corn than from five seeds of the Golden Bantam which we had. The growth was something wonderful —quite a few ears had 18 and 20 rows."

Rural New Yorker. July 26, 1919.
"Golden Giant sweet corn is a vast improvement on the popular Golden Bantam."

Send for new 1921 Corn and Strawberry Literature

Prices	2 oz. 25c.	5 lbs.	$4.00
	4 oz. 40c.	10 "	7.00
	8 oz. 65c.	25 "	15.00
	1 lb. 1.00	50 "	25.00

Send check or money order, no stamps.

The DeLue Experimental Farm
Dept. A. Needham, Mass.

You are sure of satisfaction at the store selling "Pennsylvania" QUALITY Lawn Mowers.

For, the merchant could handle just ordinary mowers, sell them cheaper, make more money; instead, he considers your needs.

AT HARDWARE DEALERS AND SEEDSMEN

PENNSYLVANIA Quality LAWN MOWERS

Visit Nursery

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ROSES
EVERGREENS
RHODODENDRONS
TREES AND SHRUBS
OLD-FASHION FLOWERS
FRUIT TREES AND BUSHES
SPRING-FLOWERING BULBS

The well-known quality of our Nursery products remains standard. Experience teaches us better methods of service.

Nurserymen and Florists

Rutherford New Jersey

A Word of Cheer on a Cheerful Subject

Have you ever enjoyed the joyful job of gathering a bunch of luscious Pears or Apples *from your own trees?* If you haven't, you've got a big pleasure coming, for sooner or later, you'll have those fruit trees you are planning to plant *some* day. While the planning is going on, consider that

Dwarf Trees Yield Big Crops

They are *bearers*, *big* bearers of *big* fruit from *small* space—the ideal combination in this age of intensive cultivation. Figuring returns per square foot of space occupied, and amount of attention required, Dwarf Trees outyield *some* standard trees many times.

A Copy of Our Free Catalogue

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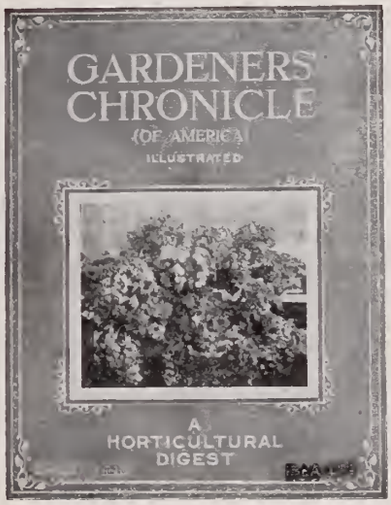

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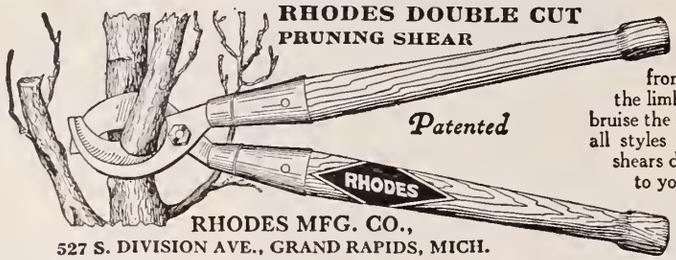

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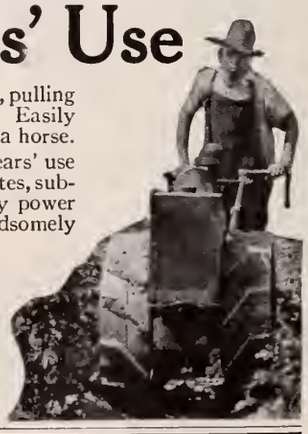

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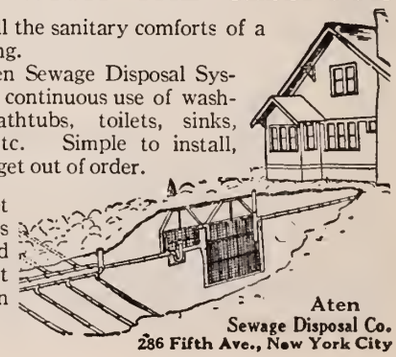

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LASTS almost forever. Takes the drudgery out of gardening and quickly pays its cost in time and labor saved. Avoids hoe backaches. An ideal tool for women's use.

Just the thing for small gardens. Needed in most big gardens.

The side teeth are held by springs, relieving the shock; the swinging in and out leaves the ground level, the soil well pulverized, making a thorough mulch that preserves the soil moisture, greatly increasing the yield and the quality of growing crops.

The broad, light, durable, wooden wheel stays on the surface. It is so balanced that the wheel does not dig in the earth or push hard.

Invaluable for working among flowers and in closely planted vegetable gardens. Has no equal for easy operation, thoroughness and utility.

"I can do more work in one hour with the Runlite than in two hours with the old hoe way and do it without backache. It is very efficient, light and easy to operate and a splendid garden tool."
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SALZER'S SEEDS

(Continued from page 270)

pea John Ingman, 60; Zinnia Double Scarlet, 24;

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WHITE. Acroclinium (Everlasting flower), 12; Aster Giant Comet, 18; Aster Branching, 24–30; Aster Purity, 15; Aster Victoria, 18; Carnation Margaret, 18; Cosmos Dawn, 48; Cosmos Double White Queen 72; Dianthus Snow Queen 12; Gypsophila elegans grandiflora, 24; Nicotiana affinis, 24; Poppy White Swan, 24; Scabiosa Snowball, 30; Phlox Drummondi, large flowering, 12; Stock, Giant Perfection, 24; Stock White Column, 30; Stock, Bismarck, 28; Sweet-pea White Spencer, 60; Sweet-pea Dorothy Eckford, 60; Sweet-pea King White 60; Verbena Mammoth, 12; Zinnia Queen Victoria, 30.

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SOME experiments carried out within recent years in France proved that germinating seeds were very much affected by colored light. Thus it was discovered that where the light was blue, the seeds germinated more quickly and the resulting plants were stronger. In fact, these specimens secured such a start that, during their whole lives, they were very much ahead of those grown under the influence of white light, or indeed that of any color. Acting on this information I tried protecting my seed beds and boxes with sheets of blue glass last season. Of course real blue glass is expensive, but the needs of the case were entirely met by painting the glass with blue aniline varnish such as is commonly sold for coloring hats. This is quite transparent and of a fine color. Sheets of glass treated with the varnish were propped up over the seed beds and left there until the little plants had appeared well on the scene. The germination of the seeds was days in advance of that which is usual, whilst the plants were especially robust. Tests were made with many flower and vegetable seeds and in every case the value of the blue light was evident. —S. LEONARD BASTIN.

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Orchid-flowering, new Spencer varieties, all colors. Bloom outside in 60 days. Pkt., 15 cents.

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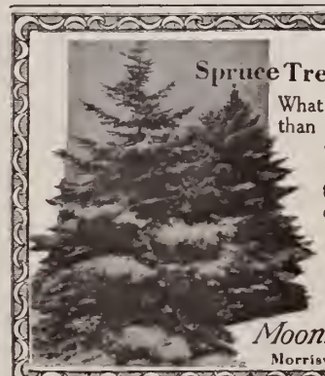

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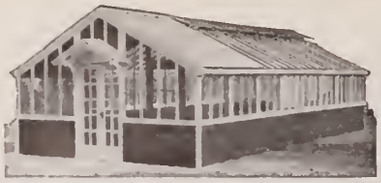

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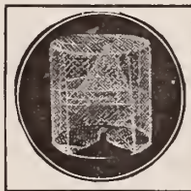

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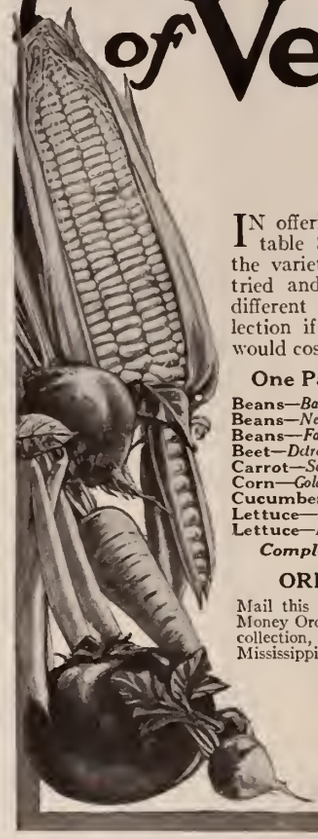

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GARDEN MAGAZINE

February, 1921

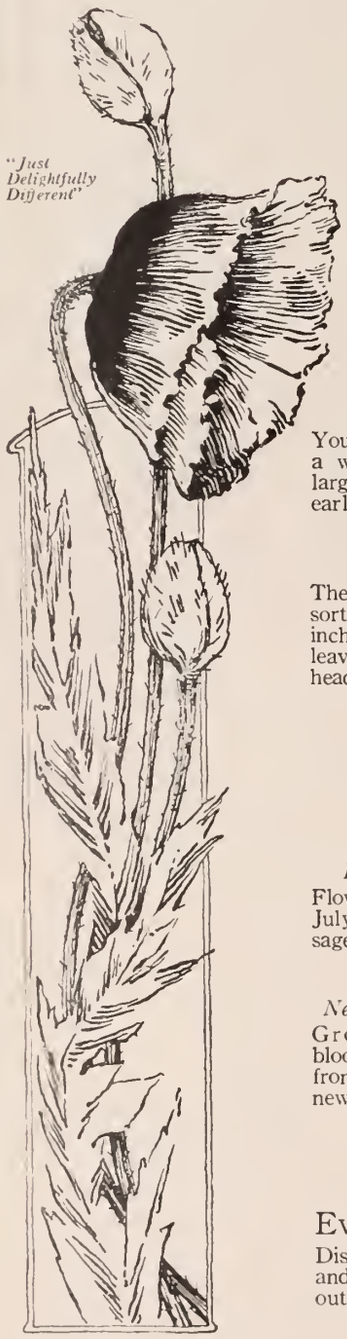
Vol. xxxii, No. 6

25 cents

Doubleday, Page & Co., Garden City, N. Y.

FULD'S

Remarkable New Vegetables and Flowers for 1921



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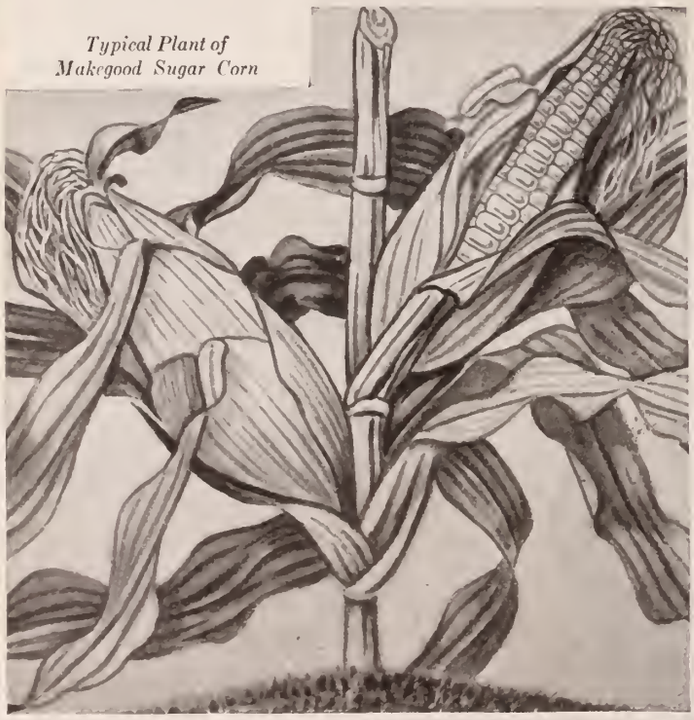

FEBRUARY, 1921

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LEONARD BARRON, Editor

VOLUME XXXII, No. 6

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Vegetables, to be of prime quality, must be grown quickly. Baked or hard soils will not yield a quality product, nor will a weedy patch. Clean cultivation and soil that can breathe, will produce crops that require less cooking and prove more palatable than vegetables commonly bought or raised under less favorable soil conditions.

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Made in four different sizes, for rows of different widths, and soils of different character. If your dealer cannot supply you, we will send direct, post-paid, less handle, at the following prices:—

3½ in. blade, $1.05
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8 in. blade, 1.35

Why the Liberty Cultivator Weeder Lightens Labor

Men who have made special studies of garden tools pronounce the Liberty Cultivator Teeth the single greatest forward step since the introduction of the wheelhoe. Their shape causes them to sink into the soil on their own accord. The V-shaped notch in each tooth increases the weed destroying efficiency one-third.

Readily adjusted by thumbscrews to from four to ten inches in width. Light, yet strong. Comes in five tooth, seven tooth, and nine tooth sizes. Prices without handle, post-paid:

5 tooth Cultivator adjusts 4 to 8 in., $1.15
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9 tooth Cultivator adjusts 5 to 14 in. 1.70

The Combination of the Best in Tools:
The Gilson Triplex

Putting the Gilson Weeder Hoe, the Liberty Cultivator Weeder, and a strong plow-share on *one pivot axle* gave us the Gilson Triplex. Easily changed from one tool to another by the simple loosening of a threaded hand screw. Easily adjusted to different heights, different widths for The Liberty Weeder—in short an ideal allround wheelhoe for the man who abhors wrenches. Price complete, $8.95.

Write us to-day for freely illustrated, descriptive booklet "*Better Crops through Cultivation,*" and get acquainted with the greatest line of labor-saving, joy-adding garden tools ever offered. It's free, of course.

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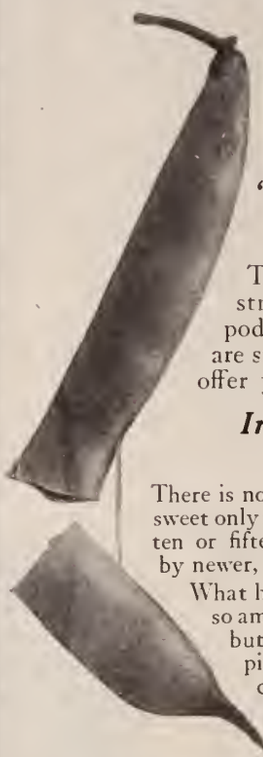

IN the garden, life is subject to constant changes. And due to the influence of men striving toward higher ideals, the changes are generally for the better.

"Stringy" Beans Are as Obsolete as Goose Quill Pens

There are at least a dozen *perfectly* stringless kinds, some green, others wax-podded. Among these, there are six that are superior to all others, and these six, we offer you—

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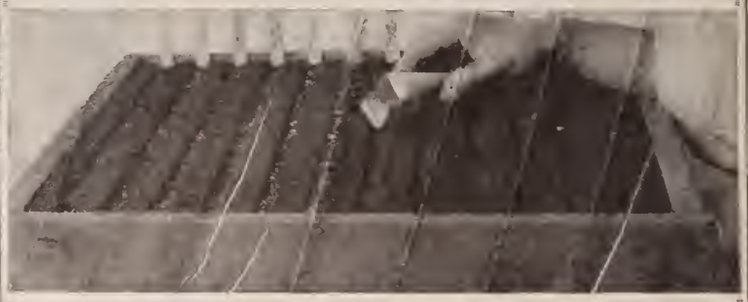

Do You Know—

How to prepare and sow a Seedflat?

Why you should walk over newly sown Beet rows?

When and how to "thin out" Lettuce, Radishes, etc., to get the greatest quality out of these and other crops?

These questions and many more, are answered in our catalogue, "Your Garden Year." It will acquaint you with the kind of seeds you have been looking for; choicest prizes in both vegetables and flowers, and will transform any average garden into one that the owner will point to with pride, as the best garden in his community.

We assure you that it will be a pleasure to receive your request for our catalogue "Your Garden Year," which will be mailed to you without cost.

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GARDEN CITY ~ NEW YORK

Send for Our 1921 Catalogue

From Grower to Consumer

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Three Superb Holland Dahlias

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These Dahlias have proven their merit wherever grown. We offer them with the knowledge that they will be valuable acquisitions to every American Dahlia garden

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OUR GUARANTEE—We guarantee all our bulbs, roots and plants to be true to name, and we will replace any bulb, root, or plant prepaid if found otherwise

Watch for Our Novelty Gladiolus Adv. in March Issue

VAN BOURGONDIEN BROS. Nurseries at Hillegom, Holland, and Babylon. L. I., N. Y. **BABYLON, L. I.**

"Mrs. Brandt" Incurved Cactus Dahlia

Help me to make America a vast Dahlia Garden

The other day I surveyed my Dahlia storage houses. And as I stood, looking over the annual harvest of over one million fine roots, in nearly a thousand varieties, I thanked Providence. A dream I had a quarter of a century ago, is seemingly about to materialize. The Dahlia promises to become "The Flower Supreme" in America. Let me tell you this month something more about

The "Cactus" Type—My Favorites

It *may* seem unfair, and yet I, too, have my favorites. The Cactus Dahlia, as a type, with its bizarre, curled and twisted petals, appeals to me as a phenomenal wonder of the creative force in the plant world. Subject to great variation, its three distinct forms are, nevertheless, well defined. As a perfect example of the incurved type, I present above

Mrs. Brandt—a modern treasure

Imagine a gigantic, yet graceful flower, with petals like spun gold, tinted with salmon pink and apricot hues—a shade to tax anybody's imagination—and you have this floral treasure. But why imagine? *One Dollar will bring you* one of these bulbs, and you surely can't get along without it in your garden.

Over 120 Other Cactus Dahlias Are Offered in My New Catalogue

If you love Dahlias, you'll want this book. If the Dahlia has not "got" you as yet, the book will bring to you visions of greater flower gardens, in which Dahlias rule supreme. Write for your copy of this highly instructive catalogue to-day. It will be a pleasure to mail it at once.

"The Dahlia King"

J. K. ALEXANDER
27-29 Central Street, East Bridgewater, Mass.

Providing the Material To Make Yours a Greater, Finer Garden

FROM the start, it has been the purpose of this nursery, to provide plant material for those demanding superior trees and shrubs of both standard and newer varieties. This nursery is prepared to supply the rare among ornamental plants, shrubs, and trees, Evergreen or Deciduous.

We do not issue a catalogue in a commonly accepted sense of that term. We shall depend upon the illustrations in our announcements, to acquaint you, in a slight degree, with our plant resources.

This month's picture shows our office, surrounded by

Some Evergreens That Lend Color

Alternating specimens of Dwarf Golden Japanese Biotas, and Blue Chinese Junipers, line the foreground of this foundation, backed by the taller specimens of Biotas, Junipers, Arbor Vitaes, and Retinosporas. The vine covering the entire front of building, is the well-known Boston Ivy (Ampelopsis Veitchii).

We will appreciate your request for our price list, which will be sent to you, to be gladly supplemented later with specific booklets devoted to rare Lilacs, choice Rhododendrons, Roses, and other hardy plant specialties.

Cottage Gardens, Inc.,
Nurseries
Queens, Long Island
New York

Moto-Mower

INSTEAD of having your gardener spend most of his time in cutting the lawn, let him do it with a Moto-Mower. He will do the work in one-fifth of the time, and do it better; your grass will be cut when it should be and your gardener will have more time for other work.

The Moto-Mower is built to meet the demand for a light, dependable power-driven lawn-mower that is so simple in operation and construction that it can be put into the hands of any gardener and give entire satisfaction.

The lightness of the Moto-Mower makes it possible to operate over ground too soft for heavy power or horse-drawn mowers, and on hillsides or terraces. It is as easy to get into corners and close to trees and flower-beds as with a hand lawn-mower.

Write for Descriptive Catalogue

THE MOTO-MOWER COMPANY
2033 Woodward Avenue
Detroit, Mich.

If You Are After "Big" Dahlias Don't Read This, But—

IF you have a border that is bare in spots, part of Summer or Fall, if you have a bed that never looks well, because it is too straggly or offers a problem in *what* to plant to make it look well, *then* consider

Mignon Dahlias—*The Bedding Class "Par Excellence"*

Only about eighteen inches high, but such a mass of dazzling single flowers in many absolutely unique colors and shades, that they'll simply "take your breath." What the plants and flowers lack in size, they make up in profuse flowering quality. The plants are literally ablaze with brilliantly colored flowers from early August until hard frost.

Ten kinds are available, in ten distinct colors, as follows:—

Agnes, purple	Etna, crimson
Albion, white	Jubilee, pink
Daffodil, yellow	Nivens, white
Daphne, deep maroon	Olive, orange
Dazzler, orange scarlet	Vivid, scarlet crimson

Price, Plants 30 cents each, $3.00 per dozen
One each of above ten for $2.50

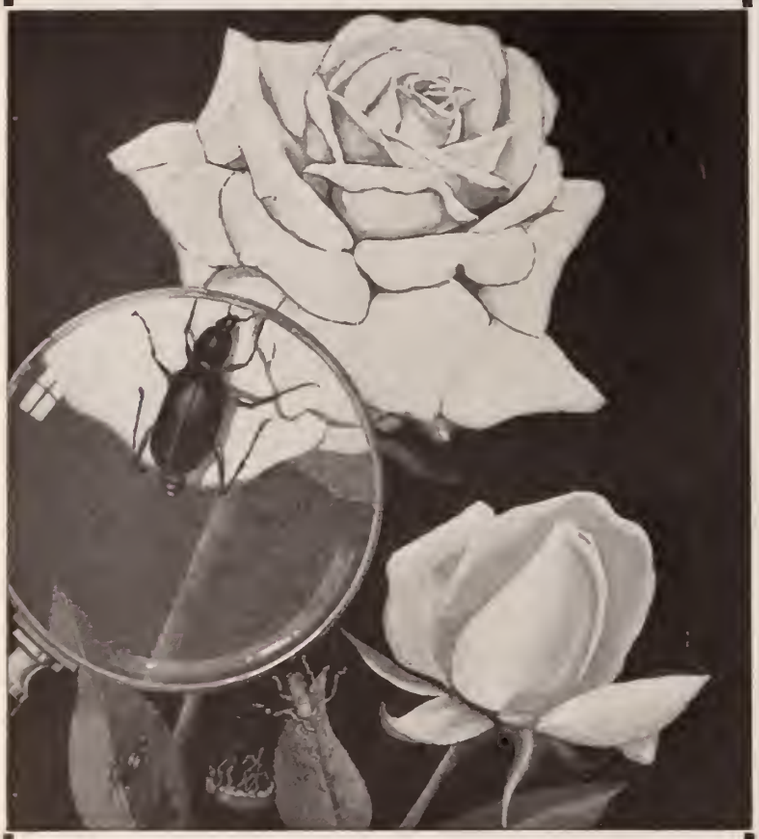
Safe arrival guaranteed

The new catalogue will fitly introduce to you the best novelties in all important floral specialties. Please ask for your copy and mention Garden Magazine.

Learn to think of Totty's as Headquarters for the Unusual among Novelties

CHARLES H. TOTTY COMPANY
Madison New Jersey

MELROSINE



IT KILLS ROSE BUGS

SAVE YOUR ROSES

by using

MELROSINE

Only Made by

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New York

Sold by Seedsmen and Nurserymen

The RUNLITE GARDEN CULTIVATOR

"Strong, Light Steel, All but the Wheel"

PRICE $3.00 Delivered Anywhere in U. S.

LASTS almost forever. Takes the drudgery out of gardening and quickly pays its cost in time and labor saved. Avoids hoe backaches. An ideal tool for women's use.

Just the thing for small gardens. Needed in big gardens.

The side teeth are held by springs, relieving the shock; the swinging in and out leaves the ground level, the soil well pulverized, making a thorough mulch that preserves the soil moisture, greatly increasing the yield and the quality of growing crops.

The broad, light, durable, wooden wheel stays on the surface. It is so balanced that the wheel does not dig in the earth or push hard. Instantly adjusted for deep or shallow work.

Invaluable for working among flowers and in closely planted vegetable gardens. Has no equal for easy operation, thoroughness and utility.

Make Pleasure of Work in the Garden

Madrid, N. Y., Dec. 8, 1920

"It has been my intention to write the Runlite Company to record my thanks for introducing me to the splendid little cultivator. I gladly give my word of appreciation.

"I have always found pleasure in the planning of the seed-bed and the sowing of the seeds. The work of cultivation; hoeing and weeding has not been so enjoyable with the hand hoe.

"Since using the 'Runlite' I have found real pleasure in all gardening activities from the sowing to the reaping.

"I attribute much of this pleasure to my little friend the 'Runlite' and I do not cease to recommend it to my friends."

Rev. George R. Harland."

Weight about four pounds, complete with handle. Additional testimonials on request.

Supplied by Seedsmen, Hardware Dealers, etc., or delivered free anywhere in United States, on receipt of price, $3.00.

Quality, Efficiency and Durability Guaranteed.

RUNLITE COMPANY

ITHACA, N. Y.

Our Resources in Shade Trees

On several occasions the city of Detroit has come to us for carloads of Shade Trees for street planting. Such performances we can duplicate many times without making any serious inroads into our stock resources. Our 800 acre nurseries hold enormous quantities of trees and all are well grown.

Of particular interest to planters in search of rather unusually attractive trees, for lawn, street or avenue planting, will be our stock of

SALISBURIA ADIANTIFOLIA

Also called Ginkgo or Maiden Hair Fern Tree

A graceful rapid growing and good looking contribution from Japan. The famous avenue of Ginkgos in Washington, D. C., annually wins the admiration of thousands. It grows rapidly to medium size and is most ornamental with its unique, miniature fan-like foliage.

Available in various sizes, from 8 feet to twelve feet tall and up to 2½ inch caliper trunk diameter. Prices gladly quoted on any quantity, one, or a dozen, or a thousand.

Of course, this is but one of the infinite number of varieties we have (lack of space prohibits mentioning them all) and, whether your planting plans call for the use of deciduous trees or shrubs, res assured we can supply every proven successful variety.

SEND FOR OUR CATALOGUE

Besides, our service department will cheerfully render you whatever assistance you may require in making the proper selections, regardless how puzzling your planting problems may be. This service is absolutely gratis whether you buy from us or not.

"Successful for over a century"

AMERICAN NURSERIES

H.E.HOLDEN, Manager

Singer Building

NEW YORK

It's All in the Breeding

THE wild blood of the original "wild love apple" (the name under which the tomato was originally known), will quickly assert itself. Three short years of *neglecting* any Tomato strains will transform a good type into one too poor to deserve garden space. On the other hand, *constant* selection of strains counteracts this and works towards higher standards. Stumpp & Walter Strains are so selected as to give you the most that the world's greatest seed specialists have been able to get out of any variety.

Try These Thoroughbreds

The collection offered herewith brings you the best blood in the vegetable kingdom. We have given critical attention to the varieties, selecting only those which have been tried and proven of excellent merit under widely different conditions of soil and climate. This Collection if purchased separately from our catalogue would cost $1.70.

One Packet Each of the Following for $1.00

Beans—*Bountiful*
Beans—*New Hardy Wax*
Beans—*Fordhook Bush Lima*
Beet—*Detroit Dark Red*
Carrot—*Selected Chantenay*
Corn—*Golden Bantam*
Cucumber—*White Spine*
Lettuce—*Black Seeded Simpson*
Lettuce—*May King*
Onion—*White Portugal*
Parsley—*Double Curled*
Peas—*Little Gem*
Radish—*Scarlet Globe*
Radish—*Long White Icicle*
Spinach—*New Zealand*
Swiss Chard—*Giant Luculus*
Tomato—*Selected Stone*
Turnip—*White Globe*

Complete cultural directions with each collection

ORDER YOUR COLLECTION NOW

Mail this advertisement, or present at our store with Check, Money Order, Dollar Bill or Stamps, and secure this excellent collection, sent prepaid to any point in the U. S. east of the Mississippi. **(For points West and Canada add 25c $1.25).**

Our 1921 Spring Seed Annual sent on request

Stumpp & Walter Co

30-32 Barclay St., New York City

Now for that Seed Order

MAKING out your seed order, may this year be turned into a double pleasure, with the help of the Elliott catalogue. We have cut the Gordian Knot of the tangle of varieties, and offer only such as we know to give thorough satisfaction in the home garden. This applies particularly to vegetables of which rarely more than two or three kinds in each class are generally planted by the individual.

Among the Flowers

We have likewise taken stock of the tendency of the times as recorded in increased love for the Garden Beautiful. Europe, America, and the whole world, have contributed to the wide choice of varieties which we offer. There are varieties and classes for every conceivable purpose, from the modest little Sweet Alyssum as a bedding plant, to the stately Ricinus, the most imposing of all plants for background.

And Don't Forget that Garden of Hardy Perennials

An unrivalled collection of Hardy Perennials, now growing at our three nurseries, puts at your disposal the finest of the hardy plant world. It includes a wide choice of varieties for the hardy border, the rockery, for moist or dry locations; in short it matters little what soil or climatic conditions confront you, we feel sure that we can help you to that long desired hardy garden. Its ever increasing beauty will amply reward you for the slight initial investment required to materialize your dreams of an old-fashioned hardy garden. Our 1921 catalogue of Hardy Plants, Roses, Hardy Shrubs, Deciduous and Evergreen Trees is ready and will be sent on request.

You will find Our Catalogues Helpful

Let us send you our new seed book at once. You will find its introductory pages, with comprehensive planting tables, garden making, and seed sowing suggestions, quite helpful. Should you be interested in hardy plants, please ask for our special catalogue of "Best in the World Nursery Stock," and it shall be a pleasure to mail you both.

ELLIOTT NURSERY, *J. Wilkinson Elliott, Owner*

Pittsburgh, Pa.

The Garden MAGAZINE

Vol. XXXII, No. 6 — February, 1921

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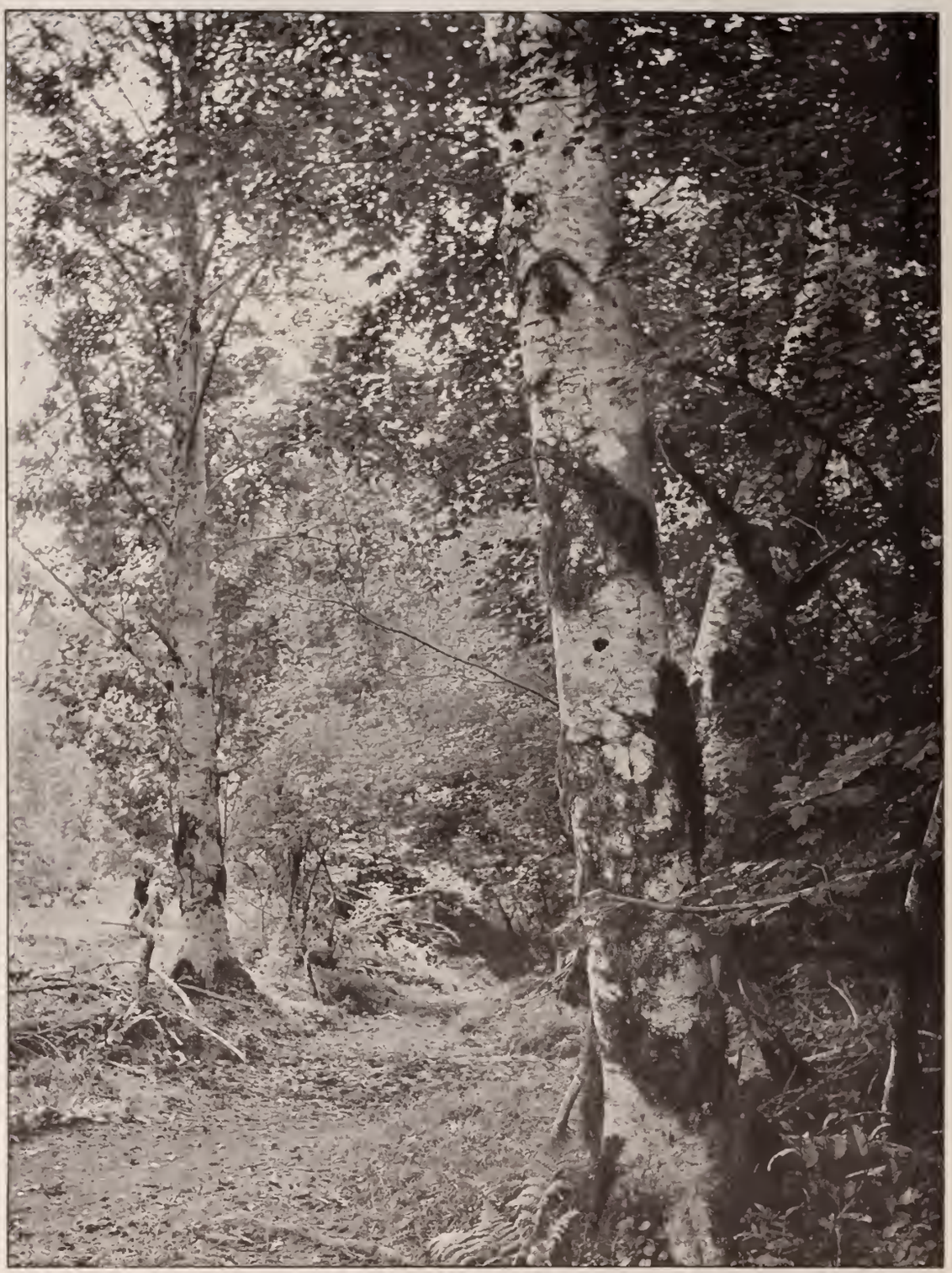
NEW YORK
BOTANICAL
GARDEN

Photograph by Kate O. Sessions

"SEEN THROUGH THE HOARY TRUNKS OF WINDY PINES,
THE LONG BLUE LEVEL OF THE OCEAN SHINES"
Christopher Pearse Cranch

FEB 1 - 1921

The rare Torrey Pine of the California coast
(See page 337)



"BUT, SOBER ON A FUND OF JOY,
THE WOODS AT HEART ARE GLAD"
Emerson

The striking beauty of the Beech is very apparent. It is one of the few deciduous trees possessing any particular winter interest and charm. Its coppery, finely chiselled leaves cling long after snowfall and make with the dove-grey, velvety bark a color-harmony appropriately subdued to meet nature's winter mood. Even in spring when so much loveliness is about, its clear, translucent yellow foliage is conspicuously beautiful. The far-sighted homebuilder, planting for all-year effect, cannot afford to ignore a tree which always has a "best foot foremost"

Martha Brooks Brown, Landscape Architect

Photograph by Arthur G. Eldredge

JUNE IN A MANCHESTER (MASS.) GARDEN

"Level with my casement
The Larkspur lifts her azure peaks
To match the June blue overhead;
Jostling Peonies raise a joyous shout;
The radiance of Roses
And their heady sweetness
Weaves in and out
The morning stillness;
Till my garden is become
A wine, a tapestry, a temple
Where beauty, preciousness, and worship are one."

Amer Pindar

GETTING INTO THE STRIDE

W. C. McCOLLOM

Thoughts of Spring and Necessary Preparations for Summer Stimulate to an Early Start Indoors

Shift plants to larger sized pots as the roots fill the ones they are in. Knock out to examine the ball and never shift on a plant that is not making growth. Use one size larger, not more

AN EARLY start in both flower and vegetable garden is labor saved in the long run, and, what is of infinitely more importance, assures a vastly increased return. This is due, of course, partly to the earlier maturity of plants thus raised and partly to their greater vitality and power of resistance to heat and drought. Such crops as Cauliflower, Cabbage, Pepper, Egg-plant, Tomato, etc. may be sown in heat at this time to give *plants* to put outdoors when the average man will be sowing *seeds*; there are numerous things for the flower garden also which should be sown now to insure a proper yield. Aster, Snapdragon, Salpiglossis, Scabiosa, Celosia, Cosmos, Heliotrope, Sweet-pea, Petunia, Phlox, Salvia, Stock, and Verbena are some of the summer-flowering Annuals which gain amazingly through early sowing either in the dwelling house window, hotbed, or greenhouse. Satisfactory results are obtainable in any of the three places suggested and such differences as do exist between these are merely those of degree of ease in handling.

Neglect to sow early is usually because of the amount of labor involved, but if gone about systematically it is really not great, and ultimately the fore-handed gardener is well repaid. The first step is to assemble *all* the necessary materials. Get ready flats, pans, crocks, sifted soil, drainage material, and everything else necessary, as well as the seeds themselves, so that when started every detail can receive proper and prompt attention.

Ninety per cent. of the losses attributed to damping-off are caused by faulty seeding; more directly, by improper drainage or by sowing too thickly. When drainage is bad the boxes or pans do not dry properly, and the wet surface is an encouraging ground for the growth of the fungus that causes damping-off.

For successful early sprouting indoors there must be sufficient room for small seedlings after they are started, as when they show their first character leaf the little plants must be transplanted into flats with a space of about two inches each way. The soil for the transplants should have been sifted to eliminate coarse manure or other rough material, since at this particular stage of a plant's growth any more feeding material in the soil than the young plant can assimilate is detrimental to its ultimate health by causing a soft, unnatural growth easily succumbing to exposure to mildew, aphis, and other plant enemies. But this transplanting into flats or boxes of some kind is advisable because the flats can be easily handled, and when the plants are sufficiently large the whole box can be placed in an outside frame or cool greenhouse to complete the "hardening off" process without reducing the temperature in the place where they have been to the detriment of the other plants still growing there. Transplanting to benches should be done only when practically an entire compartment is to be devoted to that use. If the seedlings are mixed with older plants one or the other must suffer during the hardening process to come some six or eight weeks later.

GETTING efficiency from the greenhouse at this time means considerable rearrangement of its contents, but there are many satisfactory ways of making additional room.

When the trying period of real winter cold is past it is very easy to provide extra space in frames, which, although not heated, can be sufficiently protected from the cold to form a storage pit for plants which can be hardened up somewhat before being placed in these quarters. Have sufficient salt hay, old burlap, or some such covering material which can be used abundantly on severe nights, simply laying a few sticks across to keep the wind from displacing it. Also occasionally shake out the covering material to keep it dry as the frost cannot penetrate the air cushion thus made. Plants under these conditions do not consume nearly the amount of water that they will under favorable growing conditions; therefore "run them on the dry side," i. e. water sparingly.

Space under the benches is too often cluttered up with old pots, boxes, etc, which should be disposed of leaving this area comparatively free from encumbrance and available for use, and as at this time of year the sun is quite high, boxes or pots not placed too far underneath the bench will get sufficient light to develop, and if changed occasionally to the bench any tendency to get spindly will be checked. Bulbs can be forced under these conditions. The under-bench space also serves as a storage for all kinds of stock plants from which cuttings are to be taken.

Shelves supported by brackets attached to the columns or on the sides of the benches will give considerable extra space too.

Starting the Sweet-peas

WHEN we stop to consider how easy it is to grow Sweet-peas well, it is surprising how frequently we see poor, miserable plantings. The important point to remember in its cultivation is that the Sweet-pea is a "cool plant." It loves a cool soil and a moderately cool atmosphere. This means that it can only be well grown when started very early enabling it to become a robust, healthy plant before the dry, hot weather of summer. For the very best results sow Sweet-peas now in pots, say three or four seeds in a three inch pot, thinning out to one as the plants advance in growth. Carry these along in cool conditions and when strong enough place in an outside frame. If allowed to remain inside where the atmosphere is somewhat moist and at a

The approved way of growing Sweet-peas of quality is to sow indoors in pots in a cool place for transplanting outside. This gives the roots a start before any heat comes

growing temperature, the plants will get soft and lanky, and nothing will be gained by the early start.

Place in coldframe as soon as possible and keep moderately dry until the time to set out. Have ready deep trenches liberally enriched with well-rotted manure thoroughly incorporated with the soil, and the results will be not only a better grade of flower, but the plants will continue to be productive right into the very hot weather. There is indeed no secret about the growing of good Sweet-peas and the method briefly outlined will yield first-class results.

Cuttings for Spring Bedding

WHERE spring bedding plants, such as Geranium, Coleus, Heliotrope, Ageratum, Achyranthes, Alternanthera, etc., are required—and sometimes they are wanted in large quantities for other purposes besides bedding, such as piazza boxes, window boxes, etc—it is time to begin preparations, and take cuttings from "stock plants" i. e. old ones carried on for the purpose. It is ridiculous to carry young plants through the winter with the idea of using them later on. A few stock plants will furnish the necessary number of cuttings for young plants that will be superior in every way; and constant pinching will increase the side shoots so that plenty of cuttings may be had. The plants which have been underneath the benches for storage should be brought up to the light for a week or ten days prior to taking the cuttings, so as to get the "wood" properly hardened to assure rooting when placed in the sand. Use clean, sharp, porous sand for the cutting bench, for it is the succession of changes that causes the callusing of the cutting and the subsequent rooting. The more frequently the cutting bed can be watered without causing any excess of water to stay in the sand the quicker rooting action will start. Root growth seems to develop in the soil a poison that the drainage removes.

Before putting in cuttings thoroughly water the sand and firm it by pounding with something heavy—a brick on edge is a splendid tool. When the roots are a half to three-quarters of an inch long, lift the cuttings and pot separately, using a soil which has been screened to eliminate coarse manure or other fertilising material. Then shade for several days—until the young plants have started to make root in their new quarters. This method followed for the propagation of Dahlias will give a considerable quantity from comparatively little stock, and "cutting plants" produce flowers of remarkable quality. The best method with Dahlias is to lay the old root on a bench, in the greenhouse, or on the surface of a hotbed, partly cover with sand, or coarse cinders, leaving the eyes entirely exposed. This gives good, hard cuttings that will not flag when placed in the cutting bench.

Cannas are similarly started, except that instead of taking cuttings the old stool can be sub-divided into separate eyes, potting up each one separately when root action has started and the eye begins to develop growth.

A glass frame is the proper place to receive the cuttings of tender plants as they are put in pots to root

During February propagate all the needed bedding plants for summer use. The cuttings are taken from the old stock plants and put in sand

Grape canes are to be painted with some insecticide in a general spring clean-up before gradual forcing is started

Attending to the Fruit House

WHERE fruit trees are grown in pots the time is at hand to get all in readiness for the start into growth. The house should be painted inside, a sort of insurance against the mealy bug and other insect pests. Scrape the Grape canes thoroughly to remove all loose bark and then paint with wood alcohol or a strong solution of some good insecticide, being careful not to get any on the "eyes." After this cleaning, to assure

absolute cleanliness, remove several inches of the surface soil and replace with a good, rich, compost especially prepared for this purpose which contains about ten per cent. bone meal and a good sprinkling of some high grade fertilizing material of the type of ichthemic guano. Do not give any water until the actual starting period. Except as to the stripping of the bark, Peaches and Nectarines are treated similarly. If the fruit houses are started early in the season frequent tapping of the canes or the use of a camel's hair brush to cross-fertilize the flowers becomes necessary to set the fruit. This is especially necessary if the weather is dull and dark at the setting time.

Mushrooms and Vegetables Under the Benches

ASPARAGUS, Rhubarb, and Mushrooms may be grown under the benches. Practically no skill is required in forcing Asparagus or Rhubarb; it is simply a question of having a sufficiency of large-sized roots, which, given warmth and moisture, can be planted in any ordinary soil, the growth being practically determined by the development of the crown in the previous year.

Mushrooms, however, are not so easily grown. While the crop is not so very exacting, yet it is somewhat erratic in behavior because of varying conditions of the temperature and moisture of the bed. The essentials are a supply of good, fresh droppings to assure having the proper heat, frequently turning the pile to eliminate burning until the temperature has started to recede. The material may then be placed under the benches and thoroughly firmed (remember "thoroughly"). When, after firming, the temperature starts to recede plant the spawn at ninety degrees and cover the bed with about one inch of screened earth. Occasional sprinkling will be necessary to offset the natural evaporation of moisture, but under no circumstances keep the bed wet. A mushroom bed may be made in any convenient place where the desired temperature can be kept up.

THE PROMISE OF EARLY FRUIT

Growing fruit under glass on dwarf trees in pots or tubs offers a table luxury of exceptional merit. The odd space in such a house can be utilized for all kinds of bedding stock as is here shown

JOYS OF SUSPENSE AND DISCOVERY

E. I. FARRINGTON

A Canvas of the Season's Novelties Among the Offerings of the Leading Seedsmen and Plantsmen. Advance Guide to the Catalogued Specialties Worthy of Trial

THERE are thrills even in the gentle task of making gardens. There are the joys of discovery, the sweet delights of suspense, the satisfaction of well rewarded waiting. Sometimes there are disappointments; but all these experiences are associated with the trying out of novelties, with the growing of improved varieties, of new plants brought from distant shores, of crosses and hybrids on which enthusiastic experts have spent the labor of many patient years.

There are those who profess to scoff at novelties and who talk with reverence only of grandmother's gardens and the flowers of yesteryear. Their position is not well taken. It is by no means necessary to forsake all tried and tested floral favorites just because we have found others of more recent birth. Making new friends is one of the joys of living, but we do not forget our old friends in the pleasure of their company.

It is true that half the novelties may not measure up to our expectations; but what of that? What are a few cents compared with the speculative delights of watching a new plant unfold its strange leaves, lift its tiny buds, and finally reveal its full and novel beauty. If the beauty, perchance, is less than you had anticipated, you may find compensation in the unexpected charms of the novelty next in line. There is just enough uncertainty about the whole process to satisfy the love of chance inherent in most of us without evoking a protest from our consciences. It is a fine, pleasant game, that we can play solitaire or two-handed, and this year there are ample opportunities to indulge our novelty appetite, for we will find many interesting new things in the catalogues.

CHRYSANTHEMUM BRONZE MOLLY

Representative of the increasingly popular numerous family of outdoor Chrysanthemums, greatly appreciated for indoor decoration when cut and as pot plants

THERE is, for example, the unique Rose, of Holland parentage, known as Grootendorst. With small red flowers similar to those of the Baby Rambler, but with a strong, vigorous growth akin to that of rugosa, it is a worthwhile addition to our list. It blooms the season through, and the petals of the flowers are fluted in such a peculiar way that they resemble Carnations. Judging from its habit of growth, this would make a good hedge.

Then there is Golden Ophelia, which made a strong impression upon all who saw it at one or two New York exhibitions last year. If it lives up to its promise it will surpass even Lady Hillingdon as a yellow Rose for the garden, being freer in growth, hardier, and even better in color.

Frank W. Dunlop, of Canadian birth, has been grown for a season or two as a hot-house Rose, and now is proving its value in the garden. The blooms are very large, averaging about forty-five petals, and its strong color makes a warm glow in the garden from spring until early frost.

From the west comes a new Rose, a cross between Ophelia and Columbia, to be known as Angelus. It is pure white, and while it has not been tested very widely as yet, promises to prove a first rate garden variety.

Mme. Butterfly is another Rose which after a successful season as a greenhouse subject is being introduced to the garden. Like so many good Roses of recent origin, it has Ophelia as one of its parents, and its combination of bright pink, apricot, and gold makes it a Rose to be treasured wherever it will thrive. The buds are very handsome and the foliage is remarkably good.

Although not strictly new, Paul's Scarlet Climber has become known to only a few people in this country, probably because it was introduced during the war. It is not a climber in the same sense as the Crimson Rambler and Excelsa. Perhaps it could be classed more appropriately as a Pillar Rose. But it is exceedingly generous with its semi-double, brilliant red flowers, and in all ways is one of the best Roses of the kind.

Another Rose which has been largely overlooked is Purity, almost a duplicate of the much better known Silver Moon, but rather hardier because lacking in Cherokee blood. Purity climbs well, and its mammoth blossoms are dazzlingly white with golden stamens.

AS USUAL there are some interesting novelties among outdoor Chrysanthemums, among the most conspicuous being Shaker Lady, a bright Tyrian pink and named in honor of one of Cleveland's garden clubs. Then there is Adelaide, a deep, rich mahogany in color, and of special value to amateurs because

it is ready to cut early in October. Among the other new Pompons of interest are Harriet Sykes, a dark rose pink; Indian Hill, deep yellow flecked with crimson, named for a well known estate in Ohio; Traveler, white with a beryl centre and given its peculiar name because of its unusual shipping qualities.

It would take an entire article to describe the newer Peonies, but mention may be made in passing of two new Hybrid-tree Peonies which had their origin in France and are of singular beauty. One is La Lorraine, undoubtedly the best yellow Tree Peony which has yet been brought out, and L'Esperance. While

BREEDING PETUNIAS

The highly developed modern strains of large flowered Petunias are carefully raised under lath roof greenhouses in California, the crossing being done very carefully by hand

these Peonies are quite high in price, they make a most delightful addition to any collection and have met with the greatest favor wherever shown.

Among the Perennials, novelties are less numerous this year than in other lines. One flower, however, which must by no means be overlooked because of the great amount of advertising given it across the water is the Alwoodi Carnation. For the last two years the English garden papers have given much space to this cross between the Carnation and the Garden Pink. I was fortunate enough to get a few plants for a test last summer, and am frank to say that the flowers did not come up to my expectations. I do not mean to intimate, however, that they are not well worth growing. They will prove, I think, a very lovely border plant, flowering freely most of the summer, appearing in pleasant variety, keeping long when cut, and harmonizing well with other flowers. Possibly my brief disappointment arose from the fact that I had expected somewhat larger and showier blooms, and, for that matter, the plants may develop better flowers the second year, provided I am able to carry them through the winter, which will be a test of their hardiness. It seems to me, by the way, that these Carnations should make excellent flowers for window and porch boxes, and for that matter I see no reason why they shouldn't be forced in the window garden through the winter.

The new Sunbeam Poppies, also originated in England, are being put out as an improvement on the well known Iceland Poppy. Their advantages lie in their length of stem, the increased size of the flowers, and their very robust habit. They were considered such a distinct type across the water as to receive an Award of Merit from the Royal Horticultural Society. They are good not only for the hardy border but also for bedding work, as they will bloom until cut down by frost.

THE Lilliput Poppy is another introduction of promise for bedding purposes. While this little Poppy grows only a foot high, it is constantly in bloom throughout the season, the flowers being mostly red and dark rose in color, with golden yellow anthers.

Then there is Munstead Cream Pink Poppy (Papaver rhoeas var.) introduced by an English firm. This Poppy was tested out at the Missouri Botanical Garden last summer, and though the delicate shell pink blooms, borne on long stems, were exceedingly beautiful while they lasted, the plants flowered for only a month in mid-summer. Possibly they will have a longer season farther north—indeed they should behave exactly like Shirley Poppies.

The Flanders Field Poppy will be easily obtained this season, and judging by last summer's tests, will produce its red flowers quite as freely throughout most of the summer months as is the case on the fields of France.

HELIOTROPE is once again coming into favor as a garden subject. Whether grown as a standard in formal gardens, or as a dwarf in less pretentious gardens, it is always a delight. For years Centefleur has been considered the best of the dwarf Heliotropes, but now comes Elizabeth Dennison, which is far better as to both size and fragrance. I believe that amateurs

ZINNIAS IN THE NEW STYLE

Youth-and-old-age this fine old annual is called, and its youth is being constantly renewed in form of flower and better colors

everywhere will add much to the joy of their garden work if they introduce a few of these Heliotropes to their borders this season.

Quite different in character as well as in color, but likewise a distinct improvement over any previous kind, is Salvia America. It is just as scarlet in color as splendens, but has a much longer flowering season. It will even stand forcing, so that it can be

brought into bloom for Christmas or Easter, but should be especially popular as an out-door bedding plant, where flowers of flaming hues with good green foliage by way of contrast are desired.

There have been fewer improvements in Delphiniums during recent years than garden lovers might wish, but some of the new seedlings, particularly Totty's special hybrids, are exceedingly valuable, and well worth getting acquainted with. Then there is Delphinium ajacis Blue Gem, which as tested out last season proved an excellent dwarf plant. Seeds sown the middle of March produced flowers during July and August, and in September fresh growths were sent up which bloomed in October.

A good plant for a backyard garden which receives only a minimum amount of attention is a giant Mallow, Hibiscus Manihot, which grows ten feet high and bears light yellow flowers seven or eight inches across during September and October. One very important fact to remember in connection with this flower is that seeds must be sown in February, six months being required to produce blooming plants.

LEMON BEAUTY SWEET-PEA

A new claimant for notice in the yellow shades, this also is enriched by tints of amber in the wings

Another very delightful new flower, although entirely different in many ways from the one just mentioned, is a Candytuft known as Improved White Spiral. As grown in the Missouri Botanical Test Garden it proved very attractive, with dense spikes of pure white blossoms. This can be recommended highly for bedding, except for the fact that its season ends before the beginning of September. This is another plant which must be started indoors, the middle of March being the right time to sow the seeds.

THIS season has yielded a fine crop of novelties among the Sweet-peas, several of them being as striking in name as in appearance. Among the most promising are Glitters, Flamingo, and Lemon Beauty. For a blazing color it would be difficult to surpass the first, at least among the orange-colored Sweet-peas. It lives up to its name, not only glittering but fairly scintilating, with a fire-like sheen radiating over the flowers. It is especially recommended for evening decoration, its color under artificial light being startlingly lovely. Flamingo is noteworthy for its size; its color is light orange suffused with salmon. The novelty of Lemon Beauty lies in its soft primrose body color with wings of amber tint. A few other interesting Sweet-pea novelties include Myrtle, which starts out with flowers of creamy yellow, but undergoes a curious transformation so that eventually the blooms carry a bright band of violet; Lady Fair, one of the handsomest pale pink Sweet-peas yet put out; and Scarlet Globe which remains true to its color even after being cut.

OF LATE years the hybridizers have been giving particular attention to Zinnias. One of the most unique is a conical-shaped Zinnia put out last year, but which as yet has been grown in only a few gardens. When given rich soil and the right conditions it is an unusual flower. A new Cactus-flowered Zinnia introduced this season is distinct in form from all other kinds, the petals being so curled that they are almost tubular, thus suggesting the name. Altogether it looks very much like a fine-petaled Cactus Dahlia, and the colors range through shades of yellow, orange, pink, and crimson.

The new double Picotee Zinnias form an interesting novelty, with immense and very double blossoms appearing in all the usual shades, but having the lower end of each petal tipped with maroon, pink, and other markings.

For several years hybridizers have been working hard in this country and England to get as good a "blue" Petunia as one which came originally from Germany. Several of them seem to have succeeded simultaneously, for a number of excellent violet-blue or blue-purple Petunias are on the market this year, including Violet Queen, Purple Queen, and Burbank's Blue Petunia. Some of the most remarkable new Petunias have come from California, where a great amount of work is being given to their development.

No article like this is complete without mention of the Blue Lace Flower, even though it has been out for a year or two. Except for its color it closely resembles the beautiful Queen Anne's Lace of the fields and meadows, but is coming into high favor because of its value as a cut flower. It lasts from ten days to two weeks in water, and the flowering season is a long one. One point must be remembered, though, if you would avoid disappointment. The seed is slow to germinate, and often rots if the ground is too wet. You will be wise to start the seeds of this Australian annual (Trachymene caerulea) in a flat indoors or at least in a cold frame.

The original Chinese Wool Flower has ceased to be a novelty, but now comes in three new colors, pink, yellow, and scarlet, which will attract renewed attention to this excellent bedding annual.

THE list might be continued to embrace the new Sunflowers, including Prolific White; likewise many new Asters, Snapdragons, Dahlias, and Gladiolus, but the cream of the novelties has been selected, I think, in the paragraphs already written, and enough has been said to prove my point, that the lover of new things in the garden will be able this year to satisfy his desire in that direction to his heart's content.

GROWING PRIZE ONIONS IN MY GARDEN

Essential Combinations of a Few Conditions Easily Attained and the Choice of a Variety that Fits the Soil

I. THE CULTURAL DETAILS

A. RUTLEDGE, PENN.

THE gardener of the East and North who sees Bermuda Onions in the market cannot escape pangs of jealousy. And yet, while the average man can hardly grow the tremendous globes that come to maturity in the irrigated fields of Texas, there is an excellent opportunity for him to grow Onions of a size that will rank them as prize-winners. He must, however, observe certain fundamentals.

The Onion, while a most ready grower in almost any soil, is by no means willing to take on respectable size unless all conditions are right. Soil, moisture, length of season, judicious fertilizing, careful hand-culture, proper drainage, shading if a hot wave comes while the plants are still growing strongly—these are some of the matters to be kept in mind.

WHERE the season is short, Onions must get an early start. Also, it is the experience of most careful gardeners that much larger Onions can be grown from seed than can be had from "sets." The latter are quicker growers, but are inclined to shoot to seed, to the loss of the bulbs. I always start my seed in a hot-bed late in February. Toward the end of March I have the bed in the garden ready, and the little plants, about four inches high, are transplanted, after having their tops cut back severely. In a backward season it may be the middle of April before this work can be done. The plants are set three inches apart in rows four inches apart, or sometimes five. I drop every seventh row in order to give me opportunity to get among the plants for hand-cultivation. There is never any trouble about their growing immediately; and if they have been hardened off a little before transplanting, there is no danger of their being injured by cold.

THE soil should be exceedingly well prepared, the surface being raked repeatedly to make it fine and loose. I use a little very fine stable manure, and also a judicious sprinkling of wood-ashes, carefully incorporated in the soil; but my main dependence is upon nitrate of soda, which seems to be by far the best fertilizer for Onions. By experiment I found that Onions treated with nitrate of soda grew to almost double the size of others in the same bed not so favored. It may be worked into the soil as a top-dressing after the plants have made a good start.

Keep the bed scrupulously clean, and the soil like a loose mulch all the time. Indeed, I know of no crop which demands more careful cultivation, and hardly any crop better repays it.

In July a hot wave may come. Though the Onions may then be growing strongly, this will terminate growth unless the plants are shaded with burlap, slatting, or anything convenient. If the gardener plans to grow prize Onions, he must remember not to let the sun discourage his plants before they have done their best.

If these suggestions are followed, Onions may be so grown in the home garden that people will say, "Why, they look like giant Bermudas. You didn't grow them here, did you?"

THE BERMUDA ONION FOR LIGHT SOILS

It comes in three varieties, differing in color. This type is famous for its very mild flavor and is notoriously poor in keeping quality

II. THE MATTER OF VARIETIES

ADOLPH KRUHM

IT IS a queer fact that those varieties of Onions which may be grown to extraordinary size are really not Bermuda Onions at all, but certain types of Spanish Onion. The Bermuda Onions proper are small to medium sized flat bulbs, averaging not more than two and a half inches in diameter by one inch through. No amount of extra start can make them grow any larger because they are a very early variety, ripening within sixty days from the time seeds are sown. They are of three kinds, namely, the Bermuda Crystal Wax, a pure white bulb; White Bermuda, a yellow skinned fellow; and Red Bermuda, the rosy-colored companion of the other two. These Bermuda Onions are notorious for their mildness and for their poor keeping qualities. There is one member of this type, however, originally from Italy, Giant White Italian Tripoli, which, after naturalization here, is called Mammoth Silver King. This is the giant variety of the pure white, flat onion; and if started under glass, it will grow to a weight of from two to three pounds.

However, even that variety is not as interesting a specimen of Giant Onion as the misnamed "Bermuda Onions" which we see displayed on the fancy fruit stands throughout the country, and which are giant, globe-shaped, yellow-skinned fellows. The original of this tribe was a European variety called Yellow Zittau Giant which in due time gravitated to America, and about twenty-five years ago, was introduced as American Prize-Taker. Just about the same time, the well known house of Vilmorin in France "discovered" a very much milder flavored Onion of yellow, globe-shaped type in Spain, cultivated it for a few years in France, and offered it then under the name of Giant Spanish. The late W. Atlee Burpee introduced this variety into America, and it subsequently won its place as Gigantic Gibraltar, differing from Prize-Taker in having a deeper green top, and proving more resistant to blight and mildew.

Subject as it was to considerable variation of soil, moisture, and weather conditions, this Gigantic Gibraltar in the process of better adapting itself to loamy and mucky soils became somewhat modified. This modified form is now offered by some people in the trade as Giant Denia Onion.

In the meantime, working along entirely different lines, a prominent English seed concern, starting with Yellow Zittau Giant as a foundation stock, evolved that great exhibition Onion called Ailsa Craig, which to-day plays a very important part in every vegetable exhibit on both sides of the Atlantic.

Summarizing the recognized varieties of Onion that may be suitably grown for exhibition specimens, we therefore have:

(1) American Prize-Taker, practical for cultivation on the clay soils pretty generally throughout the country.

(2) Giant Denia, thriving perhaps best under irrigation, and in sections having well drained soils and a high altitude, though it also does well on muck.

(3) Ailsa Craig, capable of the greatest growth of any, but by far the most exacting in regard to its conditions of growth. It does particularly well on the Pacific Coast; also on deep, heavy clays and on loamy soils.

ONION AILSA CRAIG FOR HEAVY SOILS

The best strain of the large mild flavored type for exhibition purposes. It is exacting as to conditions and succeeds in a deep heavy clay loam

WHY NOT GOOD POTATOES?

F. C. GAYLORD
Purdue University

Here are the tubers of one typical hill of potatoes grown by W. W. Stanffer, Akron, Ohio. This kind of thing is profitable under any conditions

GROWING Potatoes in a back lot or in a typical suburban garden is usually not advised because it is urged that, given the same amount of space, other crops are apt to be more profitable. That is true if Potatoes are not really "grown;" yet it is in fact possible almost any season, if you meet every requirement of this exacting crop—for it is exacting—and do your part in making conditions favorable, to dig hills where eight to fifteen smooth, high quality potatoes roll out. And then potatoes *are* worth while!

Commercial growers are taking advantage of every "trick of the trade" in securing large yields, but many gardeners who have but a few square rods of soil are losing many bushels of potatoes by failing to make every link in the chain of potato production a strong one. Last year many potato growers in my section actually doubled their ordinary yields by selecting seed of varieties suited to their conditions; by treating these for disease; by later green-sprouting them, fertilizing, spraying, and giving the crop the best of culture throughout the entire season.

If you are planting only a few rows or a few bushels of seed it is most important that every potato has a record of high performance back of it, or in other words that it comes from good seed, of a variety suited to the locality and that it be planted free from disease and kept that way as far as possible. Irrespective of the variety, by all means get certified or hill selected potatoes for your seed, and be sure they are not potatoes merely sold for seed. Many a grower has found that high prices are not always a reliable guide in buying seed stock.

Short green sprouts, developed on tubers placed for three or four weeks in a well lighted room result in earlier crop and increased yield

But, stored in a warm and dark place, long white sprouts (below) push out. Such tubers mean poor yield

THERE are a few outstanding varieties from which the gardener should select the *type* he wishes to plant. For cool, moist regions and a deep rich soil with plenty of rainfall and cool weather, Green Mountain for late planting will give large yields of the highest quality; for the early planting Irish Cobbler, a blocky white-skinned tuber will prove admirable. Where the crop has to contend with hot, dry periods during the summer, nothing will give better results than some variety of the "Rural" group. Among these are to be found such common favorites as Rural New Yorker, Carmen No. 3, Sir Walter Raleigh, and Golden Petosky. Here too such early varieties as Early Ohio and Irish Cobbler will give general satisfaction. If a few of the earliest type

SOME POPULAR POTATO TYPES

Top row (left to right): Triumph, extra-early, red-skinned, but not so prolific as Early Ohio and Irish Cobbler which, a trifle later, are among the best earlies

Lower row (left to right): Typical of the "Rural" group particularly suited to gardens liable to drought and frequent periods of high temperature. Green Mountain does well in cool, moist soils having plenty of plant foods and organic matter

are wanted, a row or two of Triumph will give edible potatoes a week or ten days before Irish Cobbler or Early Ohio.

After having located the potatoes for seed, and while waiting for winter to pass, it is well to select the place for the potato patch. A rich, loose, sandy loam will give best results. It should be full of organic matter. To make sure of this, if possible, cover it during the winter with well rotted manure to a depth of two or three inches and plow or spade early in the spring, later thoroughly mixing up the soil and manure and working the soil just previous to planting to a depth of about eight inches. Thorough pulverizing of the soil will afford a loose plant bed, unlock the necessary plant food, and help to retain an abundance of moisture so necessary for big yields.

FOR early potatoes the earlier they can be planted the better, while the late ones can be planted from May until July, depending on the locality. When the tubers are dormant, preferably at least a month before planting, treat them for scab and other disease carried on the outside of the tubers. This consists in immersing the tubers in a solution of corrosive sublimate for an hour and a half, but no longer. Place the potatoes to be treated in a wooden barrel or other container and cover with the poison solution. The amount needed will vary with the quantity of potatoes to be treated, but an ounce of corrosive sublimate powder dissolved first in a quart of boiling water and then added to seven and one half gallons of water will be sufficient to treat a couple of bushels.

After soaking the tubers for an hour and a half take out and spread them out to dry. Potatoes so treated should never be eaten or used for stock food.

After treating, place them in a cool place and about three or four weeks before planting time spread them out on the floor of a room or crib where they will be exposed to the light each day. Of course they must not be allowed to freeze. In a short time the vigorous tubers will produce tough green sprouts which will grow about a quarter of an inch long and then cease growing. Tubers which produce fine spindling sprouts or none at all should be discarded. Green-sprouting potatoes in this manner will make early potatoes mature ten days earlier and give a more uniform vigorous stand. For late potatoes remove from storage and spread out in the light where they first begin to show signs of sprouting.

In cutting, the slice under the stem end should be cut off first, cutting about one half inch deep. Then examine the cut surface, if it is white it may be used for seed, but if it has dark spots in it, about a quarter inch under the skin, discard; for this is an

SELECT GOOD TUBERS FOR SEED

This is the kind of hill to save for seed. Look for a lot of smooth uniformly medium sized tubers

indication of wilt, a common potato disease which causes the early death of the plant. After making this initial cut the tubers should be cut into pieces about the size of a hen's egg with at least one green sprout to each piece.

It is best to plant immediately after cutting, one piece in a place in rows twenty to thirty inches apart, spacing the pieces about twelve inches distant in the row. For small gardens rows may be placed as close as eighteen inches. Cover the pieces from three to five inches deep and keep the soil loose over the patch until the growths appear. Level cultivation, all the time keeping a shallow dust mulch, will conserve the moisture and keep the plants growing vigorously.

When plants are eight inches tall spray them thoroughly with bordeaux into which lead arsenate has been placed. Bordeaux mixture is made in small quantities by dissolving three level tablespoonfuls of copper sulphate in about a quart of hot water and then pouring into a large jar or wooden bucket and adding sufficient water to make three quarts. Next mix ten level tablespoonfuls of hydrated lime with a quart of water and *pour into* the copper sulphate solution, stirring all the time. This is bordeaux ready for use. To control the potato bugs stir into this quantity six level tablespoonfuls of powdered lead arsenate. To make larger quantities all that is necessary is to multiply the amounts of the various ingredients.

Bordeaux will stimulate the plants and keep them green and vigorous after unsprayed vines have died. When poison is added, potato bugs are controlled at the same time. At least three applications of bordeaux should be made, about ten days to two weeks apart, during the growing season. By thorough spraying, many Indiana farmers have secured from twenty-two to thirty-five bushels more potatoes per acre.

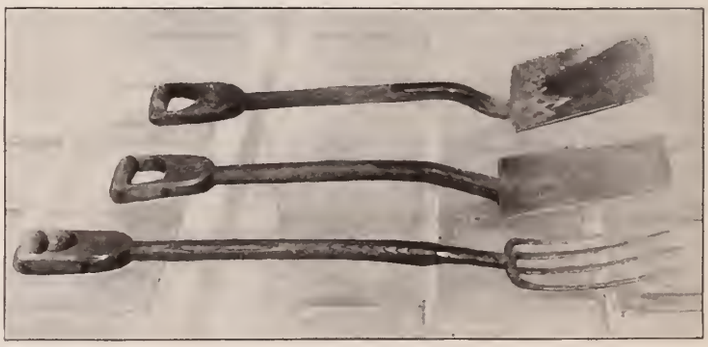
AT DIGGING time it is a wise gardener who goes into his patch and selects a few of the most vigorous hills with a large number of smooth uniform potatoes for his seed stock another year. These should be kept in a cool, moist place during the winter.

Last year many gardeners who started with rich, loose soil and followed each step through the growing season grew potatoes yielding from three to five pounds of smooth marketable tubers, besides having the satisfaction of growing a successful crop, which is one of the joys of gardening. Why not do the same thing in the home garden?

THE REAL USEFULNESS OF TOOLS THAT FIT

How the Gardener May Take Advantage of Up-to-date Equipment to Lighten Labor While Returns Increase. Modern Tendency in Efficiency.

"WORKING" the soil is the very foundation, the beginning of gardening. More than all the fertilizing and all other attention as growth develops will *thorough tillage* (which is "working"), before the plants are set out or even the seeds are sown, insure the future welfare of the crops. Tillage opens up the deeper parts of the soil below the surface thus admitting air and permitting drainage of the surplus surface moisture. It opens the depths to chemical oxidization, and, by its mechanical action of abrasion of particle against particle, it makes the constituents of the soil available to the plant as actual food. A garden that is not deeply tilled before it receives the crop can never be brought to proper responsiveness by subsequent surface treatment. This is a cardinal principle of garden work, well recognized by the agriculturist but often, far too often, neglected by the occasional or avocational worker. An unworked soil cannot receive and incorporate additional plant food given as fertilizer, and in this one fact alone may be found the answer to many complaints of failure later in the season. Tillage also incorporates with the



In order from top to bottom: shovel, a lifting tool for loose earth, sand, etc; spade, for cutting into compact soil; spading fork with flat tines for lifting workable soil

A handy combination of cultivator teeth and hoe that has a multitude of uses in the flower border. The hoe part comes also in a square model

General utility Triplex combination wheel hoe with cultivator, cutting blade and plow without loose parts

Handy disc Perfection cultivator specially adapted to light soils, cutting lumpy soil into a good mulch

Here is the familiar simple wheel hoe and cultivator that has almost eliminated labor from the work of the garden

Strong tooth cultivator (Runlite) for deep working on heavy soils with broad solid wheel

Rake-like hand cultivator with curved teeth mounted on expansible arms that are adjustable for width

The double-wheel type of machine tool is preferred by some workers. Shown here with plow blades reversed for hilling both sides of a row

soil the organic material that is on the surface, whether that be a natural accession or in the form of top-dressings by spreading manure. A tilled soil will get along, too, in a period of drought when a soil neglected in this respect will demand water.

Too much insistance cannot be put on this necessity of tillage. It is the oldest of all the practices of the garden and farm, and its paramount importance is being more fully appreciated, its reasons better and better understood, as the years roll on.

The ancient Assyrians and Egyptians tilled their soil with a pointed stick, and we of today have not found anything of more importance, and indeed our modern plow is but a pointed stick very slightly modified so as to turn the soil as well as to break into it. The plow does easily on a broad scale what the spade does in a restricted area. We have learned, however, that in the matter of the soil, as in any other activity, the form of the tool or implement may be modified or adapted to fit the special conditions of the worker. But this is merely adapting the teachings of experience to serve our convenience. Just because the working of the soil is so ancient, so fundamental, and so universal, and because the primitive tool can do the operation successfully, gardeners as a whole have been slow to realize the virtues of special adaptations of modern tools and the possibilities they possess for the efficient worker who wants to make every move tell to the utmost. Because a spade, a fork, a rake, and a pick will accomplish all that may be necessary, there is a tendency to let well enough alone; but when the intelligent gardener is doing his own work he may well pause to consider whether he is using the most effective tool for accomplishing the desired result. Remember, a good workman uses good tools. The very best cannot be too good, and anything that increases the actual result while diminishing the actual labor is worth while, and justifies attention.

Now, there are many accessory tools that the gardener should consider, and manufacturers have of late done much in offering improvements for special purposes. The fact is that the tool manufacturer has been ahead of the market for some time. True the gospel of the wheel-hoe has been pretty well accepted by now, but that is to be taken only as one example of the opportunities at hand. It may be a small matter at first glance to see there are differences in trowels, and to many people a

trowel is a trowel—just that, and nothing more. Yet a moment's use will convince that the long, narrow "Slim Jim" type is infinitely better adapted for "thinning-out" in the rows than the broad planting trowel that lifts too wide a spread, and where much bulb planting is done an extra broad, extra short tool is a comfort and relief. There are spades and shovels: the one stout, straight, with an even cutting edge, that will penetrate the compacted earth; the other a scoop set at a different angle for lifting; yet how often do we see the beginner equipped with a shovel trying to dig? And dig, in the sense of tillage, he cannot with such a tool. Use a spade for digging, and a shovel for shoveling or scooping.

When so obvious a mistake is made in a tool of elementary type it is no wonder that the proper appreciation of more refined implements is confused. The variety of such that the present day gardener has before him is bewildering to the new comer, yet it may be accepted as a truism that every one has its real use and will do some one job at least particularly well. The big question is what is the job in your garden that irks most and is there a tool to ease it?

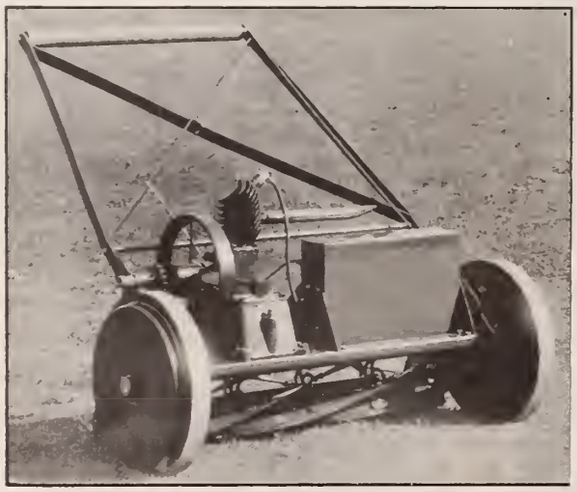
Broadly speaking, tools that help may be divided into distinct groups:

1. Tools to till the land.
2. Accessories to actual planting operations.
3. Machines of defense against insects or fungus diseases.
4. Tools of maintenance.

Those that compose the second group enter very little into the work of the home gardener, and may, for this reason, be eliminated from present discussion. Plant-setting machinery, fertilizer sowers, seeding machinery, etc., are implements largely called for by growers interested in quantity production. Their usefulness is limited almost entirely to market gardeners.

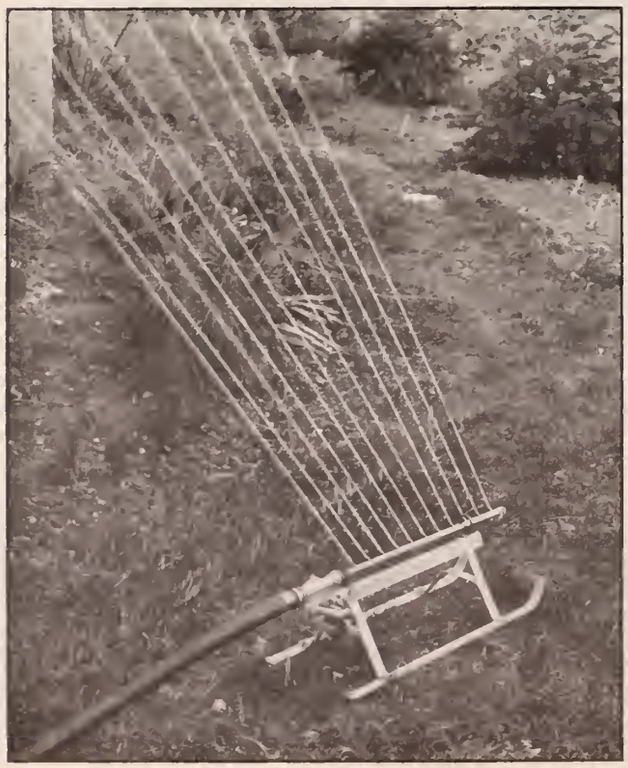
The simplest job in the garden—digging—becomes hard work, if you attempt to do it with the wrong tool. Spading with a shovel, or shoveling with a spade, makes the initial effort a hardship. Heavy soils call for a spade; light soils are better handled with a spading fork made like a skeleton spade with flat tines; then the round tine fork is used for lifting and tossing light material only. Because of the great difference in soils, even on one and the same estate, every initial garden-making equipment should contain both spading fork and spade.

Then there is the pickaxe, the two-pronged form of it called grubbing-hoe, the rake, trowel, garden-line, wooden labels for marking rows, a strong knife, raffia or soft twine, possibly two types of cultivators (the cutting-blade, and the tooth) which make the maximum output of real work. If you ask "Why a pickaxe?" remember that it not only breaks but lifts obstacles and is invaluable in clearing, and in the skilled hands of some classes of emigrant labor it is a veritable "do all" to dig, pulverize, rake, level, make furrows, hill; and is after all merely the primitive pointed stick made into iron and set with a handle.



Gasoline power applied to the lawn mower in various models to operate the knives and to propel the machine over the ground

Two extreme forms of trowel. Obviously the narrow, long tool is superior for the purpose shown; and the broad short one for bulb planting



The Campbell water fan oscillating on any desired arc by the force of the water pushing through will under normal conditions "rain" over a 10 ft. width, up to a distance of 50 ft.

Especially suitable for large stretches as in the vegetable plot, the pipe-line Skinner system may be installed at heights to suit

Portable air-pressure Aerospra tank useful in any part of the garden, in the greenhouse, or dwelling especially for liquids under pressure

Where there are extensive areas of uniform crops like potatoes and asparagus etc. a barrel mounted on wheels with pressure is a decided labor saver

The sifter-can with perforated bottom is still a practical accessory for distributing dry poisons etc. and very serviceable in both flower and vegetable gardens

Isn't it worth while slinging the Autospray over your shoulder and applying insurance for the Peaches or what not in the home garden?

In choosing a tool, attention should be paid to the joining of the handle and the metal part. Seventy-five per cent. of any subsequent trouble starts with a poor connection there. A "strap" union is desirable for any tool that is put to any real strain of leverage.

Even in the elemental tools a great variety of shapes is available, especially among hoes, and a few different types will add to one's comfort. A pointed one for close work, and a long handled cultivator combining the pointed hoe with a three- or five-pronged scratch-weeder will fill the initial needs; although a scuffle or Dutch hoe for surface tillage and weed cutting is also a genuine help.

As has been mentioned above, the wheel-hoe is already well known, and its further development into a combination tool of rake, plow, and hoe in the modern wheel-hoe cultivator (of which the two best known for general purposes are the Planet Jr., and Iron Age) was a simple step. Where the garden exceeds one-eighth of an acre in size, and the work of maintenance devolves upon one pair of shoulders, a machine tool of this nature is almost an essential.

In the evolution of the wheel-hoe attention has been paid to the common soil conditions confronting gardeners in most sections. Thus, the original five-pronged scratch-weeder, designed upon the principle of the human hand, takes on new power through the curved cultivator tooth, which in the Liberty has reached its greatest perfection. The old-fashioned, two-pronged grubbing hoe is present in the powerful plow shears, reversible, to either break the ground or hill the rows, as may be required. Such attachments form part of the outfit of every complete modern wheel-hoe.

The principle of the old Dutch scuffle-hoe reappears in improved form in the rocker-blade of the modern Gilson weeder which ultilizes both the forward stroke and the backward pull of the arm that guides it.

Disc cultivators or cutting rollers, which finely pulverize soil inclined to be lumpy, are found in other types of combination tools and are especially adapted for light soils in the Perfection; whereas for heavy soils there are others such as the Barker cultivator, which combines the advantages of digging-teeth, cutting blade, and revolving knives. A recent application of ingenuity in the Triplex does away with all loose parts and extra tools for adjusting the different attachments, and the cutting blade, cultivator teeth, and plowshare are mounted on a single revolving pivoted axle.

Tools for defense against outside attacks of bugs and fungus are in reality a very recent development and have attained al-

most over night a degree of perfection that seems to leave little to be desired, and they come in various sizes and styles, varying accordingly in price. For the man who takes the raising of the crops just as seriously as the initial effort of making the garden, quite a number of modern appliances are available. The old-fashioned sifters with which we still apply the common remedies against chewing insects, are gradually being supplanted by the more powerful duster guns, and blowing apparatus. Insecticides in dust form will often do more good than liquids and are often easier to apply. The spray pump in its various forms, however, will continue to be the standard appliance with which to keep the garden well. Most of them, from the little hand apparatus to the big horse-drawn, motor-driven power sprayers for extensive orchard work, are now operated by air pressure which forces the liquid in a continuous stream. The perfection of quite a variety of nozzles, too, adds to the pleasure of doing this work right. Perhaps the most popular of the spray pumps to-day are the Knapsack and Autospray types.

The fact that more than 90 per cent. of annual plant growth is water should bring home to the gardener the tremendous responsibility of supplying the crops adequately when nature may deny it in many sections, and in certain seasons. Much progress has been made during the last twenty years in devices for carrying and distributing water in nature's own way. Excepting for special work in the greenhouse, or where gardening is done on a very limited scale, the old-fashioned watering can has gone into the discard. Extensive irrigation systems of various kinds—underground, on the ground level, or overhead—are now possible wherever a normal water pressure is to be had. Many attractive small devices also help to solve this problem for the lawn and border. Water fans not more than two pounds in weight, which throw streams of water from twenty to thirty feet in alternating directions; oscillating sprinklers of other types, to cover a complete circle up to fifty feet in diameter; and many others, may simply be attached to the regulation garden hose, and a turn of the faucet will set the apparatus automatically to work. Water passing a long distance through the air, falling in a similation of rain is found to be very beneficial.

In the good appearance of the lawn—smooth and velvety—is the measure of satisfaction in the height of summer. Given a good green grass, even though the borders may be somewhat neglected, the general effect will please, so some attention may well be paid to lawn accessories.

To counteract the heaving of the sod, due to alternate freezing and thawing, the lawn roller may be pressed into use at the first sign of spring. Its weight puts the grass roots where they belong. It will fill the mole runs, and level out the ground. The water ballast type, which can be weighted to suit is a real convenience.

Second only in importance to the roller, is the lawn mower itself, the constant use of which tends to strengthen the root system of the sod. Every good mower now is equipped with a running roller, while the most modern of the lawn implements, the lawn sweeper, combines mower, roller, and grass catcher in one.

To keep the lawn in perfect condition requires almost as many elementary tools as to start a new garden. Grass shears and border shears should be supplemented with sickle and edger. Many of our modern cultivators now have special lawn-edger attachments. In addition, there are the wide-toothed lawn rakes, made either of wood, or of bent wire because the ordinary steel rake will not do for the lawn, since it is apt to pull the sod, and a lighter tool may be much wider. In addition, there are such incidental helps as Dandelion spuds and Dock extractors, and other implements for going after objectionable weeds that cannot be eliminated by the use of a mower.

In large scale commercial orcharding every possible advantage is taken of modern inventions to carry insurance to the crops. Why should the home garden lag behind when there are appliances suitable for any scale of operations?

VEGETABLES THE YEAR ROUND ON 30x50 Ft.

JOHN R. EUSTIS

Gardening as a Continuous Hobby and Recreation for the Business Man Which Keeps the Family Larder Supplied With an Abundance of Good Things

"I THOUGHT you didn't dig Parsnips until the early frosts came," I remarked, by way of seeking information when one Sunday morning, in the middle of a glorious Indian summer I had dropped in after a long walk to find my gardener friend busy digging a vegetable with long, white, tapering roots, the tops of which he threw on the compost heap.

"You don't," he replied, "and as a matter of fact I dig mine when the frost comes out of the ground in the spring. They are best flavored then and provide a fresh vegetable at a time when it is hardest to have them. However, these are not Parsnips but Witloof-chicory."

"And how do you cook that?" I asked.

"You don't," he told me. "It will provide our fresh salad next January and February."

"Eat those roots as a salad during winter!" I said, incredulously.

"Not the roots, but the second growth of tops." He spread a hundred or so of the largest roots out in the sun, and then enlightened me further. "You see, after these have dried out a bit I will dig trenches ten inches deep and plant them in the bottom in holes made with an iron bar and fill up the trenches with earth. When the cold weather comes I will pile enough straw and manure on top to keep the ground from freezing. Along in January, when we have eaten the last of the Lettuce from the coldframes, I will begin to dig down into the trenches to find that each root has grown a new top of yellow-white leaves in the form of a compact head, like the heart of the Cos or Romaine Lettuce which you enjoyed so much last summer.

"There is another Chicory which grows a second top of loose leaves, the latter being the famous salad Barbe de Capucin (Monk's-beard) featured in the leading restaurants of Paris during the winter months. This salad, however, is forced in sloping banks of earth placed in cellars or caves, but I have other uses for the spare room of my cellar. During the outdoor season when the roots are forming, a part of the top leaves may be picked and cooked for greens, although these are not to be compared with Beet tops or the leaves of Swiss Chard."

"Yes," I replied, "but what interests me more is the suggestion you have given that this garden, measuring something like fifty feet by thirty feet, can be made to produce vegetables, fresh vegetables, for winter as well as summer consumption. I thought all the fresh vegetables in the winter came from the far South."

"Many of them do, but more come out of storage, cold or otherwise, or are grown under glass with and without artificial heat. However, you are right about this garden. After some ten years of experimenting I have succeeded in making it provide us with vegetables during every month of the year, most of which come under the classification of fresh vegetables. In fact, there need not be a single day out of the three hundred and sixty-five on which we cannot have on our table at least one fresh thing grown in this garden, or in the cellar. Why, even our hens lay for at least eleven out of the twelve months."

"Sort of nature faking now?" I queried.

"Not at all. You see, we have about three dozen hens—all that we have room for—and they have the run of the vacant lots in the rear of our place. I buy new pullets every year, and a dozen hatch out about the first of March, another dozen early in May, the balance coming through the shell around the first of July. Each batch will begin laying in about eight months or a little better, and keep it up for nearly nine months; so just figure it up for yourself."

It took me several minutes to figure this out and to speculate on the other suggested subjects, during which time the gardener was at work cultivating rows of Celery. These stood some thirty inches apart, and led me to walk over to where he was at work and to offer the suggestion that valuable space was being wasted in so small a garden.

"Wrong again," was the retort. "Early in spring I planted Onions here, in rows fifteen inches apart. In August I set out these Celery plants, raised from seed in the seedbed by the cellar steps, between alternate rows of Onions. The latter were harvested two weeks ago and there are two bushels of fine Onions in the cellar now, which will last us an entire year. Early in November we will place protectors on these Celery plants and bank earth against them until only the tops are left uncovered. Later, when the weather turns cold, old bagging and straw will go over the tops and enough manure to keep the banked earth from freezing. We will begin digging and eating Celery about the middle of December, and at the rate of a head a day it will last about three months. I have tried several other methods of storing Celery for winter use, but this one provides the table with the best flavored and most crisp Celery.

"That Kale you see there was also started in the seedbed and transplanted between two rows of Onions, the operations of planting the seed and transplanting following those of the Celery by about two weeks. With a light covering of straw and leaves, the Kale will continue to grow until the frosts become heavy. When the ground is frozen in December the Kale has its best flavor, but it provides two or three messes of fine greens each week from about Thanksgiving Day to New Year's. The patch of Spinach you see growing there, where the first of the early Corn was, will soon be covered with a coldframe and glass sash. It will provide green Spinach during January. Then, except for the salads, we will have no more greens until early April, when the Corn-salad and Spinach, now growing between the Tomato rows, and later to be protected with straw and leaves, is ready for eating. Incidentally, when the Tomato plants were set out late in May, that ground was bearing early crops of Beans, Lettuce, and Radishes. In May and June for greens we have the thinning of the Beets and the Swiss Chard and the leaves of the latter until early November. So you see we have fresh greens for practically ten out of the twelve months.

"This Swiss Chard is an interesting vegetable. To borrow a term from animal husbandry, it is a dual purpose type. The outer leaves may be continuously picked during the growing season, as they are rapidly replaced by new growths from the centre. The leaves proper are used as greens, while their broad stems are cooked as a separate vegetable, generally cut into inch lengths and stewed, when they taste much like stewed Celery. Oh, I almost forgot something in our line of greens. Last spring for the first time we used, both as a cooked Spinach and

as a salad, the Dandelions with which our small lawn has been infested. Heretofore, I have dug these out and thrown them away, but from now on they are to have a prominent place on our table during each April and early May. Another year, I think I will set Dandelions in the garden in the fall for spring use instead of Corn-salad, which has little to commend it except the season of its harvest. The seedsmen offer selected salad strains, and spring sowing will give good plants."

"Some drain on the fertility of your soil, this growing of two or more crops each year on the same ground," I suggested.

"Yes, but rotted manure, straw, and leaves are dug in generously each spring, a little commercial fertilizer used throughout the growing season, and a heavy application of lime added every two or three years. The manure is left by the street cleaner or secured from a near-by stable, and the lime is largely made up of the sweepings of new houses after the plastering is finished. Sometimes I buy a bale of straw, and, of course, the commercial fertilizer is rather expensive when bought in small quantities. Leaves may be had for the raking and carrying."

Looking around the garden I saw many other vegetables which would be stored for winter use, including Beets, Turnips, Carrots, and Cabbage. I commented on these.

"Yes, these Cabbages are growing in the ground where the spring crop of Peas was planted. Incidentally, the latter were pretty much of a failure this year, due, I believe, to the fact that seed kept over from last season was used. With some vegetables the seed is good for several years, while with others it must be new seed each season. I had thought that Peas were in the former class, but know better now, and, anyway, the cost of seed is really but a small factor. For my part I am saving seeds of Tomatoes, Beans, and Corn each year just for the fun of selection, but I don't believe it would pay me to produce my own seeds.

"The problem with Beets, Turnips, Cabbages, and Carrots is to store them so they will keep well through the winter. I pit or box them under the side veranda, thus securing a double protection from the weather. Packing them in earth in the cellar is just as good. We don't care much about Turnips, but they can be planted in August following Beans, which in turn follow a crop of early Lettuce, the plants of which are started in the hotbed. Most of the Beets are fed to the hens during the winter. It is much easier than sprouting Oats, and the hens seem to do as well on them."

"You certainly have this all-year garden down to a real science," I suggested after several minutes of deep thought, during which the gardener was collecting his tools, evidently having finished the morning's work, or else despairing of accomplishing anything more under the handicap of my questioning.

"You think so? Well you have scarcely discovered half of it yet."

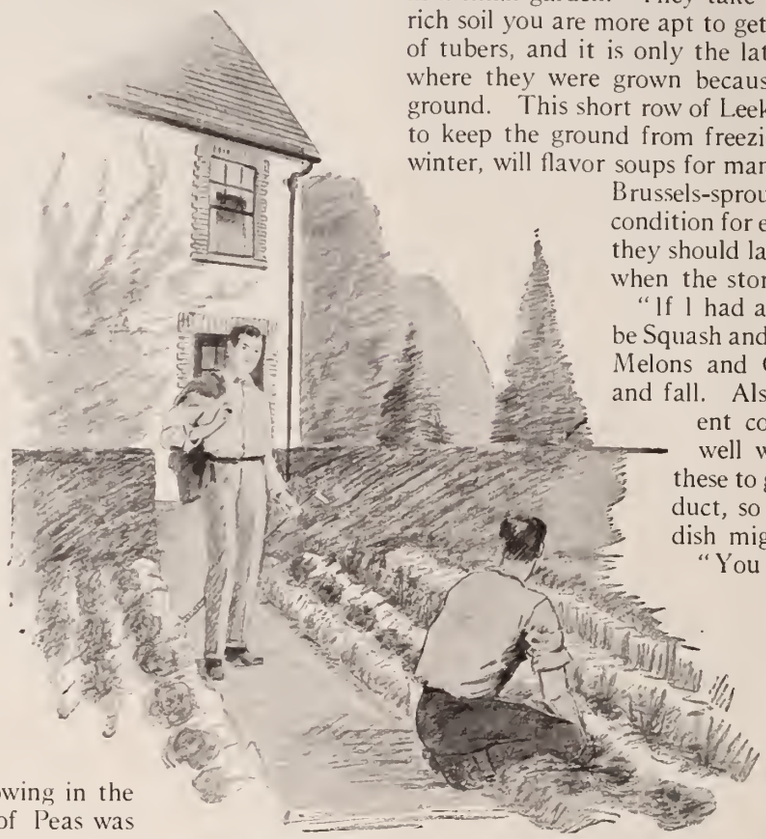
"Tell me some more," I returned. "I have a prodigious appetite and would like to learn all about it."

"It's the middle of the fall and you see there is still some more Corn to be harvested in that patch. Also I picked a mess of Beans this morning, the last of the year, I'm afraid, as we'll get a frost any night now. The Tomatoes are done as far as the garden is concerned, but there are a half dozen vines, with lots of partly grown and ripe Tomatoes, hanging in the cellar, the roots covered with dirt and bagging. The largest Tomatoes from the other vines are also in the cellar, wrapped separately in paper. Between the two we have ripe Tomatoes until Christmas at least.

"There is also in the cellar three quarters of a barrel of Potatoes which we grew this year. Ordinarily it doesn't pay to raise them in a small garden. They take up too much room and in very rich soil you are more apt to get a big crop of tops than you are of tubers, and it is only the latter that count. You can't see where they were grown because other crops now occupy the ground. This short row of Leeks, covered with enough manure to keep the ground from freezing so that they can be dug all winter, will flavor soups for many months to come. And these Brussels-sprouts over here will be in prime condition for eating around Thanksgiving, and they should last until the middle of December, when the stored Cabbage will take its place.

"If I had a larger garden there would also be Squash and Pumpkins for winter eating and Melons and Cucumbers during the summer and fall. Also, with more room and the present cost of dried Beans, it would be well worth while to plant enough of these to give a peck or so of the dried product, so that the famous Boston baked dish might be enjoyed the year round.

"You will notice that I have transplanted a short row of Parsley along side of that Spinach, so that it, too, will be under glass in a coldframe when the weather gets colder. The other Parsley over there will be covered with straw and earth so that it will start up early in the spring, by which time the Parsley under glass will be all gone. Thus, with a new planting of seed each spring, we manage to have fresh green Parsley all year.



"I thought you didn't dig parsnips," I remarked

"This Kohl-rabi is from the third planting of this fine vegetable. It was started in the seedbed and set out when large enough, or rather when room could be found for it in the garden itself. The seedbed, and its forerunner of late winter and early spring, the hotbed, are indispensable in our plan for intensive gardening. Without them it would be impossible to grow two or three crops on the same ground each season. As far as practical, all seeds are started in the beds, where they occupy barely ten per cent. of the space they later need in the garden. The hotbed, which I start about the first of March, provides large plants of Lettuce, Beets, Tomatoes, and Peppers by the time they can be set out, which is early April for the first two, and late May for the Tomatoes and Peppers. The seedbed which follows is the same three by six foot frame, without glass or the heat-supplying manure beneath, which formed the hotbed. This seedbed is partially shaded, and seeds for late Cabbage, Kohl-rabi, Celery, late Lettuce, Kale, etc., are started in it.

"The row of Rhubarb over by the fence beyond the clothes posts has been picked right along since early spring. About the time the ground freezes I will dig up several of the roots, place them in a large tub of dirt, and put the latter in a warm corner in the cellar. The tender, delicious shoots which will be forced from these roots during the winter will make a score or more of wonderful rhubarb pies. Makes your mouth water, doesn't it?

"Now, last and best of all comes our principal winter cellar crop. Back of the chicken house, protected with boards and wire netting, there is a fair sized pile, made up of sifted earth from sod land and fresh manure, equal parts by weight, or one

part of the former to three of the latter by measure. The mixture has been carefully handled for some ten days now and is about ready to go into the cellar, in a dark corner, where planks two feet high partition off a space four by six feet. After the initial heating drops off, the bed will be spawned and later cased with more soil. Then about January fifteenth we will begin to gather Mushrooms. Two years ago that bed produced thirty pounds of Mushrooms, and we became so tired of them that last year we didn't bother to make a Mushroom bed."

"Tired of Mushrooms!" I exclaimed, thinking of the times I had gone nearly broke trying to satisfy my appetite for this delicacy. "But then I suppose if one had a lobster farm one might even grow tired of lobster, too. Guess I will leave lobster farming and Mushroom culture alone."

"You had better," was the reply, "because Mushroom culture is more a laboratory process than a matter of gardening, and temperatures must be carefully watched and degrees of moisture as well. But, here comes Friend Wife, and perhaps she will initiate you into the secrets of preserving summer garden products for winter consumption."

The lady of the house greeted me by saying, "Your place has been set at the table and dinner will be ready soon," at the same time giving our gardener and his dirty clothes a look which suggested he had something else to do than stand around talking about the garden. As one of her famous dinners was the real object of my visit I nodded a combination assent and thanks.

"Come and help me cut some roses for the table," she continued, as she led me to a long row of bushes along the lawn fence, some of which were still blooming. "These are the most wonderful Roses. We have been cutting their blooms since early June."

I bethought me of the gardener's parting suggestion and inquired how successful the lady of the house had been in "putting up" vegetables.

"Come and I will show you," she replied, leading me into the cool cellar and back into what she termed the cold storage closet. This was about eight by ten feet, brick lined, with a double-boarded door, and a small window opening under the front veranda steps. It was lined with shelves. Even in the semi-darkness I could see hundreds of glass jars and bottles along one side.

"This is an Indian relish, made principally out of raw cabbage, with red and green peppers. Here is the result of my first venture in preserving green string beans, and I do hope it turns out well. These are whole, ripe tomatoes, for soups principally, and there are a hundred and ten quart jars of them. Here is a conserve made of rhubarb with lemons and walnuts, and here a jelly of rhubarb and apples. Our small, green tomatoes with onions made this pickle, while those reddish bottles up high are ripe tomatoes made into ketchup and chili sauce."

As I made my way out of that cellar and around the veranda to await the call for dinner, I wondered what terrors, if any, the high cost of living or scarcity of food products could have for such a household as this, which made real use of the bounty of the earth by a good beginning in spring, sowing and planting with a vision ahead, and with systematic regard to succession and rotation on the same plot of ground. How much space of this sort is annually wasted?

FACTS FOR READY REFERENCE

—Legumes may be grown in any soil that is sweetened and contains sufficient mineral elements of plant food.

—Legume bacteria give us nitrogen from an inexhaustible supply. These bacteria do not thrive in acid soils.

—Every rotation should be planted so that one or more legumes will occupy the land one or more times during four years. The legumes will enrich the soil in nitrogen making it more productive.

—Clover cannot be successfully grown on acid soil.

—Red Clover does best in a well-drained good clay loam soil.

—Alsike is the best Clover for wet lands and should be sown in mixtures for moist land.

—Cowpeas occupy an important position in agriculture. They are especially suited for building up land rapidly.

—The power of Cowpeas, as well as Soy Beans, lies in their ability to gather nitrogen from the air, and in the large amount of organic matter they are capable of producing which has a beneficial effect upon the tilth of heavy soils.

—Buckwheat thrives on poor soil, grows rapidly, smothers out weeds and leaves hard soils in a remarkably mellow condition. When plowed under as green manure it decays quickly.

—By commercial fertilizer is meant that which contains nitrogen, potash and phosphoric acid.

—Commercial fertilizers do not permanently benefit the land. They help to produce larger crops, but do not make the land richer. They do not add humus to the soil and neither do they compensate for lack of moisture.

—Constant feeding the soil with commercial fertilizer gradually sours the land.

—Before commercial fertilizers are used, the soil must be put in a good mechanical and physical condition. They cannot take the place of good preparation and sufficient cultivation. The fertilizer should be applied broadcast.

—It must not be forgotten that in using commercial fertilizer nitrogen stimulates the growth of foliage and tender branches, and adds thrift to succulent vegetables, making them grow rapidly. The tissue of the plant is built up by phosphoric acid. Potash is needed for rigid stalks, roots, and stems, as well as flavor, color, and quality of fruit.

—Well-rotted barnyard manure is the best garden fertilizer.

—Barnyard manure returns to the soil nearly all the elements taken by the crop, by making available the surplus plant food existing in the soil.

—A ton of stable manure contains about 10 pounds of nitrogen, 10 pounds of potash, and 5 pounds of phosphoric acid. In other words, 25 pounds of plant food.

—There is considerably more water in cattle manure than that from any other domestic animals. It ferments and heats slowly and is known as cold manure.

—The garden could not exist without phosphorus. The theory is that phosphorus is supplied to plant life directly through the earthworm.

—The liquid portion of manures contains most of the potash in animal excrements. Except in the case of pigs, the liquids contain five or more times as much potash as the solids.

MIDWINTER

"On turf and curb and bower-roof
The snow-storm spreads its ivory woof;
It paves with pearl the garden-walk;
And lovingly round tattered stalk
And shivering stem its magic weaves
A mantle fair as lily leaves."

—*JOHN TOWNSEND TROWBRIDGE*

Each tree catches and holds the snow in its own characteristic fashion, emphasizing the beauties of a varied planting with a liberal use of Evergreens

The deciduous tree in winter dress reveals the full loveliness of its intricate, traceried branching

Their beautiful burden threatens disaster to these Cedars. A speedy application of cold water to melt the ice, followed by straightening, and bracing with ropes or stake will save them

The Barberry, squat and sturdy, bristles bravely in its sheathing of ice

The garden asleep still holds its charm. The sun-dial will presently tell us that it is spring, whose certain coming the Roses and the Cedars, ever alive under their chill covering, serenely await

Again the Evergreen plays a "star" part, carrying over through the winter season a welcome note of summer green

How comparatively subdued the belligerent Barberry looks with soft masses of snow piled atop. It scarcely seems the same hedge as the one just opposite though it really is

PERSONAL PREJUDICES OF A DAHLIA HOBBYIST

D. W. HART

EVERY father has his favorite child—though he may not confess it; just so every flower lover has his favorite flower. The Dahlia is mine. Of course the Rose and Peony and Gladiolus people delight to tell me that the Dahlia is stiff, and won't keep as a cut flower, and a lot of other unfair things. But somehow I've come to love it above all other flowers—so there! One of these same critics has had the nerve to tell me that the Dahlia is a vulgar, new-rich sort of flower, that it has no tradition back of it, and that it has been almost ignored by the great poets. Well, I should really like to bring to life such an epigrammist as Shakespeare and have him meet any one of our modern Dahlia creations face to face! I am sure a classic would be the result.

Selecting favorites is like picking "an All-American Football Team." No one will agree with me; but for the sake of those who are just getting the Dahlia fever, I register my choice. After growing a large number of varieties in Kentucky, attending several Dahlia shows in various cities, and after making visits to many of the Eastern Dahlia gardens, the following are deliberately selected. None of them are untried novelties but all are varieties of proven merit, although some may not as yet be very widely distributed.

George Walters. Hybrid Cactus. A great, salmon and red fellow, with lots of pure gold for good measure. George behaves well wherever he is grown, and has a lot of prizes to his credit. He is perfect in form, and will be afforded a royal welcome by those who are trying to grow something larger than their neighbor's best.

Attraction. Hybrid Cactus. I could write a full page on this wonderful lady. She is so dainty, and such a favorite as a cut flower, that I can't see why all Dahlia enthusiasts are not in love with her. A soft lavender in color, with long, stiff stems and a very pleasing face. She is as reliable as she is beautiful—a rare feminine combination.

Judge Marean. Decorative. A Dahlia that the originator must pridefully treasure. The Judge defies description. He is red, he is yellow, he is salmon, and he is all of them put together. He is a perfect Decorative in form, and under artificial light, simply dazzles your eye. He must be seen to be appreciated. Here's a prize winner. The Judge has in fact a gold medal or two to his credit.

F. W. Fellows. Cactus. "F. W." is a glowing orange-red and has quite a wide acquaintance among Dahlia gardeners throughout the country. He is a free bloomer, and captured me as a life-time friend the first time I saw him. Very unusual in color.

Pierrot. Another Cactus of superior merit. When I tell you that Pierrot is a brown with yellow, white, and red mixed in, you will say "Goodness—what a combination!" But nature sometimes defies description, and in this case it would be fairer to call Pierrot a rich amber, tipped white. He is a free bloomer—and very fine.

Contrast. Decorative. Did you ever see a toddling boy dressed in white knickers with a flaming red sweater? Well that is Contrast's color combination. He is red and white, and his red is red, and his white is white. He is not well known. An American production that should become very popular. Not a large flower, but very unique and striking.

Frans Ludwig. A Holland creation that is unusual in many ways. Frans is a pure lavender without any perceptible trace of pink. He is so daintily beautiful that he should have been a girl. He is the best cut flower I know, and as such has actually kept for me longer than any other Dahlia in this collection. Frans has proven a great seller on the New York cut flower market. He is not a large Dahlia; neither was St. Paul a large man.

Yellow King. Hybrid Cactus. My favorite yellow Dahlia. A clear, soft yellow. Very graceful in form. He also displays great endurance as a cut flower and is well worthy of a place in the connoisseur's garden. Looks like a yellow "'Mum."

Jonkheer Boreel. Hybrid Cactus. Another Holland fellow that has proven of superior merit. The first time I saw Jonkheer, I was quite smitten, and the second time (under artificial light) I lost my heart, and several dollars too, for I had to have Jonkheer in my collection. Jonkheer is a Dahlia with a dual personality. He is a rich orange with lots of golden sheen, and under artificial light turns himself into a velvety salmon of indescribable beauty. I know of one Dahlia hater who completely gave in when she met Jonkheer.

Red Cross. A new hybrid cactus of perfect form and remarkable quality. I am sure Red Cross will surpass Geisha in popularity, for he has Geisha's beautiful color combination and none of her bad habits. I don't know whether Red Cross is one of Geisha's children or not; but he is a ducal sort of Dahlia and very easy to grow.

Tom Lundy. Hybrid Cactus. Tom got on to my honor roll chiefly because he is a red, and the best red I know. He is wilful at times, but then by a swift assumption of beauty wins easy forgiveness. Tom is in most ways superior to Minna Burgle, though less reliable. He makes a much better showing in the garden and sometimes comes astonishingly large. Tom is a free bloomer, and altogether a worth-while fellow.

Other favorites of mine are Mephistopheles, Insulinde, Mrs. Warnaar, Bianca, Hortulanus Fiet, General Joffre, Princess Pat, Avalanche, Lorna Slocombe and Edith Slocombe (a very attractive pair of sisters), The Millionaire, Mrs. I. de Ver Warner, Dr. Tevis, Melody, Dream, Glory of Nijkerk. I could keep right on—but I've already named my Dahlia team—and then some!

SOME DAHLIA DONT'S

DON'T plant too early, unless you want to throw away your chances of good fall bloom.

Don't plant any bulb with more than two eyes or sprouts; one is better still. Wait until the tubers begin to sprout, and then you can tell just where to divide the clump, so as to get a single stalk plant.

Don't divide the clumps until you are ready to plant.

Don't let the zero weather clean you out. Protect your bulbs by wrapping them in heavy paper. Put in a box in a cool place in the cellar. Don't have them near the furnace.

Don't forget that a hungry rat or mouse will find your best variety much to his liking.

Don't feed the plants heavily while growing. Wait until you want heavy bloom. A good liquid fertilizer is the best for profuse bloom.

Don't let all the buds bloom. Leave only the first bud on each stalk. Cut out the small bud stalks with a sharp knife. Big bloom will result.

Don't fail to provide stakes if you wish to get the finest bloom. Set the stake when you set the tuber. A stake of four to six feet is usually necessary.

Don't allow the soil around the stalk to become caked. The question of moisture is largely a question of keeping the top soil loose.

Don't start watering unless you can supply your plants regularly. They soon become "spoiled" in this respect.

Don't let lack of size of bulbs worry you. All you really need is an eye or a sprout.

Don't fail to have a Dahlia Show in your club. You will have a lot of fun, and besides it's an excellent way to increase your club reserve fund.

YELLOW KING, Hybrid Cactus
Graceful and useful as a cut flower

PIERROT, True Cactus
An unusual combination of white-tipped amber

GEORGE WALTERS, Hybrid Cactus
Salmon and red, and gold, and large

ATTRACTION, Hybrid Cactus
Delicate lavender with strong long stems

SOME DAHLIAS THAT DELIGHT

THE SPIRES AND MINARETS IN MY GARDEN

CAMILLE HART IRVINE

A GARDEN may be radiant with color and fragrant with perfume, but if all flat and low, like a tune without a treble, it leaves one unsatisfied, leaves one longing for spots in it where

"Every plant sends up its little spire
To point to God, and lift the heart
up higher."

Much of the charm of my own garden is due to its lifted notes of color—a tall minaret here and there, clustered spires rising out of a border of Perennials which shelters spires and minarets of every hue.

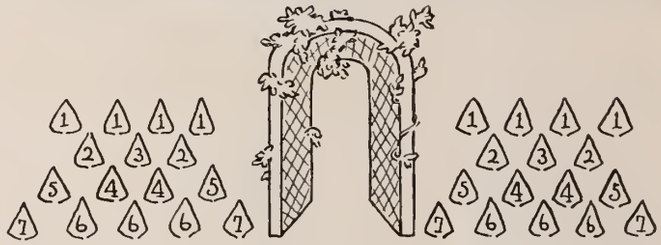
Against the back wall of the house is a row of Tree Celandine or Plume Poppy (Bocconia cordata), growing six feet high and covered with lovely white, spire-shaped panicles two feet in length that bloom in July, and remain as fluffy, feathery seed pods until winter, forming a stately screen. I started with only two plants but they send shoots from the roots and multiply rapidly—too rapidly indeed for some places!

FOXGLOVE AND FORGET-ME-NOT

Embroidering the margin of a broad grass walk with cool blue and cream white. The eager, pointed tips of the Foxglove seem to suggest that there is something worth while just around the bend

One of the most interesting and effective spots in the garden is a vine-covered arbor in the full sun, planted so the two sides match exactly. There are four Delphinium Moerheimei three feet apart; in front of which are two D. belladonna with one D. formosum in between; in front of these there are four Eremurus; and in front of them are three Galtonia (Hyacinthus) candicans with a huge Yucca at each end as sentinel.

Delphinium Moerheimei is the most beautiful Perennial I have, and I cannot understand why it is so rarely used. Planted three feet apart they will form rounded bushes seven feet high, which are covered with luxuriant and perfectly shaped spikes two feet long. They bloom in June and July and look like huge, marvelous candelabra. If the plants are cut down to twelve or fourteen inches from the ground, and no seed pods allowed to form, they will bloom again late in the fall. The heavenly blue of the D. belladonna minarets and the deep blue of the D. formosum, show up vividly against the snowy whiteness of Moerheimei. The graceful Eremurus in front, each year thrust up to the height of eight feet more and more slender minarets, pink and pure white, like great cathedral candles. Eremurus is so unusual and perfectly hardy (mine, now growing in Pennsylvania, came from the old Mt. Desert Nurseries), with clumps every year bigger and stronger, that it should be welcome in any garden. Hyacinthus candicans is much less showy and sends up spires only about four feet high, but it blooms twice during the summer and the tiny, pure-white bells make delightful harmony together with the lovely old Yuccas at each end.



1. Delphinium Moerheimei
2. Delphinium belladonna
3. Delphinium formosum
4. Eremurus himalaicus
5. Eremurus robustus
6. Galtonia candicans
7. Yucca filamentosa

THE PLANTING PLAN OF THE VINE-COVERED ARBOR

A simple one, easily followed, and productive of the most gratifying results to the gardener who cares for blooms of this distinctive nature

A MIXED GARDEN BORDER

The effectiveness of which is largely dependent upon a lavish use of Larkspur which introduces requisite height and character

In another spot in my garden is a cluster of blue spires—the wonderful blue of Speedwell (Veronica longifolia subsessilis), and near by the thin, candle-shaped blossoms of False Dragon Head (Physostegia), both white and pink. All three of these bloom continually as long as they are kept from seeding.

Then there is a long, narrow bed against the iron fence where

Foxgloves (Digitalis), rose, white, yellow, and a few spotted ones raise peaked heads above the Canterbury Bells (Campanula), of white, purple, and rose. Passers-by frequently stop to look in at this floral city of spires and steeples!

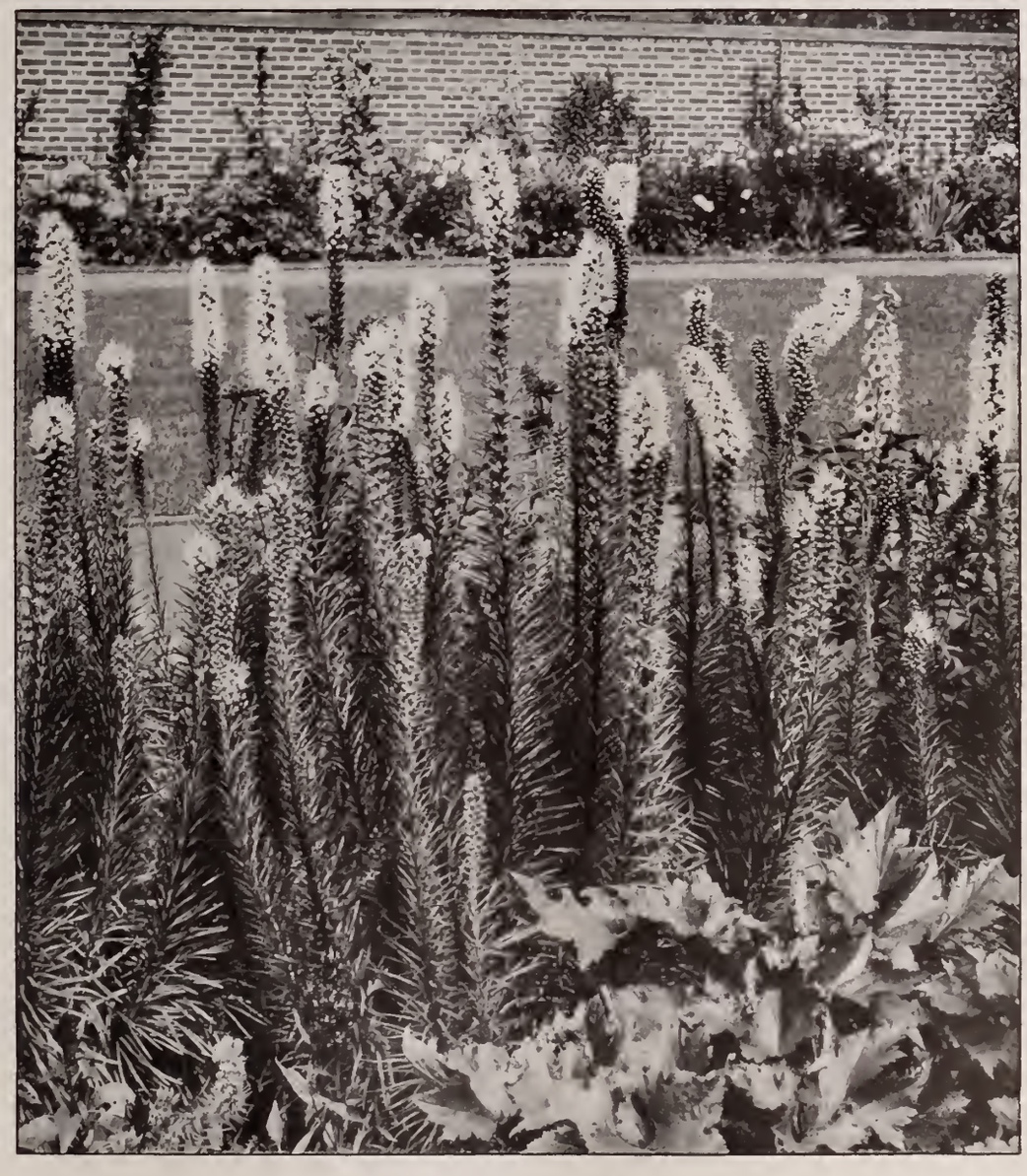
Along each side of the open drive-way is a row of venerable, sun-loving Yuccas, when in full bloom beautifully reminiscent of Longfellow's:

> "The roads should blossom, the roads should bloom,
> So fair a bride shall leave her home!
> Should blossom and bloom with garlands gay,
> So fair a bride shall pass to-day!"

The stepping-stone walk offers perhaps the most fascinating stroll in all the garden. Here fragrant, old-time Madonna Lilies (Lilium candidum), reaching more than waist high, pour out their incense above the flanking rows of Lupins, spired pink, blue, and white. I always wish the Lupins would wait just a few weeks so as to be at their height when the Lilies bloom.

Character and distinction are lent to a border of mixed Perennials by dozens of little turrets of white, fluffy Snake-roots (Cimicifuga), some of which bloom in July and August, and some late in September.

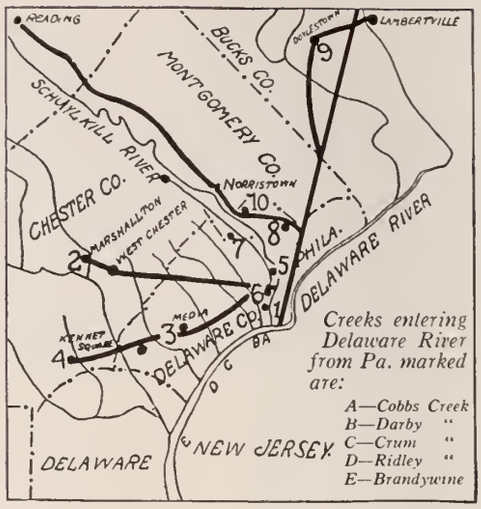
An Artemisia lactiflora towers above the Rynstrom Phlox; its long, sensitive spires droop at the least lack of water, but speedily revive when they get a good drink. Then there is a group of Monkshoods, which will accommodatingly endure a deal of shade; their deep, violet-blue spires grow in great profusion three feet or so high, and have a charming grace. Liatris with its tall, rosy-purple minarets, and the little Astilbe, humble in growth and tiny of spire, each have their well-merited nook in my garden. There are other plants, too, quite a number of them, interestingly turreted, which furnish welcome accent here and there; but if your choice be restricted to a few, let me urge the inclusion of, at least, Eremurus, Madonna Lilies, and Delphiniums.



THE GAY-FEATHER OF THE PRAIRIE STATES

Liatris pycnostachia, commonly known as Gay-feather or Blazing-star, though native to the West, will with but little coaxing, flourish anywhere. For best effect it should be planted in mass, preferably alone. From two to five feet high, with heavy spikes of purple and rose-red, this curious prairie plant interjects a rich, rather strong color note which makes advisable a certain amount of caution in choosing its garden neighbors

THE OLD GARDENS OF PENNSYLVANIA, IV



The figures in the map indicate the locations of the gardens and their sequence in the series

IV.—THE PEIRCE ARBORETUM AT LONGWOOD, CHESTER COUNTY

JOHN W. HARSHBERGER
Professor of Botany, University of Pennsylvania

Inaugurated Nearly a Century and a Quarter Ago by the Peirce Brothers, Possibly at the Suggestion of Their Mother's Uncle, Humphry Marshall, Author of the First American Botany, This Interesting Old Arboretum Still Flourishes, Having Been Skilfully Incorporated Into a Modern Planting Scheme at Longwood, Now the Home of Mr. Pierre S. Du Pont

CENTERING about Kennett Square, Chester County, Pennsylvania, are a number of features of intense horticultural interest. A mile west of the town is Cedarcroft, the country seat of Bayard Taylor, who in his "Story of Kennett" has immortalized many of the places in his neighborhood. About Kennett and Oxford cluster the Carnation and Mushroom industries, which have helped make Chester County—already remarkable for its agricultural richness—further famous. Some of the best-known varieties of Carnation such as Ophelia, Aurora, Sweetbrier, Pride of Kennett, Duke of Orange, Lady Emma, Field of Gold, Blizzard, Edelweiss, Dorothy, Brutus, Cæsar, Nellie Bly, Angelus, and Grace Darling originated here in the "Carnation Belt." Longwood Cemetery, a beautiful City of the Dead, is near by the arboretum laid out by the Peirce twin brothers, Samuel and Joshua. Nothing which is accessible has been published about the Peirce family, so that such a noted authority on arboreta and trees as Prof. Charles S. Sargent, Director of the Arnold Arboretum, recently wrote asking if any information about them was available. On a special visit to West Chester and Kennett Square the following data were secured from Gilbert Cope of West Chester, the historian, from Miss Laura Johnson, and from Mrs. William W. Polk of Kennett Square.

George Peirce (or Pearce as the name appears to have been written by him) of the parish of Winscom in the County of Somerset, England, and Ann Gainer of Thornbury in the County of Gloucester, England, were married February 1st, 1679. George with his wife and three young children emigrated from Bristol, the seaport nearest his English home, in 1684, and the same year came into possession of a tract of four hundred and ninety acres of land in what is now Thornbury township, Chester County, Pennsylvania. On February 14th, 1700 or 1701, George Peirce obtained patent for land included in the present Peirce Arboretum, or "Evergreen Glade," as it was named by the owner. George Peirce conveyed it to his son Joshua on August 6th, 1725, who in turn devised it to his son Caleb, August 23rd, 1752. Samuel Peirce and his brother Joshua, twin sons of Caleb, born on March 3rd, 1766, came into possession of the farm some time prior to 1800; for about that date Joshua Peirce, annoyed by having the peach orchards to which the farm was devoted continually denuded by thieving boys, decided to plant instead trees less attractive to such marauders. This decision may also have been due to the influence of Humphry Marshall, the botanist, with whom the Peirce brothers probably came into frequent contact, as their mother was his niece.

The planting of purely ornamental trees, then a novel idea, provoked some comment from the neighbors. The two brothers set energetically to work and soon established a considerable arboretum, the finely grown trees of which remain to this day. Thus was inaugurated a collection of plants, that antedated the one at Marshallton by about two years. According to Miss Mary Woodward, who wrote an historic account of the place, there were more than a hundred varieties, among them the Norway Spruce, Canadian Spruce, Laurel, Swamp Cypress, several kinds of Magnolia, European and American Horsechestnuts, Japanese Ginkgo, Yew, Beech, and Holly. The trees were planted in long rows forming several avenues along which the oldest and loftiest specimens are now found. Eastwardly from the house stretched a lawn across which strutted a few gorgeous peacocks.

Samuel Peirce died on February 25th, 1838, and after the death of Joshua Peirce on March 28th, 1851, the park passed into the hands of his son, George W. Peirce, who spent much time in caring for it and adding to its beauty. He provided rustic summer houses with benches so that the visitors to the place might be invited to rest a while. Swings for young people were provided and two well-made croquet courts for the use of those fond of games. There is a story that four Indians, a remnant of the Lenape tribe, lived in the woods on the place. A cross on top of a mound of earth used to mark the resting place of "Indian Hannah," the last of the Lenape tribe in Chester County, who died in 1803 in the county almshouse.

On the death of George W. Peirce, the property passed to the Stebbins family from whom the present owner, Mr. Pierre S. Du Pont, bought it. A few years ago Mr. Du Pont, at dinner in New York with a number of friends, casually remarked that he would like to own an old southern plantation and develop it. A gentleman seated near by remarked that there was a place with great possibilities at Longwood only a few miles outside of Wilmington, and it was, he thought, for sale. On his return to Wilmington Mr. Du Pont made an initial visit to Peirce Park, as it was locally called, and eventually purchased it.

The old house built by Caleb Peirce of bricks imported from England, bears the date of 1730; it probably was preceded by one of earlier date. The Du Ponts have added a wing, between which and the older part of the house a glass covered court with central fountain has been placed, where tropical and other flowering plants in season add attractiveness and gaiety.

The grounds also have been developed by the present owner. New roads have been built and extensive areas are devoted to the formal garden, the English garden, and the private golf course. The approach to the house from the road is by a lane shaded with overarching Maples, Copper Beeches, and Hackberries. Rhododendrons and Azaleas are planted in rows to the left of the main entrance drive, while to the right has been placed a large con-

PORTIONS OF THE GARDENS AT LONGWOOD

Where the diverse plantings of two centuries are so skilfully merged as to avoid any suggestion of incongruity. The Sundial Garden (lower cut), brooding peacefully amid the trees of the old arboretum, has already achieved an air of prim distinction as though anxious to lure some flower-kirtled dame out of the past to tread its neat paths. The circular fountain (upper cut), upon which broad, up-to-date walks focus, is unaffectedly modern in character; but the transition is made easy by distracting border-beds of Columbine and Roses, Pansies, Poppies and other lovely flowering things

EREMURUS ROBUSTUS

An adequate display of a plant well known but far too little used; when massed, as here, it has distinct interest

signment of huge specimen Belgian Azaleas imported in tubs from Europe (just before Quarantine Order 37 was issued) and protected from the hot summer's sun by an open lattice of Hemlock laths. Some of these Azaleas are six feet across and were full of bloom on May 23, 1919, when I visited the place. North of the house are the avenues of large trees planted by Joshua and Samuel Peirce. Here are fine specimens of White Pine (Pinus strobus), Hemlock (Tsuga canadensis), Bald Cypress (Taxodium distichum), Sweet Gum (Liquidambar styraciflua), Chestnut (Castanea dentata) Norway Spruce (Picea excelsa), Kentucky Coffee-tree (Gymnocladus canadensis), Red Buckeye (Aesculus Pavia), Black Birch (Betula lenta), Linden (Tilia americana), and Tulip-tree (Liriodendron Tulipifera). At the end of this magnificent avenue of trees is a piece of natural woodland sloping down to the pond. A few large Princess-trees (Paulownia imperialis) along the edge of the woods were on May 23rd loaded with fragrant flowers. Near the corner of the old house on the lawn stands a giant Cucumber-tree (Magnolia acuminata). To the eastward of the old arboretum the formal borders, fountains, garden courts, and terraced flower borders have been laid out. One enclosed garden court is known as the Box garden, or Sundial garden. Another court is characterized by a large terra cotta vase set in a niche of trees and shrubs at the head of a low flight of brick steps. This vase receives water from a spring conducted to it by a lead pipe out of which the water flows.

The circular fountain marks the centre of the walks, which are bordered with flower beds filled with Roses, Columbines, Peonies, Poppies, Gas-plants, Pansies, and other flowering plants in season.

Near by is the walled-in area known as the Open-air Theatre,

LARGE IMPORTED AZALEAS

These veterans of European exhibitions, fortunately brought over from Belgium before the war which destroyed so many of their kind, are probably the finest specimens on this side of the Atlantic

a fountain playing several jets of sparkling water at one end. The head of an artificial pond in the English garden has a fine group of deciduous Cypress trees (Taxodium distichum) with the usual knees; and just beyond, along the outer edge of the formal garden, the Cypress serves effectively as an avenue tree.

The plantation of Longwood, as a result of its development by Mr. Pierre S. Du Pont, shows the successful blending of several distinct landscape elements; namely, the arboretum of old trees; the formal arrangement of flower borders, fountains, and recessed gardens; and the English garden merging into the golf course, which has absorbed most of the open fields of the old Peirce farm.

The public is admitted to the grounds with certain restrictions designed to maintain their beauty intact. It is hardly conceivable, however, that any visitors could be so little appreciative as to transgress against the hospitable spirit which places Longwood, with its wealth of plant material, old and new, freely at their disposal for inspection and enjoyment.

THE PRINCESS TREE
(PAULOWNIA IMPERIALIS)

A native of Japan so adaptable in habit as to justify its wider use in this country. The delicate beauty of its pale violet blossoms is never fully revealed except when thrown against a darker background of green

SAVING THE RED CEDARS FOR OUR GARDENS

R. B. JOHNSTON

. . . "If Eyes were made for seeing
Then Beauty is its own excuse for being"—*Emerson*

THERE is a growing tendency to favor the planting, for ornamental purposes, of trees that have more than one purpose, that not only give shade and add to the general charm of a place, but that also serve in more practical ways: and thus the various fruit trees—Apples, Mulberries, Quinces, Peaches, Pears, and Nut trees—Hickories, Walnuts, Chestnuts—rival the Maples, Oaks, and Evergreens in popular esteem. Many of the trees desirable in a garden for their pictorial value have a host of enemies in the shape of disease or insects; some, transplanted from other climates, have not been able to develop resistant powers against new enemies; and some that are themselves resistant to disease are hosts for diseases that are fatal to other trees; wherefore they need attention in spraying, etc. if they are to be kept as ornamentals. An example of the latter is the Red Cedar long known as the host of the cedar-rust, from which the apple-rust and quince-rust are both contracted. The White-pine blister-rust comes to that tree from Currant and Gooseberry bushes. Black-rust of Wheat comes from the common Barberry. The chestnut-blight, although not so extensive in its effects perhaps as the White-pine blister-rust, is more spectacular in its work and has destroyed many big stands of chestnut timber. There are numerous general enemies of fruit trees (both insects and diseases) which are fairly well known, but we need not despair of the use of such trees, for fortunately there are at hand preventives, controls, or remedies for most of the pests, and the common sprays (bordeaux mixture, arsenate of lead, and lime-sulphur) are used with beneficial effect.

The estate and garden planter who wants Evergreens that will flourish without any care, however, must turn his attention to a rather limited group of trees. The most favored of these are the Pines, Firs, Spruces, and Cedars. All are attractive and rank high in ornamental value. While all have enemies of one sort or another, these are generally self confined, but others like the White-pine (with its blister-rust), and the Red Cedar (with its apple-rust) are among those whose diseases offer a menace to other trees.

The Cedar which does not have cedar-rust, which disease often kills innumerable twigs, is the exception. The well-known "cedar apples," which frequently cluster thickly on the branches, are filled with tiny spores that are released under certain climatic conditions favorable to them.

THE CEDAR AS A SHORE LINE ACCENT

Against this unruffled sheet of water the staccato-like Red Cedar (Juniperus virginiana), interesting in any landscape, is more arresting than usual. This particular bit of land happens to be near Huntington, L. I., but the Cedar ranges freely all along our coast from Nova Scotia to Georgia

These spores are then carried by the wind and make their new home on any Apple trees within the radius of a mile or two. The result is the common rust of Apples, which affects both fruit and foliage.

The greatest injury to Apple trees is due to the foliage infection. A severe rust results in deformed fruit, a general reduction in its size, and a great loss of vigor on the part of the tree. There is a very distinct relationship between the number of rust spots on a York Imperial Apple leaf and the length of time the leaf is retained by the tree.

WHAT CEDAR-RUST DOES TO THE APPLE TREE

These two specimens of York Imperial, though the same age—eleven years each, show marked contrast in growth and general sturdiness, due to the fact that one is the victim of cedar-rust, the other not

The apple-rust has been reported in thirty-seven states, but its severity or seriousness will vary with circumstance. For example, on Long Island, where the expansion of the suburban home region and the country estate area is constantly widening, the purely decorative and ornamental character of any particular kind of tree is its claim for consideration rather than any crop-yielding possibility. In West Virginia, on the other hand, another standard is introduced. Here York Imperial Apples are an important crop and there was failure in 1910 and in 1912, when the rust was extremely severe. True, the trees had plenty of fruit, but of such low quality that it was not worth picking. Actual fruit losses were from $2000 to $3000 per orchard and one county in the eastern panhandle of West Virginia lost $75,000 from the effects of the rust.

The menace of the Red Cedars to Quince is particularly noticeable in the New England States where "quince honey" is a desired table delicacy. Some localities where Red Cedars abound, find it quite impossible to raise quinces at all owing to the damage done by the quince rust. While spraying does not seem to have been carried on so extensively with Quinces as with Apples, it is believed that the results of further effort in this direction will be found not to differ materially from similar spraying in the case of Apples.

Complete destruction of the Red Cedar has been advocated without perhaps sufficient recognition of its sentimental—and ornamental—value! Commercially it is of little importance in most states; is seldom used as saw timber, though the larger specimens sometimes serve for fence posts and telephone poles. As a planting feature around suburban dwellings and on country estates it frequently figures importantly in the regions where it is native, and it has a value in landscape design that is peculiar to it. Yet in my opinion its use is seldom justified, particularly if planted within range of near-by orchards which are thus unnecessarily subjected to the danger of traveling infections. Any one starting an orchard would be wise to select a district at least comparatively free from Cedars.

If radical measures seem necessary, abolition of the Red Cedar "root and branch" wherever requisite is a possible and not a very costly operation. In West Virginia 1,114 acres were cleared for $552, or at the rate of less than fifty cents an acre. The acreage thus cleared was comprised of thickets, woodlots, pastures, meadows bordered with Cedars, etc., and may be considered as representative of many sections.

West Virginia and Virginia realized that an educational campaign must be inaugurated before owners of Red Cedars would permit their destruction, and legislation to further such education was considered, but was not widely favored. Therefore, means of controlling apple rust by spraying was tried out over a period of several years. The results indicated that on susceptible trees the spray, either bordeaux or lime-sulphur, is effective only at a certain period of the year.

Cedar-rust may occur any time from April to June, depending upon moisture conditions and subsequent temperature changes which produce evaporation, but infection is most likely to occur during the month of May. Thus a wet spring insures more widely spread infection than a very dry one.

Spray applications one week previous to infection proved worthless for control of the rust, while an application only one day previously proved very effective; and applied three days previously fairly effective. The trees have when in bloom frequently been sprayed with lime-sulphur without arsenical poison. Such trees bore heavy crops of apples which amply justified the labor involved in spraying methodically and persistently.

Since the spray, to do its work thoroughly, must be applied very shortly before infection, the man who has both Apples and Cedar trees, or who has Apple trees near an estate on which Cedars are growing, must spray as often as two or three times a week through April, May, and June in order to obtain reasonable safety. This is a costly proposition but is the only proved method up to date by which to fight off the disease.

Another way of raising Apple trees in the vicinity of Cedar trees is by selecting varieties known to be immune. In West Virginia there are two test orchards, said to be the only ones of their kind in the United States, where the degree of susceptibility of the different varieties is being tested. These orchards contain four trees each of eighty selected varieties.

THE CEDAR WHEN IT RUBS ELBOWS WITH THE CROWD

Loses none of its individuality while adding much to the charm of the whole assemblage. It lends to this sheltered garden-corner an air of freedom, and unspoiled naturalness, without in the least disturbing its friendly, inviting intimacy. (Planting at Glenco, Ill. by Jens Jensen, Landscape Architect)

From data collected from these experiments and from other sources, Dr. N. J. Giddings, of the West Virginia University, ranks a number of the leading Apple varieties in regard to their relative susceptibility as follows:

Susceptible—York Imperial, Rome, Wealthy, and Jonathan.

Moderately susceptible—Ben Davis, and N. W. Greening.

Resistant—Black Twig, Grimes, and Maiden Blush.

Immune—Baldwin, Winesap, Arkansas Black, Stayman, and Yellow Transparent.

Though the best way to ensure good apples near Red Cedars is to plant immune varieties, there is also certainly much more assurance of good fruit near Cedar trees if the Apple trees are sprayed, than if permitted to stand their own chances. No reliable list of immune varieties of Quinces has been found by the author.

"I MAY NOT HAVE A GARDEN"

HILDA MORRIS

I may not have a garden,
For I am one who roams
Along the high-road far and near,
Past many flower-lit homes.

I may not have a garden,
For I'm of gypsy birth,
No measured plot with gates and walls
Can hold my love of earth.

The long white road's my garden,
With stones its rows are set,
And wayside flowers for posies,
And dreams for mignonette.

But oh, the little gardens
Folk tend as I pass by—
They make my song a wistful song,
My laugh a secret sigh!

A FEW HOURS IN COLOMBO, CEYLON

E. H. WILSON
Assistant Director, Arnold Arboretum of Harvard University

EDITOR'S NOTE:—*This is the second of the "Letters of Travel" that Mr. Wilson is sending to* THE GARDEN MAGAZINE *from time to time, and which do not appear in any other publication. Mr. Wilson is himself seeing new worlds in his present journey and subsequent notes will interpret what he sees from the standpoint of first impressions of any American traveler in a strange land. No doubt much of the gardening seen has suggestion and inspiration for us; and Mr. Wilson with his intimate knowledge of plants of Europe, Asia, and America both as a gardener (his first vocation), and as a garden botanist (his present occupation) is peculiarly fitted to see for others.*

The brilliant red flowers of the Rose-of-China (Hibiscus rosa-sinensis) familiar in all tropical countries is esteemed for the conservatory in less favored climes

ON THE passage to Australia our ship touched at Colombo, Ceylon, and afforded opportunity for the passengers to spend a few hours ashore. The day was showery and one could not travel far yet perhaps a few words about the plants and flowers I saw may interest readers of THE GARDEN MAGAZINE.

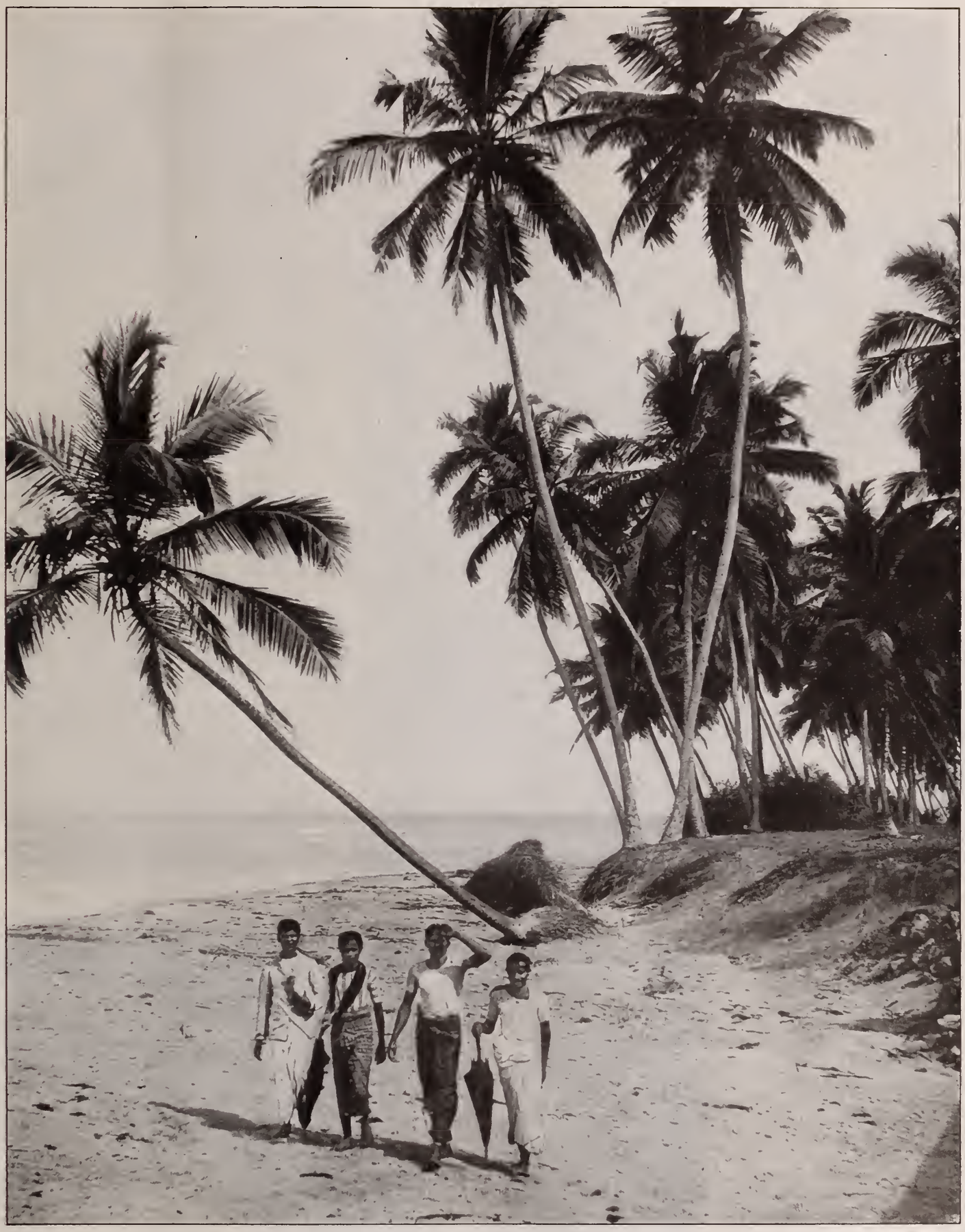
The native folk cultivate very few plants other than those of purely economic value; but the white man has long since established his flower garden and through his influence the network of well-made roads is bordered with fine trees, and a small park—Victoria Park—which has been laid out in lawns, avenues, and flower beds. The trees are largely strangers, but the flowering and foliage shrubs are familiar, being exactly the same as those grown in the greenhouses of America and England. The lawns are not of the fine soft grasses of the north, but of a coarse broad-leaf Sedge which carpets the ground nicely yet is vastly inferior to the lawn grasses we know. These unfortunately cannot withstand the heat, drought and torrential rains of the tropics.

THE white man's love for the flower companions of his youth is shown in attempts—often futile—to cultivate them wherever he may happen to sojourn for a season or two. So, cheek-by-jowl with native flowers are grown in Colombo familiar Zinnias, Hollyhocks, Begonias, Cannas, Poinsettias, Crotons, Lantanas, Acalyphas, Coreopsis, Phlox Drummondii, and Dianthus Margaritæ. The Phlox looked remarkably well, but the other herbs were bedraggled and decidedly unhappy. Roses are grown—beds of them—but all were weedy in habit and complaining of the excessive heat from which no period of rest was allowed.

In tubs were growing very fine plants of the Golden Fern (Gymnogramma chrysophylla) and sheltered beneath a lathhouse were a few Orchids in flower among tender leaved, shade-loving Ferns. From the branches of a tall Banyan-tree hung rope-like stems of the Vanilla Orchid and beneath were beds of Maidenhair Ferns, bright leaved Caladiums, and Marantas with exquisitely marbled foliage. The Honolulu Creeper (Antigonon leptopus) with racemose clusters of lovely rose-pink flowers and the familiar Bougainvillea glabra, wreathed with its magenta blossoms, far more intense in color than as known in greenhouses of the north, are common in Colombo even as they are in tropical gardens the world over. Allamandas with their large, clear yellow flowers and the favorite Stephanotis floribunda with its richly scented flowers in clusters are also plentiful. A pretty combination over an arched trellis was a luxuriant growth of the blue Passion-flower (Passiflora vitifolia) and Gloriosa superba with quaint red and yellow flowers, the segments of which are twisted, erect yet quite reflexed. A charming sight from the near distance was a bed of the shrubby Petrea volubilis with blue, starlike flowers in erect racemes almost hiding the foliage.

THE Rose-of-China (Hibiscus rosa-sinensis), now cosmopolitan in the tropics and subtropics, and its relative, H. schizopetalus, with incised and fringed blossoms are hedge plants in Colombo. Abundant also is the parent species of the favorite Boston Fern. Very attractive at the moment of my visit were beds of the showy Clerodendron fallax with erect, thyrsoid clusters of bright red flowers. Moonflowers—blue, violet, and purple—scrambling and twisting over every convenient object, and studded with lovely blossoms, were conspicuous from afar. More rarely seen was the related Ipomoea Briggsii with digitately divided leaves and axillary clusters of carmine flowers. Clumps of feathery Bamboos relieve the landscape and particularly striking were impenetrable masses of the spiney Bambusa spinosa with stems towering full sixty feet.

Very interesting, but less familiar, are the trees, most of them with wide-spreading umbrageous crowns. Often used as a street-tree in Colombo, as elsewhere in the tropics, is the Flame-tree (Poinciana regia) but only here and there were a few trusses of its brilliant flowers to be seen, though its flattened, woody pods, each often two feet long, were abundant. When properly in blossom this is perhaps the most gorgeous of tropical trees; the intense brilliancy of its red flowers actually dazzles the eyesight. A close competitor is Spathodea campanulata, a tree-relative of the Trumpet-vine with twice larger flowers of similar color shaded with yellow. There are other street trees in Colombo whose names I do not know, including a member of the large Pea family with finely divided leaves of delicate green; broad, erect masses of light yellow flowers and short, thin pods. In the Park a fine specimen of the Indian Cassia nodosa with long cylindric pods and yard-long pinnate leaves arrested my attention. Large trees of the Cashew-nut (Anacardium occidentale) are as happy in Colombo as in their home in the tropics of



QUEEN OF THE CORAL STRAND

The Cocoanut Palm is the gem of any place where it grows. Its graceful beauty appeals to the artistic sense and in its practical utility it is one of the most important of all the useful plants of the earth

America. The sombre Garcinia spicata with dark leathery leaves and erect panicles of small white flowers brought back to my memory the Sinkin Islands where first I saw this tree. Banyan trees (Ficus indica) of monstrous size and often with a shrine beneath, and the Bó tree (Ficus religiosa) sacred to Buddha, are common objects in the city and surrounding neighborhood. Plantations of the Para Rubber (Hevea brasiliensis) may be seen even in the precints of Colombo and the industry—one of the romances of modern tropical agriculture—is of very great importance in Ceylon. The Breadfruit tree, once a feature of the environs of Colombo, has been largely felled and the streets no longer reek with the pleasant odors of cinnamon bark. A curious tree suggesting a gigantic Horsetail is Casuarina equisetifolia with pendent, slender, tassel-like, gray-green branchlets contrasting strangely with the rigid crowns of its broadleaf neighbors. Such Palms as Latanias, Kentias, and Phoenixes are common in every garden, and here and there I noted the lovely Areca lutescens with yellowish stems and feathery arching leaves, and the slender stemmed Pinanga Macarthuri with short, rather heavy, pinnate leaves. A remarkable Palm is Caryota urens, with a stout stem; broad, much-divided pinnate leaves, each pinna coarsely notched; and bearing on its naked trunk huge clusters of yard-long ropes strung with bead-like fruits.

THE YELLOW FLOWERED ALLAMANDA

Familiar in the "stove house" of northern regions it is the most showy trailing greenhouse vine of its color and produces its flowers freely

BUT the glory of Colombo is the Cocoanut Palm. It luxuriates everywhere; it fringes the surf-wracked strand, the sides of the brackish lagoons, and fresh water streams; and yonder forms orchards miles in extent. It is the most strikingly beautiful tree of the Ceylon littoral as indeed it is of the tropics in general. Its slightly leaning cylindrical trunk is capped full sixty feet aloft with a feathery crown of rich green arching leaves in the axils of which cluster the familiar fruits in all stages of development from the tiny young grass-green nutlet to the large egg-like golden ripe fruit. Every part of this tree has its uses. The stems are used as uprights in rough construction work; and the wood is often made into chairs and other useful articles; the leaves are employed in roofing native huts and to make hoods for native carts; from the husk of the fruit the well-known coir-fiber is obtained; the sap within the nut serves as a refreshing beverage and when fermented yields a potent spirit; the hard shell of the nut is made into drinking cups and may yet be useful in button manufacture; the white flesh when fresh is a valuable article of food, and when split and dried forms the copra of commerce so much used in soap-making and in other industries. No other tree has so many valuable uses and no tree is more abundant on tropical shores than the lovely Cocoanut Palm —Queen of the Coral Strand.

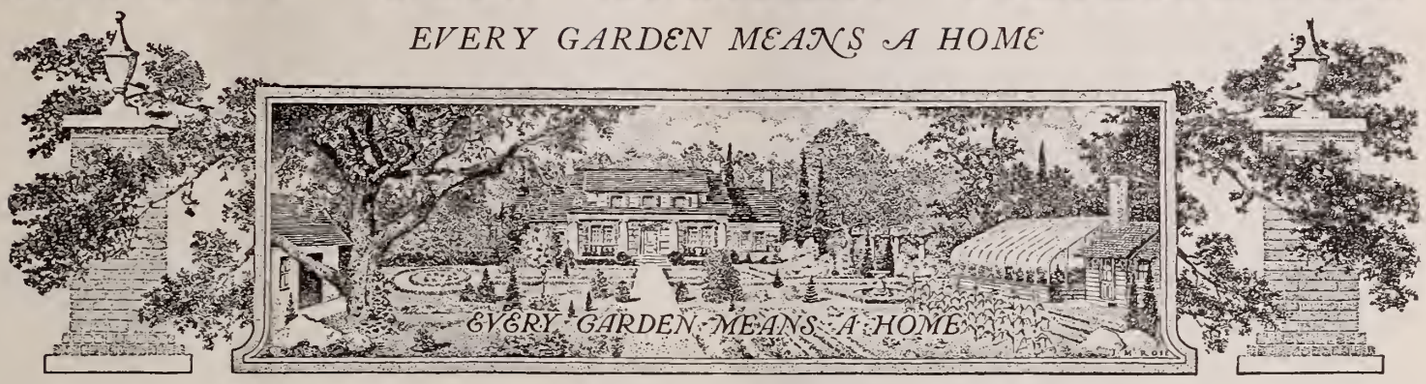
OFF FREMENTLE, WEST AUSTRALIA.
Oct. 15th, 1920

THE FRAGRANT STEPHANOTIS

Its most deliciously scented, waxy-white flowers are well known in our greenhouses where it is usually grown as a trailing vine close under the ridge. This and the Allamanda are common decorative vines in tropical regions

AMONG OUR GARDEN NEIGHBORS

EVERY GARDEN MEANS A HOME



THAT the conditions under which a plant is found growing in nature—its range, limitations, etc.—are ideal for its well being may seem to the casual observer a reasonable assumption, and one that might be defended. The logical deduction from such a premise would be that the gardener who exactly repeats the natural conditions would be giving the best possible conditions for that plant's growth. Yet gardeners who have the widest experience as cultivators do not accept such teachings as absolute, and govern themselves by deduction from the behavior of similar types under cultivation.

The fact is, of course, that plants in nature grow where they can, not where they most wish. They occupy that place where they are most free from enemies of all sorts that equally with them are battling for life, not as mere individuals but as parts of the biologic cosmos. A gardener gives his subjects certain conditions because he "feels" they are right for the plants although they may be quite different from an imitation of the conditions of the plant's habitat.

Of course, it may happen and often does, indeed, that the natural conditions are right, but the reality to be borne in mind is that gardening is something bigger than and quite apart from slavish copying of nature. So, to cite an extreme case, the Corkwood (Leitneria), a denizen of the swamps of Florida is successfully grown on dry, well-drained land in the north! Again the Canadian Pond-weed (Anacharis), taken to Europe ran wild in the broadest sense of the word and became a pest of first magnitude in pools, water courses, tanks, and reservoirs. And all the world knows the story of the Water Hyacinth in the South.

In a lesser degree, the same thing comes before the observant gardener in many ways, and while nature may be taken as a guide and index, the facts must be interpreted with the skill of the technician. So gardening is an art, a craft, of itself, and a plant may be grown under control, away from its normal enemies to a degree of perfection quite unlike that of the feral conditions.

Gardeners have known or felt these things possibly ever since they began to grow plants from regions outside their own, and gardening literature records many "surprising discoveries," bearing on the point, but not collated; comes now a big mass of scientific evidence to support the gardener in his assertion that he can outgrow nature. Dr. D. T. MacDougal, Director of the Botanical Research Department of the Carnegie Institute has been gathering material for the last fourteen years and makes a report from which we condense:

In these experiments plants from the mountain tops, some from a height of close to one and one half miles above sea level, were found to grow much more luxuriantly, producing more leaves, flowers, and fruits at sea level than they had in their native habitat. These plants were not cultivated, protected, or fostered in any way in their new situations. Once placed, they were to all intents and purposes wild flowers and had to fight their own battles and take chances as before.

One hundred and thirty-nine plants were used in these experiments, embracing forms of such wide divergence as Grasses, Lilies, and Oak and Walnut trees, as well as Cacti and other unusual plants.

While a plant may thrive well in its new situation, it will sometimes display a behavior quite at variance with that by which it is ordinarily known. Thus, the common Witch Hazel, which is known to bloom in the vicinity of New York when the frosts come, when taken to the equitable climate of the Pacific Coast reverts to the normal or summer-blooming habit. Other species show flower forms, fruits, and leaves notably different from those previously displayed by them.

Aquatic plants of the Cress family were made to grow in soil on the mountain tops, where the roots formed small radishes, like their relatives. The Radish is a Cress. In other words, these plants came back to the ancestral habit of forming a radish.

It was found that rabbits and rodents which inhabit the Oak zone at the top of the mountain range acted very effectively as a barrier to prevent Cacti and other plants from moving up or down the mountain slopes. To verify this a barrage zone was established and the plants protected in screened enclosures which kept off the little nibbling animals. The plants thrived and prospered and spread within the enclosed section. Out in the open, to either side of the barrage zone they rapidly disappeared, being eaten by the rabbits. This explained the mysterious sudden stoppage of some of these plants—not altitude nor heat nor cold, but actual destruction through being eaten.

All of which goes to strengthen the gardener in the course of forming his own judgments from observation, and not adhering too closely to tradition.

THE OPEN COLUMN

Readers' Interchange of Experience and Comment

Are Birds Beneficial?

To the Editor of THE GARDEN MAGAZINE:

IN THE September number of THE GARDEN MAGAZINE, page 51, is an article headed "Birds in the Garden," that interests me mightily. Birds give me more trouble in the garden than all the insects. People become sentimentally daffy over birds because they are either beautiful, useful, or musical. Some birds have all these admirable qualities. But at times they have habits that make them such a nuisance they cannot be tolerated. I have killed the Blackbirds for years because they pull up my Corn as soon as it shows above the ground, to get the grain. But I have found a new sinner engaged in this work. It is nothing less than the Brown Thrasher. A farmer's daughter first told me about it. There are always several nests in or near my garden, and this lady told me if I would watch closely I would discover that the destructive work laid to the Blackbird was mainly the work of the Brown Thrasher; and so I have found it. Just this spring I counted fifty holes these birds had bored in the ground in search of the grain. All these holes were in one row. There was a nest in my vineyard with four young birds in it, but one day the old house cat found the nest and she prevented these youngsters ever pulling my Corn.

But another word about the birds. As soon as my grapes are ripe, Brown Thrashers, Cat-birds, and Robins are more or less constantly

pilfering them and ruining many more than they eat. An examination of the Brown Thrashers beak will show any one what a destructive organ it is. Its tremendous length and strength will show just what it is intended for. It is almost as sharp at the point as a lance and can penetrate the ground to a remarkable depth. As your correspondent says, while the Robins will eat mulberries they also eat the cherries. I have tried the red rag in the Cherry trees. The birds act as if they regarded it as an attempt on my part to ornament their work shop and they seem to stay the longer.

Birds are so plentiful that we have to bag our grapes else we would have none. But the Brown Thrush is equal to any emergency. As the bags are only paper, this bird is able to tear them open and then Honey Bees find the perforated grapes and suck out the juice. This, of course, does no additional harm as the juice of a perforated grape soon sours any way, and the bees had as well eat it as not.—A. W. Foreman, *Ill.*

California Gardens in Our December Issue

To the Editor of The Garden Magazine:

WHAT a splendid last number (December) of The Garden Magazine is this California one! and how pleased I am to see Miss Sessions writing in it. She knows everything about her subject. Mr. Wilson's letter is a very important one, and I like your editorial comment too. On my way to Signal Mountain, Tennessee, the brakeman on our train noticed my blue and gold copy of The Garden Magazine on the seat. "I take that," he said, "I couldn't get along without it!" It only goes to show how interested we Americans are in gardening. All success to your magazine, it is more and more interesting to me.—Louisa King, *Alma, Mich.*

—I have received the December number of The Garden Magazine and have nothing but words of praise for it. It is not only representative of California landscaping, but is typical of the best in garden designing in California.—G. R. Gorton, *San Diego, Calif.*

—Congratulations upon the Californian number of The Garden Magazine. It has always been a source of trouble to me, that the valuable "hints" to amateurs for the different months of the year, were valueless to us in California; although the beauty and clearness of the illustrations are always a joy, and the articles themselves the best "garden" material I can find. Please give us the California Calendar monthly.—Frederick M. Lee, *Piedmont, Calif.*

—My December Garden Magazine has just arrived and been greatly appreciated and enjoyed. I feel much complimented to be in so good a number. Mr. Mitchell's article is excellent and worth preserving for reference for a long time. I think your cover of the magazine is fine—so simple and yet artistic and the color is good.—Kate O. Sessions, *San Diego, Calif.*

—I have just looked over the December "California Gardens," number of The Garden Magazine and I hasten to compliment you on the result of your efforts. This number seems to be so full of meat, as well as of interest to the traveler that I expect to cut out several of the articles for our reference files. As far as I can see, the only thing that the number lacks is the money to take the reader out to California.—Fred Dawson, Olmsted Brothers, *Brookline, Mass.*

—Allow me to express my appreciation of the December number of The Garden Magazine on the gardens of California. It contains so much of interest and so much of which I have never before known. I hope in your articles on various parts of the country, you will include one now and then on the southwest (Kansas, Oklahoma, western Texas). I have been trying for some years in a small way to make a study of what will grow well in Oklahoma, but I haven't found any infallible rule, as we rarely ever have two seasons alike.—Doris L. Byfield, *Oklahoma City, Okla.*

—No Garden Magazine has ever reached our office that interested me more than the December Garden Magazine in which I read Miss Sessions's article and others on California gardens.—B. P. Wagner, *The Wagner Park Nursery Co., Sidney, O.*

—I have about finished reading the articles in the December issue of The Garden Magazine, so am in a fair position to judge of their respective merits. The number as a whole impressed me as being very representative of California conditions. The information given in the various articles is invaluable to Californians, and of great interest to people living in other sections of the country. Another thing that impressed me was that every phase of landscape treatment was treated in respect to its relation to Californian conditions. Every writer showed a profound knowledge of the subject, and I have not discovered a single instance cited that could not be carried out in actual practice. Unfortunately, many of the splendid suggestions offered are seldom carried out. Especially is this true in the planting of Palms. Many estates have been permanently ruined by an indiscriminate planting of Palms with trees and shrubs of totally dissimilar habits of growth. The relation between house and garden is seldom clearly brought out.

During my last trip to the East I had occasion to observe the many well-designed estates one encounters, both in the cities and in the rural districts. It is indicative of a higher appreciation of landscape art than is to be found in some parts of California. But Californians are rapidly coming to appreciate the value of properly grouping trees and shrubs, also of placing flowers in their proper relation to other plantings. Although all of the articles were splendid, I thought Mr. Mitchell's article was especially comprehensive.

I hope that a large subscription list will be gained in California in the near future.—A. M. Woodman, *University of California, Berkeley.*

Begonia Evansiana as a Hardy Shade Plant

To the Editor of The Garden Magazine:

THERE is a remarkable plant growing wild not far from our office. There are few lovelier sights outside of the tropics than a woodland carpeted with Begonia Evansiana. Warm colors are especially charming in cool shade; few plants exhibit so exquisite a color combination as this one; indeed, few showy flowers really love the shade. But this has a tropical-looking leaf, lobed like an Abutilon, of a delicate

BEGONIA EVANSIANA

Luxuriant of growth and abundantly self-propagating, an accommodating filler for shady nooks where most things refuse to grow

waxy, green-gold, strongly contrasted with the rich crimson of the under surface displayed when the plants grow out from the banks of ravines. The leaf-stems are translucent and glowing like ruby, as is the flower-stem which sets off the flesh-colored blossoms.

It is not without reason that it suggests the tropics. Evans' Begonia has the astonishing range of North China and Japan to the jungles of Java, where eternal summer reigns! I have no doubt that it would be hardy in Canada if the bulb were well mulched with leaves. In cold climates it reaches about two feet, but great numbers of bulblets form in the axils of the leaves, fall to the ground, yielding plants which flower the next summer, so that it spreads rapidly. Like the other Begonias it is probably a sort of epiphyte or air-plant, which will, given a very damp air, grow upon bare rock, peat, or on the trunks of trees, as do the Begonias in the mountain gorges of Jamaica. This kind (Evans') is very free-flowering in shade, perhaps less so in sun. It prefers a well drained peat or leaf-mold soil. The moist air of a ravine or gully, or a sheltered corner of the shrubbery gives it the humidity it prefers. I hope that people will naturalize it in the woods.—Russell F. Silvers, *Avery Island, La.*

Lilium Auratum at 4,100 Feet Elevation

To the Editor of THE GARDEN MAGAZINE:

AS A subscriber to THE GARDEN MAGAZINE, from which I derive much pleasure and many helpful hints for my garden, I am sending a photograph of Lilium auratum taken in my garden. The one shown in the picture was eight and one-half feet high and had fifteen flowers. A representative of the Agricultural Bureau at Washington while here was impressed with the unusually strong growth of many Perennials. Foxgloves are sometimes seven feet high, and Delphinium and Aconitum seven to nine feet high, which seems quite unusual. North Carolina mountains are well known for their wild flowers, but few know the possibility of cultivated flowers. Our elevation here is 4,100 feet and we grow fine Roses, Dahlias and all garden flowers.—HENRY W. SLOAN, *Highlands, N. C.*

A Most Satisfactory House Plant

To the Editor of THE GARDEN MAGAZINE:

A YEAR ago last summer a friend brought me from the White Mountains one of the little wooden hanging baskets, and I intended to put the customary Fern in it; but one day, near a stone walk, I saw a little Mullen plant—just the thing for my basket, I thought! I planted it with some Kennelworth Ivy. At first people rather made fun of it, but as it continued to thrive and grow everyone admired it. The combination was exquisite—the large, soft, pale green leaves and beneath, the dainty Ivy with its tiny lavender blossoms. When summer came I hung it outdoors where it grew so large it seemed as though it would jump out of the basket. I have brought it in the house but doubt if it will be as fine again for it begins to look a bit tired of growing. I recommend it to all plant lovers as most charming and satisfactory for at least one year. It seems to me much lovelier than a stiff Palm. It needs plenty of water or cold tea.—MRS. E. H. SMITH, *Redding, Conn.*

Pinus Torreyana in California

To the Editor of THE GARDEN MAGAZINE:

PINUS TORREYANA is a unique and isolated Pine growing in San Diego City and County on the sea coast bluffs within a very limited area. The northwestern corner of San Diego City contains Torrey Pine Park and from there to Del Mar, four miles to the north, these Pines are growing in scattered groups in the cañons and bluffs that overhang or lead to the shore. Most of the specimens are windswept and artistic in appearance as they cling to the barren cliffs. In cultivation they make a rapid growth and are symmetrical and sturdy. At Coronado Park there is a specimen thirty years old. In Balboa Park a tree twenty-eight years old is thirty inches in diameter at base and more than fifty feet high. One at La Jolla in a garden grew from a seed in the woodpile.

The cones are compact, four inches by five and one-half inches, seeds are large and very palatable. Last year Mr. John McLaren, Supt. of Golden Gate Park at San Francisco sent a few pounds of the seed to Scotland, where some trees are growing, because he considers the Pine such a good one that he wished to extend its cultivation. The needles are in groups of five, rather coarse and have proven very excellent material for basket making, and the industry is increasing in this vicinity and is taught in the public schools. This Pine was described by Englemann and named in honor of Prof. John Torrey, one of our early botanists. His two daughters lived in San Diego the last ten years of their lives and grew beside their house a Torrey Pine twenty-five feet high of which they were very proud.—KATE O. SESSIONS, *San Diego, Calif.*

JAPANESE GOLD-BANDED LILY

Lilium auratum in a North Carolina garden over four thousand feet above sea level. It stands eight and a half feet high and bears fifteen flowers

The Month's Reminder

"Come with me, then, behind the scenes, where we are concerned only with the joys of plant increase and rejuvenation"

The Reminder is to "suggest" what may be done during the next few weeks. Details of *how to do* each item are given in the current or the back issues of the THE GARDEN MAGAZINE—it is manifestly impossible to give all the details of all the work in any one issue of a magazine. References to back numbers may be looked up in the index to each completed volume (sent gratis on request), and the Service Department will also be glad to cite references to any special topic if asked by mail.

When referring to the time for out-door work of any sort New York City at sea level in a *normal season* is taken as standard; but at best dates can only be approximate. Roughly, the season advances northward fifteen miles a day. Thus Albany, which is one hundred and fifty miles from New York, would be about ten days later, and Philadelphia, which is ninety miles southwest, about a week earlier. Also allow *four days* for each degree of *latitude*, for each five degrees of *longitude*, and for each four hundred feet of *altitude*.

FEBRUARY—WELL BEGUN IS HALF DONE

WITH outdoor vegetation in winter quarters, garden work at this time is confined to pruning and spraying and preparations for the first sign of spring. Any planning yet to be done may well be set aside for evenings, and stormy days. A walk around the place, notebook in hand, making a list of the things to be done ahead of time is advisable.

The new seed catalogues are now out and as soon as selections are made send in the seed order. There is nothing like having this detail out of hand early.

Mix up soil for sowing seeds now. If it be at all heavy, use plenty of leaf soil and some sand to make it porous. If very dry give it water and then store away in large boxes or barrels ready for use when needed.

Get flats ready; repair old ones; make new; wash old pots; order new supplies.

Soak new pots in water before use. For sowing seeds that are impatient of transplanting paper pots are useful.

Complete repairs and glazing of old sash as soon as possible, and give

another coat of paint to the new that is soon to be used. Liquid putty greatly accelerates the work of glazing. Don't attempt to struggle along with less sash than you really need. It is very convenient to have a few extra frames to accommodate the little seedlings from the hotbed so that they do not become overcrowded.

Put sash on any frames that have not been in use during winter so that the ground can be getting warmed up.

Making a Hotbed

A hotbed is indispensable for an early garden, and manure for this should be obtained as soon as possible. Turn a few times to allow the rank heat to escape; if a few leaves are added, a gentler and more prolonged heat will be maintained.

With no equipment on hand, one may still have a hotbed this spring. Secure the manure as early as possible and as soon as it is actively heating, pack it in a low pile two feet longer and wider than the actual size of the frame, and from two to three feet deep. When the frame is placed in position bank it up to the top with leaves and manure. Frozen lumps of soil put into the frame will soon thaw out; or, if preferred, the flats of soil, with the seed sown in them, may be set on top of the manure inside the frame. It is wise, however, to place a covering of soil over the manure even when this plan is adopted.

Actual planting must not be done until the heat has reached its highest point and begun to decline (as shown by a thermometer plunged in the soil) to eighty or eighty-five degrees. Lettuce, Beets, Cabbage, Cauliflower, and Carrots interplanted with small-top Radishes may be sown during the month.

The hotbed thermometer is only one of several appliances that are real aids to early gardening. They are no longer "novelties" but very practical assets. Protectors of various types used on cold nights permit planting outdoors one or two weeks earlier than would otherwise be safe, and used as forcers during the day will hurry up crops verging on maturity while others left to themselves are just breaking ground.

In the Greenhouse

With the lengthening days and increasing power of the sun, plants are awakening to new life and a general spring scrub-down or clean-up may be started. Proceed with annual re-potting of such foliage plants as Palms, Crotons, Pandanus, Marantas, etc.

Cut up clumps of Cannas preparatory to starting into growth and dust sulphur over the cut surfaces.

Pelargoniums now in small pots, if potted into four inch size, will make by spring fine plants well covered with buds and flowers.

Propagation of Crotons and similar foliage plants can be attended to in a close propagating frame with brisk bottom heat.

The bulbs of Calanthes should be rested in a dry place where the temperature does not go below 50° after they are through flowering.

Give stock plants of Chrysanthemums a light position in a temperature of 48°. Early cuttings should be taken.

Start Elephant Ears (Caladium esculentum) into growth in gentle heat.

Cinerarias require a cool temperature; 40° to 45° suits them best. Repot any plants that are pot bound to keep them growing, for the flowers require the setting of well-developed foliage.

Calceolarias intended for early spring flowering, should have a position in the greenhouse with a northern exposure. They cannot stand direct sunlight, and are most impatient of heat, a temperature anywhere above actual freezing suits them better than anything above 40°. On clear mornings spray lightly overhead.

Calla Lilies need frequent feeding to keep on producing first class blooms with long stems. Liquid cow manure is best and twice a week is not too often. Remember that the soil must not be dry when the liquid manure is applied or burning of the roots may result.

Keep Genistas cool in a temperature that does not greatly exceed 45° giving plenty of water; liquid manure once a week.

With increased sun heat and longer days, Orchids will show signs of active growth. Quite a number of Cattleyas have had a nice rest, and before the new growths get too big is the best time to repot them, or give a top-dressing. Adequate drainage is an essential, as is firm potting. Water with care at this time. Frequent syringings, and a moist atmosphere are conducive to healthy growth. Ventilation is important, care being taken to avoid cold drafts upon the plants. As we advance toward spring a little shade is necessary, to break the direct rays of the sun.

Clumps of hardy Perennials lifted last fall and wintered in cold frames may be brought into a temperature of 45°. Spireas (Astilbe) should be well advanced and in a temperature of 55°.

Give Stevia stock plants a light place in a cool house.

Seed Sowing for the Flower Garden

Hardy herbaceous Perennials sown now will make nice plants by fall that will winter outdoors.

For cutting during April, May, and June sow Candytuft, Calendulas, Stocks, Sweet-peas, Cornflowers, Gladiolus, and African Daisies now. Annual Larkspur sown now will flower at the end of May; early Asters in June. Sow seeds of Dahlias now; last year's roots set in the bench will soon throw up cuttings for propagating purposes.

Sow Canterbury-bells to transplant when large enough and set out in May for flowering next season. Sow Cobaea scandens.

Pennisetum longistylum for edging semi-tropical beds should be sown now, and, after potting off, grow cool.

Sow These Vegetables

Make a sowing of early Tomato plants now for strong plants for setting outdoors at the end of May.

Sow Cucumbers, Melons, Tomatoes, Cauliflower, etc., for forcing indoors.

Sow Cabbage, Lettuce, Beets, and Onions for later transplanting to coldframes.

Seeds of Asparagus Sprengeri, Smilax, and Fibrous Begonias may still be sown.

Sow seeds of Annuals for spring planting to be followed by another sowing at a later date.

Cuttings to be Made Now

Clean the old sand out of the propagating bench, and start with a new supply. If this is not convenient, saturate the old sand thoroughly with boiling-hot water before inserting cuttings of any kind.

Put root-cuttings of Bouvardias into the propagating bench. Make the cuttings about an inch long. Shade the bench until the appearance of top growth, then expose to full sunlight.

Select the best and sturdiest side growth from the Violets for propagating. They will root readily in the bench used for propagating Carnations. When rooted, box them up and set them in a light position in the violet house until they can be planted outdoors.

Put old plants of Lemon Verbena into a warm house to make growths which may be rooted readily in a warm propagating bench.

Take cuttings of double Petunias.

Stock plants of Salvias need temperature of 55-58° at night to produce material for cuttings; sow in a temperature of 50°.

Cuttings of Coleus, Achyranthes and all plants needed for bedding purposes should be propagated as material is available.

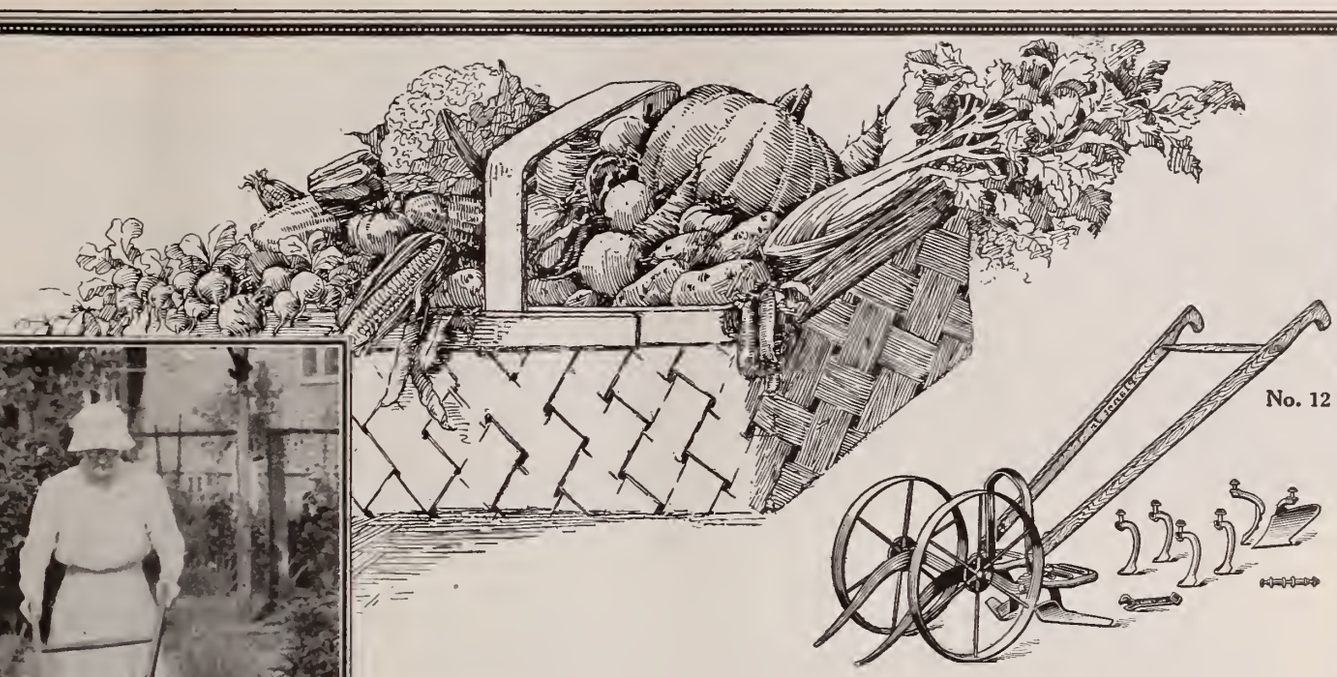
Flowers for Easter

Easter falls on March 27th, and any bulbs that are wanted for that date should be brought in with that date in mind. Follow a definite system in the supply of bulbs so as to have some in bloom continuously.

Shrubs intended for Easter holiday display should be well under way in a temperature of 50°. Start Tuberous Begonias in a temperature of 55°.

Lilium formosum intended to be in flower for Easter should have the buds well set by the middle of the month and will come in nicely in a temperature of 55°. Any that have not arrived at this stage of development may be hurried along with more heat, yet where a general collection of plants is grown it is not advisable to sacrifice them on account of a few laggard Lilies.

Roses will take more water now and feeding may be done more liberally now that the growth is more active. With the sun heat and the fire heat conditions are favorable to red spider. Don't allow too great a difference between the night and day temperatures. Don't allow the temperature at midday to reach 90° or more and then have it drop to 60° late in the afternoon. Keep up the temperature in the afternoon and maintain 60° throughout the night.



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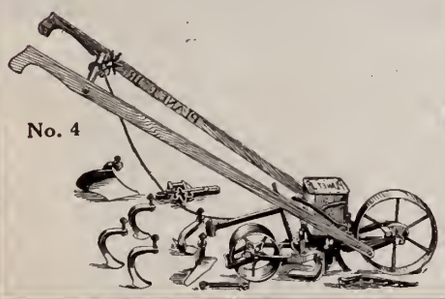

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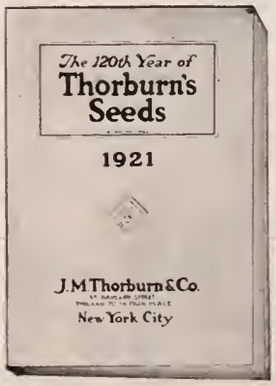

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WHEN as a boy I came to this town, there was no place where one could buy flowers of any kind, and as I had always been fond of them, my employer, a druggist, let me use a small plot of ground in his garden. All through the summer I had fresh flowers at the fountain in the

INSIDE THE GREENHOUSE

Everything seems to flourish despite the lack of a formal heating system

store, and it was not long before I began to make up baskets of flowers for the sick, and then some small pieces for a funeral. Looking back now I am aware that they must have been rather crude, but as they were gifts no fault was found, audibly at least. Later people asked me to

AN OUTSIDE VIEW

Of the small greenhouse which enthusiasm and common sense have made both pleasurable and profitable

make them to order, which I did, selling also cut flowers and potted plants. This plant trade was done early in the morning before store opened.

I raised so many flowers out-of-doors that I began to use hotbeds to start them, and as I had

Continued on page 344

IRON AGE

Garden Tools

What a Wonderful Thing Is a Seed!

So insignificant in itself, yet so rich in potential wealth and pleasure

MANY factors influence the growth of a seed. It must be planted at the proper depth, spaced at the correct distance from its neighbors, covered with well-firmed earth.

The Iron Age Seeder No. 306 does all this as you walk briskly along, pushing the machine lightly before you. It enables you to do a day's planting between supper and sundown.

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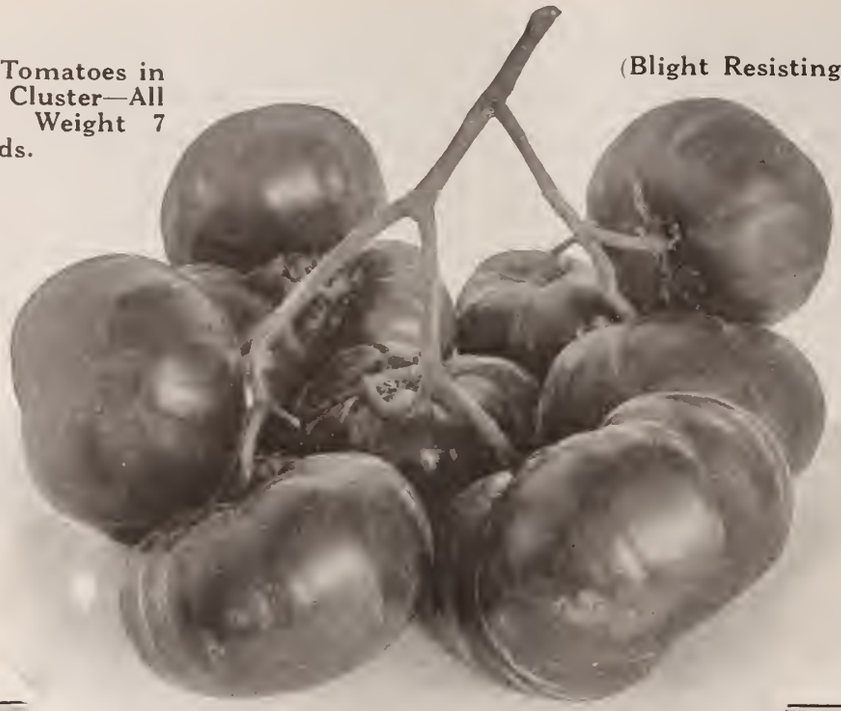

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100% Greater Returns
Without Extra Cost or Effort

Why be satisfied with twenty-five pounds of Tomatoes per plant, if you might have fifty pounds just as well? This is a story of another achievement in plant evolution, as scored by Richard Diener some four years ago. For many years he has been selecting and hybridizing, and breeding for greater returns from land and labor, until he finally succeeded in evolving

The Diener Tomato

Awarded Gold Medal at the California Industries and Land Show, October 5, 1919

This is without question, the greatest scarlet variety in cultivation to-day. It has made good from Canada to the Gulf, and from Long Island to the Golden Gate. It turned out to be one of the greatest varieties in experiments undertaken in the East. Fruits weighing three pounds are quite common. It will outyield Ponderosa every time, and is of greater solidity.

With remarkably strong growth, this variety combines blight resistance in an extraordinary degree. It is a great drought resister as well, and considered by leading horticulturists who have tried it, one of the greatest acquisitions in the vegetable field. *Sample pkg. 25c. ¼ acre pkg. 50c. One acre pkg. $1.50.*

The Diener Tomato, as well as many other new and valuable floral and vegetable novelties, together with exceptionally good new things in field and farm seeds, are fully described and illustrated in the new Diener catalogue, which will also introduce to you in natural colors, an entirely new race of the most wonderful Gladioli. A copy of this catalogue should be in the hands of every Garden Magazine reader. Please write for yours to-day.

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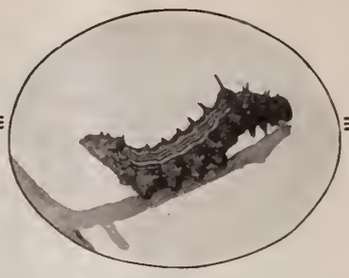

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They make handsome shrubs for the lawn and have an important place in ornamental landscape plantings. Set out along the edges of walks or drives they will soon rival the celebrated Nut Borders of European Gardens.

Plants bear the second or third year after planting and at the tenth year yield 20 to 25 pounds per bush

Thrive in any moderately rich, well drained soil, with very little cultivation and succeed over a wide range of territory and latitude. Are HARDY and ADAPTED TO THE MORE NORTHERN STATES where other kinds of Nut Trees will not fruit successfully. Customers in practically every State report Complete Satisfaction with these plants. Write for FREE CATALOGUE telling all about these improved European Filberts and our Complete Assortment of FRUIT and ORNAMENTAL TREES, SHRUBS, ROSES, BERRY PLANTS, etc.

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(Continued from page 340)

calls for small plants I used more glass. I then bought the store from my employer, and found that I must have better accommodations so I had a small, unheated house 10 x 14 ft. built on the south side of my dwelling with benches on the sides and one in the middle and one shelf to put flats on. Seeds were sowed in March and the flats were at first carried to the basement of the dwelling at night. Later when the weather grew warmer, the plants were kept in the house continuously and a small kerosene stove put in to prevent freezing, which worked very nicely. As soon as the space was full I would set the plants in the hotbeds and fill the house again with new transplants.

My business has increased little by little until I now raise yearly more than a thousand Tomato plants, besides Asters, Salvias, Cosmos, and many other smaller plants.

The last of April I begin to buy my other plants for selling. I buy my Geraniums and put what I can in the house, and I have one large bed outside with high sides where I put the rest. I also buy Heliotropes, Lobelias, Coleus and a good deal of similar stock used in planting out. About the last of May the Geraniums are in their prime. I fill my urns and at Decoration Day I make up many pots of assorted plants for the cemetery, also many designs for the same purpose; and all of this is done from my little house.

As soon as the bedding plants are out I put in other plants to raise through the summer for cutting. Under one bench I have English Ivy, which will stand the cold winter months when there is no fire, if covered to keep it from freezing and thawing. When needed for use it is easily uncovered. I also have a number of Roses including Richmond, Killarney, and La France, and while they do not bear all I need, there is seldom a time in the summer that I can not cut a few flowers from them.

In the fall I put about three thousand bulbs (different kinds of Narcissus and Hyacinth) into flats for cutting and into pots for selling. They are set in the cellar where it is cold and brought out as wanted into the basement of the dwelling, which has two east windows, where they bloom beautifully. They do not need much sun, only light, and I find sale for all of them. If they come on too fast I put them back in the cellar where it is less light, and they keep all right. I also keep Ferns growing there in summer and in the fall. I still run the drug store and I find this outside work helps out more than one would think. As there are only about three thousand people in this town, a regular greenhouse run alone could not, I think, be made to pay.

So you see that a small beginning can amount to something if one has the taste and liking for it. It not only puts many dollars into my pocket, but it has given me health besides. Someone might suggest that I do not put much time in my store—but I do. I have to hire help in the summer for that work, and as I have a man indoors it lets me out when I am needed. Any one who has a liking for flowers can get great enjoyment at very slight expense in running for themselves a little greenhouse of this simple kind.

E. W. Reed, *Massachusetts.*

More About Jewels of the Hardy Plant World

We read so much these days about "Big" things, "Big" trees, and "Big" planting projects, that we are all apt to forget that old but true phrase, "Good goods come in small packages." Now the most charming gardens we have ever seen, have been almost miniature rock gardens, and among the most charming plants growing therein, we found

The Quaint Bullock's Eye

(Sempervivum tectorum)

The very symmetrical rosettes, as shown below, average three to four inches in diameter, and are best at home between stones and crevices in the rockery. In July, they bear red and purple flowers.

The approach of Fall weather usually sees the red-brown tips of rosettes turn to a deeper hue. Altogether a charming plant, particularly in clumps or colonies. *Strong plants 25c each, $2.50 per dozen.*

Many Other Interesting Perennials in Store Here

However limited in size your garden may be, there is generally room for some old-fashioned hardy plants, which stand first in beauty, interest and general utility. Our selection of these charming plants contains the showiest up-to date varieties worth cultivating. We shall be delighted to be favored with your postcard request for our latest catalogue.

PALISADES NURSERIES, Inc.
Sparkill, New York

$1.00 SPECIALS FOR FEBRUARY

"Connoisseur Gardens" Gladioli

Offer No. 1. One each of Bertrex, Evelyn Kirtland, War, Schwaben, Prince of Wales, Herada, Loveliness, and Mary Fennell.
Offer No. 2. Two each of Glory, Mrs. F. Pendleton, Peace, Willie Wigman, Pink Perfection, America, and Ida Van.
Fine bulbs guaranteed true to name.
Complete price-list free on application.

L. C. RADLEY, Grower **Arcanum, Ohio**

THE NEW YELLOW GLADIOLUS

FLORA

IS A POPULAR RIVAL TO GOLDEN MEASURE.

The following offer will hold good as long as my present stock of Flora lasts:

45 (flowering size) bulbs, Pinicon Mixture, consisting of choice seedlings and the better sorts..... $1.25
One flowering size Flora, large, clear yellow..... .45
Postpaid for $1.00

Add 5c extra beyond 5th zone. Remit by money order, draft or check.
Mention Garden Magazine.

CHAS. B. RAFFAUF **Independence, Iowa**

The Sunshine Book Is Ready For You Garden Lovers

It's sunshiny inside and out. The cover is a burst of golden glow. Its text pages are filled with happy helpfulness.

It is not a nurseryman's or seedman's idea of a garden catalogue at all. We just put it up to some garden lovers and enthusiasts to give us their ideas of what an ideal nursery and seed catalogue should be. That was last year, when we brought out the first Ten-Ten Book.

Now comes the new one for 1921. It has all the goodly points of the first one, and an added bundle of betterments. The illustrations are more charming. The text is in larger type, so you don't have to put on your specs.

For quick, easy reference, there is an illustrated index. A really interesting index, if you can conceive such a thing. As for general arrangement, everything is grouped in tens. No reading through arm-long lists of different species and varieties; life is too short; gardening too likeable a thing, to have its joys shortened by long lists.

The Ten-Ten gives you the ten best things of each kind. Any one is as good as any other one. A lot of people just order all ten.

Send along your name for the Ten-Ten Book, and have the joy of browsing through it during these winter months and, likewise be able to order early, so you can start planting early. Sent free.

Julius Roehrs Co
At The Sign of The Tree
Box 10, Rutherford N.J.

THE SEEDS THAT SUCCEED

Bolgiano's 1921 Catalogue

Sent free to all who ask for it. Bigger and better than ever, with beautiful colored covers and full of illustrations.

Special Introductory Offer

To all who send 10c. with their request for the catalogue, we will send also one packet each of **Bolgiano's Scarlet Globe Radish, Early Fortune Cucumber, New Stone Tomato, Bolgiano's Featherbloom Asters, Bolgiano's Giant Flowered Zinnias, Capitol Waved Spencer Sweet Peas.**

A Valuable Coupon

Sent you with this first order will be accepted as 25c. cash payment when returned with any future order of $1.00 or more.

F. W. BOLGIANO & CO. **Washington, D. C.**
1011 B STREET, N. W. **The Nation's Capital**

A Gladiolus Rendezvous in Oregon

Here on my Farm in the foothills of majestic Mount Hood are gathered many of the choicest originations known to admirers of this gorgeous mid-summer flower.

If you will plant my bulbs of new introductions and time-tested beauties in your garden, you will agree that "Torches of Beauty" is an apt name for my 1921 booklet, which is sent for the asking.

W. L. CRISSEY, *"Gladiolus Farm"*
R. F. D1., Boring, Oregon

"Know them by their Ruffled Petals"

No other Gladioli in the world possess so many fine colors and tints as those originated by A. E. Kunderd. The older sorts may now be obtained from other dealers, but the more recent introductions can only be obtained direct.

Ninety-two New Sorts Never Before Offered

Among them you will find glorious new colorings in both plain and ruffled varieties. Some of them will produce blooms as large as any grown if given proper treatment; all of them possess distinctive merit.

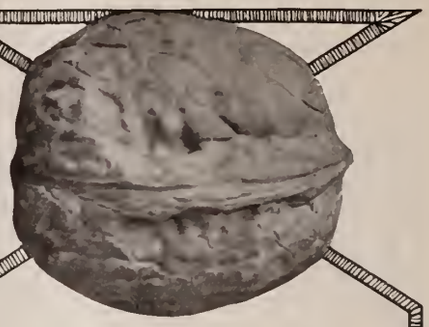
Kunderd's 1921 Catalogue

describes and illustrates these new introductions and hundreds of others of our production; eight varieties are pictured in color. Complete cultural directions are given together with many hints that will be found useful. A copy will be sent to you free on request; write for it to-day.

A. E. KUNDERD

The Originator of the "Ruffled Gladioli"

Box G, Goshen, Ind., U. S. A.



Gets All the Meat That's in the Shell

THAT is just what the nut-grower does —particularly the grower who has a few trees around his home grounds. But be sure to set grafted or budded trees—**Jones' trees**—which practically guarantee large nuts and fine crops.

Nut Trees Are Good Shade Trees

Besides producing food and profits the trees make desirable lawn trees; they grow shapely, furnish good shade, and fit well with shrubs and evergreens.

Special Catalogue of Nut Trees

will be sent to you on request. Pictures show how the trees grow: story tells how to plant and care for them. You will read it from cover to cover—send for it now.

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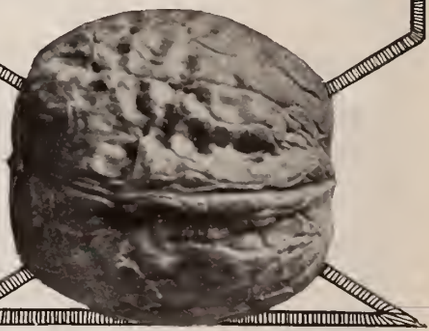
Box G Lancaster, Penna.



¶ *"Homing with the Birds" (by Gene Stratton Porter). A human book about birds by a naturalist and a novelist, blending authoritativeness with narrative charm. Net, $2.50. At all booksellers'.*

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Choice materials in landscaping are among our specialties. Prices are made to suit the average American home. List on application.

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The only Dahlia farm in the world that makes a specialty of hybridized Dahlia seed. Remember when you plant this seed, you are planting diamonds. Also remember that you cannot eat off an empty dinner plate, neither can a Dahlia. Do not plant them in concrete.

Fenton Hybridized Dahlia Seed

100 seeds hybridized with Black Pearl $3.00
85 seeds selected from 50 crosses 1.00
35 seeds selected from 15 crosses 50

The Black Pearl tubers $10.00 each ready 1922. No. 97 Best Bronze on earth, $5.00 each, ready in April. Halo, The American Beauty of the Dahlia family, $5.00. Golden Arbor, $5.00 ready April.

(To be continued)

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Keep Your Garden Free from Weeds

There's an easy way to get rid of them. It saves the moisture—Makes your vegetables GROW.

BARKER Weeder, Mulcher and Cultivator 3 Garden Tools in 1

Kills the weeds and breaks the hardest crust into a level, porous, moisture-retaining mulch—*all in one operation.* Eight rcel blades revolve against a stationary underground knife—like a lawn mower. **"Best Weed Killer Ever Used."** Cuts runners. Aërates the soil. Works right up to plants. Has leaf guards, also shovels for deeper cultivation. A boy can run it—do more and better work than ten men witb boes. Five sizes. Inexpensive.

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Gladioli!!

Betscher's Primulinus Hybrids

WE HAVE used many species of Gladioli in our work but Primulinus Species has proved of greater merit than any other species, hence we employed it very liberally in evolving our best types. Betscher's Primulinus types are of a high standard, robust tall growers, large flowers, attractive colors, early blooming. Planted July 1st they bloom in September when good blooms are scarce. The Gladiolus of the future will largely be of Primulinus blood because of its greater vitality.

We offer:

Primulinus Species	$1.50 doz.	$8.00 per 100
" Hybrid Select	1.50 "	10.00 " 100
" Hybrid Yellows	2.00 "	15.00 " 100

Named Gladioli

Each year we test out the best from world wide sources. Some see beauty and value in all. More critical ones prefer only the superior sorts—it is the superior sorts we grow and grow them superior. We have some very carefully selected seedlings selected to color—there are none better and many are better than the average fine named sorts—those who desire extra high grade sorts should buy these liberally.

Pink—Red—White or Yellows
$2.25 per doz. $15.00 per 100

Pink—Red—White or Yellows—made up from choice named sorts
$1.50 per doz. $10.00 per 100

We have grown thousands of seedling Gladioli—many of a very high order. Out of these many thousands, we deemed only one worthy a name—*Crimson Glow*. It is a very fine one—we feel there is no red its equal to-day. After growing it two years, here is how Mr. J. M. Good describes it:

CRIMSON GLOW—Glorious, brilliant, satiny "Crimson Glow" a color that is fetching and pleasing to all. The wide open blooms are of the largest size, well placed on the long, graceful, showy, slender spikes which remain in bloom a long time, especially in the cool of autumn. Its petals are of exceptional substance. As a garden type it is extra good. As a cut flower its keeping qualities are the best. A free flower. A gem in every way.

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Aster Seed—our own saving from fancy blooms strictly high grade asterinum type for cut flowers

Purple—Rose—Pink—White
$1.00 per packet $3.00 per ounce

We also specialize in Dahlias, Peonies, etc. Send for our list to-day.

C. BETSCHER

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"Quality Over All"

La France Everbearing Red Raspberry

Big, juicy, sweet berries from July until November

It grows in the gardens of J. P. Morgan, Glen Cove, N. Y.; John D. Rockefeller, Pocantico Hills, N. Y.; P. S. du Pont, Wilmington, Del.; Chas. M. Schwab, Loretto, Pa.; James J. Hill Estate, Lake Geneva, Wis.; Henry Ford, Dearborn, Mich.; and others who demand the world's best.

The La France Red Raspberry is perfectly hardy. It has been carefully tested for years, to absolutely prove its merit.

Fruits early in July, the first season planted, and continues in fruit until frozen. Free from insects and disease. A dozen plants will supply the average family all season, year after year. Plants multiply rapidly.

THE bushes grow rapidly, and are covered with firm, luscious, wonderfully flavored berries, *with few seeds*, from July until freezing weather. The fruit is twice the size of other raspberries and of the same delicious flavor from first to last. Immense branches covered with berries which are constantly ripening.

It is the best for home gardens and a great money maker for marketing.

Awarded medals and certificates by leading Agricultural and Horticultural Societies, including the Massachusetts Horticultural Society, Horticultural Society of New York, The American Institute of New York, etc., etc. It pays to buy the best.

Strong, field grown, bearing plants $1.50 each, $16.00 per dozen, by prepaid parcel post.

Safe delivery guaranteed in proper time for planting if ordered now. Circulars on request.

Raspberry Farms at Sound Beach, Conn. and Glen Head, N. Y.

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ANDORRA NURSERIES

Ornamentals exclusively, distinctive in quality and variety, for street, park and all civic planting

We cater to the most discriminating trade.

Have you seen ANDORRA?

The Modern Gladiolus

THAT is the title of my Descriptive Catalogue and I aim to make the contents agree with it by adding, from time to time, the best new sorts of this, the grandest of the People's Flowers.

No. I haven't gone out of business though you have not seen my name in the GARDEN MAGAZINE lately. I've been right on deck, "busy as a bee in a tar barrel," growing the finest lot of Gladiolus bulbs ever. I believe my Oakwood Mixture is the best offered and, among the *new* named sorts, I am recommending FLORA, Le Marechal, Foch, Lilywhite, LOUISE, Prince of Wales and some of Diener's California strain. My catalogue, with color plate of LOUISE is free to all who ask for it, mentioning the Garden Magazine.

GEO. S. WOODRUFF

Independence Iowa

Have Wild Flowers Around Your Home

IF YOU can't go where the lovely children of the wild woods grow, why not make them at home with you? Little preparation or care is required to make them thrive right at your doorstep. My long experience is at your service. Don't hesitate to write me and ask questions. Or, if you live within fifty miles of New York, my associate, Mr. Herbert Durand, will be happy to give you advice at any time, either at my Fifth Avenue office or by letter.

This Lovely Nook Yours For Little Money

That is another good thing about Wild Flowers. They are not expensive. In the picture alongside you see the stately Ostrich Fern together with the graceful Lady Fern, in happy company with May Apples and Solomon's Seal. Six of these four charming plants, two dozen in all, will be mailed for $3.00 postpaid, and I guarantee safe arrival. You will find or can make up yourself other lovely combinations, if you get

My Unusual Catalogue

If you are fond of wild flowers and ferns, you will grow fond of this catalogue, which will introduce to you unsuspected treasures of woodland, meadow, and bog. Send for your copy to my nearest address as below and please mention GARDEN MAGAZINE.

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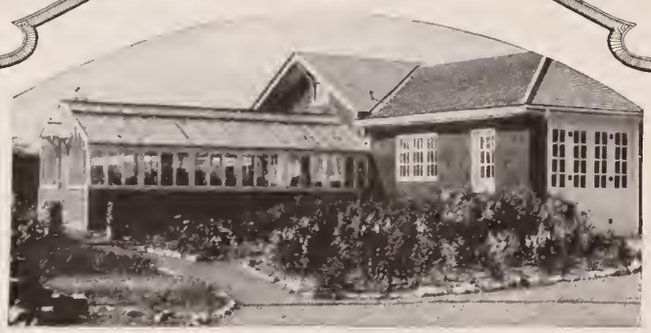
FERN and FLOWER FARM
3 Main St., Southwick, Massachusetts

HERBERT DURAND
286 Fifth Avenue, New York City



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Start Your Garden Now Under Glass

THERE'S a style and size "just built" for your grounds, too. It will give the same added beauty to your home. It will bring the pleasures and economies of gardening the year around. It will give you flowers and vegetables this Spring before out-door gardens are started. And if you desire, it can be made a means of considerable added income.

"I was surprised with the ease with which it was put together," said the owner of this Callahan Sectional. A few hours, a wrench and a screw driver does it. They come in completely finished sections which anyone (without greenhouse experience) can quickly bolt together. This effects a considerable saving as erection costs are eliminated. They can be easily enlarged by simply adding new sections.

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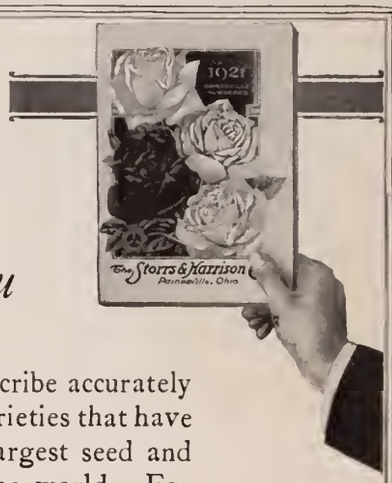

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to mail to you

In this catalog we describe accurately the sturdy-growing varieties that have helped us build the largest seed and nursery business in the world. For 67 years we have listed only the strains that we were sure deserved our support. S & H seeds and nursery stock will surely please you, however critical you are.

Write—TONIGHT—for your copy of this interesting, well-illustrated catalog.

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Nurserymen and Seedsmen
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Compiled for the amateur, but equally interesting to the professional gardener, as it is the most complete catalogue of Seeds and Plants published.

A large, handsomely illustrated book showing, in colors and photo-engravings, the varieties offered and giving cultural information which will assure a successful garden.

It offers the best Vegetable and Flower Seeds, Lawn Grass and Agricultural Seeds, Plants of all kinds, including the newest Roses, Dahlias, Hardy Perennials, etc.

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Philadelphia, Penna.

Dwarf Fruit Trees

Here is a letter from one of our enthusiastic customers
Read what he says

Dwarf Apple Tree
Scarlet Beauty
See adjacent letter

Hicksville, Long Island, Oct. 10, 1920.
Dear Sir:
I am enclosing a picture of the dwarf Scarlet Beauty apple tree I purchased last year (1919) and was set out in June and was in bloom the following month, July. This year (1920) it was in full blossom and matured seven beautiful apples which weighed three pounds. The tree as you will notice in photo is only 30 inches high. The Cheresota dwarf plum had a dozen or more plums also the first year after planting.
Very truly
Geo. L. Lehman.

Our customers send in pictures of these trees because they are pleased!

We Grow
Dwarf Apple Trees
Dwarf Pear Trees
Dwarf Plum Trees
Dwarf Cherry Trees
Dwarf Peach Trees

They are *big* bearers of big fruit from *small trees*. They bear younger and need *less room*. They are the best trees for the home garden. *Our catalogue* will tell you about them. *A postal brings it to you.*

THE VAN DUSEN NURSERIES
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YES, plant trees for shade and shelter. Plant them for beauty of trunk and foliage. Plant them as noble gifts to future generations.

Make trees your friends. They are faithful and permanent, revealing new beauties with every succeeding season.

Beeches Possess Enduring Charm

Their story is interwoven with the history of our race. The shimmering grey trunks flecked with sunlight and shadow contrast pleasingly with the delicate green of the foliage.

We have them in great variety and in many sizes; also a full line of *Roses*, *Fruits* and *Ornamentals*.

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S. G. HARRIS
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Trees, shrubbery, flowers and lawn are but materials with which to work. The final effect depends upon an accurate knowledge of the basic principles of landscape gardening and intimate acquaintance with plant life.

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is a delightful and dependable guide to garden success. The director of this Course is Arthur Smith, widely known as an authority on plant life and landscape gardening. Mr. Smith combines vast experience as a veteran gardener with rare ability as a teacher.

This course teaches you not only what to do and how to do it, but also shows you the "why and wherefore" of every gardening operation. It deepens your understanding of plant life and enlarges your grasp on gardening fundamentals. You will enjoy every lesson.

These helpful lessons come to you monthly, one in every issue of the

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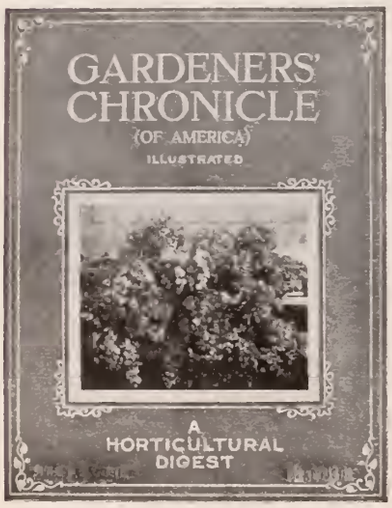
You will find this magazine indispensable to your garden work. Its pages are devoted exclusively to the garden crafts. It tells in a precise, practical way how to grow more beautiful flowers, more luscious fruits and more delicious vegetables.

Besides special articles from leading gardeners, there is a monthly digest of the horticultural literature at home and abroad. No matter what magazine you may now take, you need the Gardeners' Chronicle.



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Stokes Seed Farms Co. ***Growers***
Organized 1881 as Johnson & Stokes
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Weeber & Don

Masterpiece Asters

WHEN the earlier summer flowers are waning, and the garden begins to lose some of its bright masses of color, it begins its blooming—modestly at first, till when the garden is bereft of most all its bright blossoms, it bursts into a perfect riot of bloom. Pink, white, blue, crimson and rose, it makes the brown beds gay with its glory. And such blossoms! Perfect in shape, immense in size, extremely double, with extra long, sturdy stems rising from the midst of its rich, green foliage.

Well grown Masterpiece Asters grow three feet high, branch freely and are healthy, vigorous bloomers, producing on each plant from ten to twelve perfectly double and elegantly shaped blossoms measuring from five to six inches across, on stems two to two and a half feet long, beside a goodly number of flowers not so large but quite as perfect in form and beauty. They begin blooming in late August and continue uninterruptedly through September and October. For cutting, in beds, in borders or anywhere, these Asters cannot be surpassed.

The following colors are available:—

	Pkt.	1,000 seeds
White	20 cts.	75 cts.
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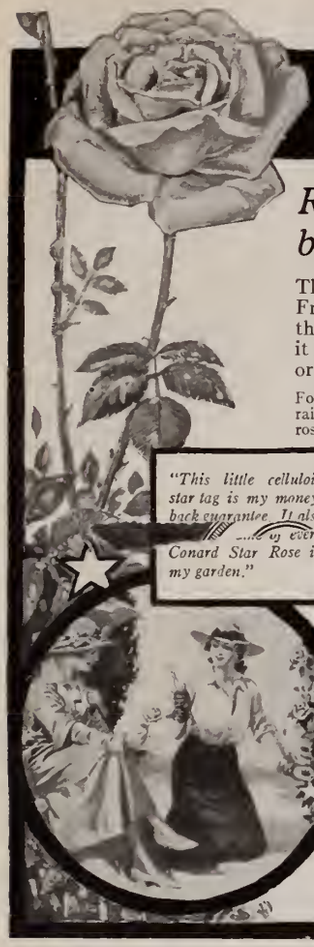
Dark Blue	20 cts.	75 cts.
Light Blue	20 cts.	75 cts.
Crimson	20 cts	75 cts.

All colors mixed 20 cts. pkt., 1,000 seeds 60 cts.

Catalogue Yours Free for the Asking

Brought thoroughly up-to-date, with many true-to-nature illustrations from photographs, it brings to your home dependable information on the subject of Seeds for Your Garden—Sturdy Seeds—the kind that help to joy and crops. Your free copy awaits your call.

Weeber & Don, *"Sturdy Seeds"* **114 Chambers Street New York City**



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Roses that assure the beauty of your garden

The prize-winning Columbia or the snow-white Frau Karl Druscki—the yellow Sunburst or the soft pink J. L. Mock—it matters not—if it is a genuine Conard Star Rose, it will *BLOOM* or we will refund your money.

For Conard Star Roses are hardy field-grown plants raised by rose specialists nationally known. On every rose you get our Star Tag Guarantee—a durable little celluloid tag with the name of the rose printed on it. This is the symbol of our guarantee and is also a permanent identification of the rose.

It's not the guarantee which makes our roses bloom but the *quality* of our plants which enables us to make the guarantee.

"This little celluloid star tag is my money-back guarantee. It also ... my every Conard Star Rose in my garden."

Our little book, "Success with Roses," is worth dollars. Price to you, 10c. Send for it. Our beautifully illustrated catalogue of over 200 varieties is free. Write for it to-day.

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For Early Spring Planting

Of all the gardens that have been planned and made, I believe a garden of Hardy Perennials gives the most real deep down satisfaction and joy. There will be radiant Peonies and gorgeous Irises in May and June, Phloxes, Delphiniums, Digitalis, Aquilegias, and a host of others that make up the succession of flowers in the garden of perennials.

Most of the desirable perennials and shrubs can be shipped and planted safely in spring. Here at Wyomissing we have the old-time favorite shrubs and a score of the new introductions—French Lilacs, Lemoine's Deutzias, Philadelphus, Rock Plants; Evergreens for special uses—as well as Farr's Wyomissing Irises, Phloxes, Peonies, Anemones, all of which can be transplanted in early spring, and will give character to your garden the first season.

Farr's Hardy Plant Specialties (Seventh Edition)

a book of 132 pages and plates, accurately classifies the finest varieties of landscape-making materials. There are fourteen plates in full color, and many photographic reproductions of flowers and gardens. It is a comprehensive textbook, and will be the companion of both amateurs and experts who delight in hardy plants and flowering shrubs. This book is too valuable and costly for promiscuous distribution but will be mailed to any address for $1. With the book I send a *certificate* which entitles you to an *allowance of $1.* on your first order amounting to $10.

BERTRAND H. FARR, Wyomissing Nurseries Co.
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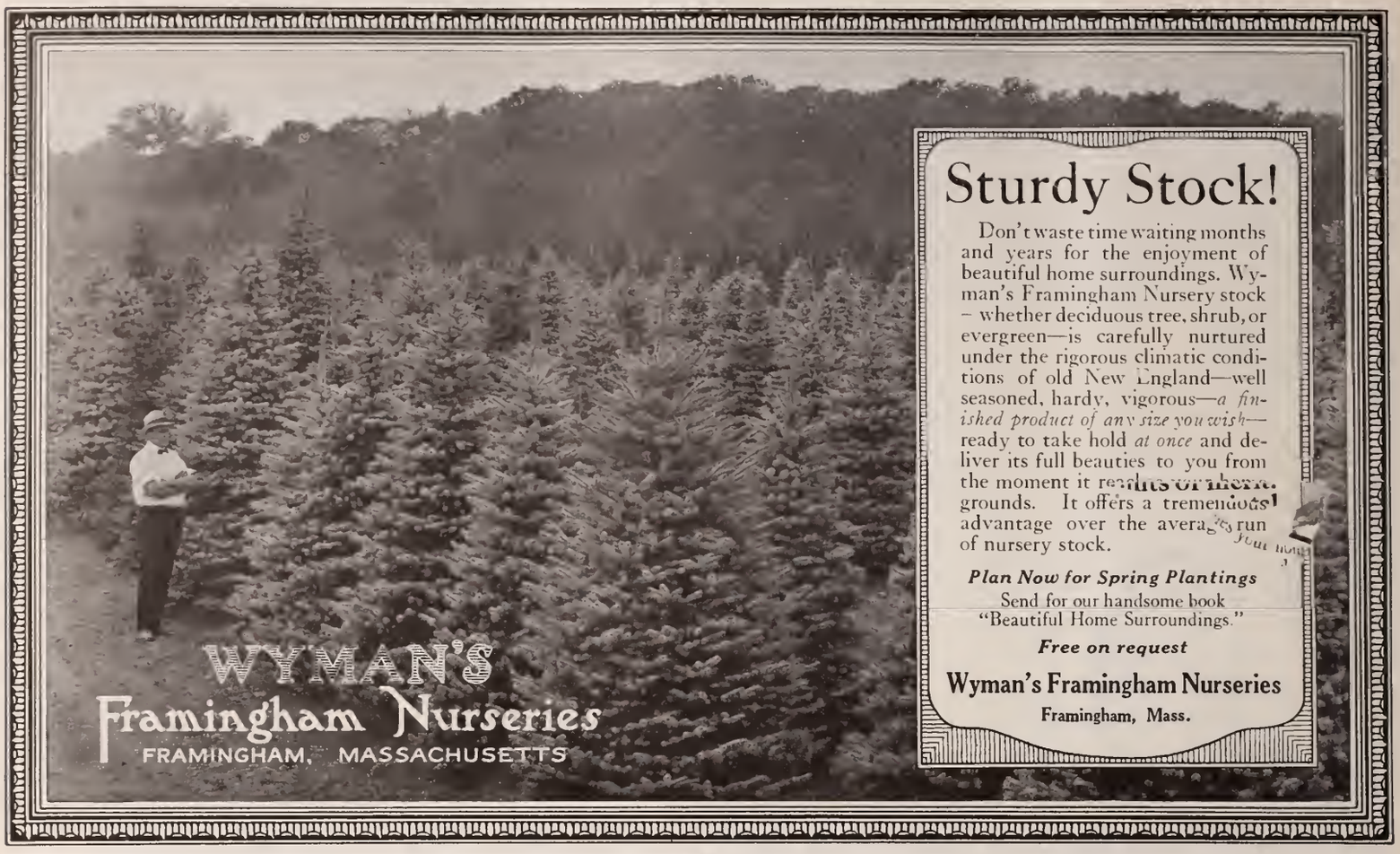

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Don't waste time waiting months and years for the enjoyment of beautiful home surroundings. Wyman's Framingham Nursery stock – whether deciduous tree, shrub, or evergreen—is carefully nurtured under the rigorous climatic conditions of old New England—well seasoned, hardy, vigorous—*a finished product of any size you wish*—ready to take hold *at once* and deliver its full beauties to you from the moment it reaches your home grounds. It offers a tremendous advantage over the average run of nursery stock.

Plan Now for Spring Plantings

Send for our handsome book "Beautiful Home Surroundings."

Free on request

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Framingham, Mass.

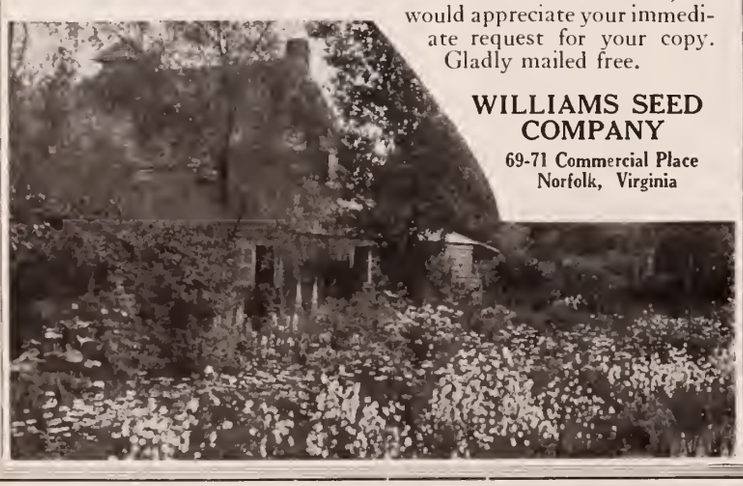
A Corner in Contentment

In these days of trials and tribulations, we are all too apt to forget the good the garden does us in the way of bringing peace to troubled nerves. Besides food, the well managed garden brings cheer. To secure the most of both, out of your garden efforts this coming year, you should read our new book from old Virginia entitled

"Valuable Gardening Information Book"

The 1921 edition of our fifty-six page information book contains many valuable hints, how to make better gardens. Profusely illustrated with some lovely scenes from charming southern gardens, it will help you materialize just the kind of a garden you have been longing for.

Since the edition is limited, we would appreciate your immediate request for your copy. Gladly mailed free.



WILLIAMS SEED COMPANY

69-71 Commercial Place
Norfolk, Virginia

The Dahlia Farm

East Moriches, Long Island, N. Y.

DAHLIAS

Try our "Supreme Collection" and know the glory of this

Empress of the Flower World

12 Dahlias—Value $8.00 for $5.00 prepaid anywhere in United States. 4 Decoratives, 4 Cactus, 4 Peony Flowered.

Your Choice in Color

"The Supreme Collection"

"Attraction," Hybrid Cactus. Delicate, exquisite lavender.
"Mrs. T. B. Ackerson," A beautiful floriferous Decorative, tinted with the reds and golds of the sunset. Our best cutter.
"The Rosary"—Our own pink Peony introduction. Grand stem; good keeper.
"Yellow King"—Hybrid Cactus. A giant yellow Chrysanthemum Dahlia. The best cut flower of them all.
"Mrs. Warnaar"—The fascinating Hybrid Cactus from Holland. A gigantic flower of cream white, kissed with the pink of dawn.
"American Beauty"—A monster decorative of the color indicated by its home. Fine cutter and keeper.
"Bianca," Exquisite rose pink Cactus. Wonderful cutter.

The above prepaid for $5.00

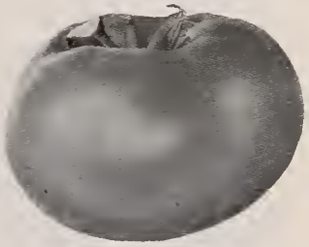
To everyone ordering above collection before March 1st, we will send free with above—6 others of our own choice.

Try Our Garden Collection
13 Beautiful Dahlias, $2.00 postpaid

THE DAHLIA FARM, East Moriches, Long Island, New York

MICHELL'S SEED CATALOG

describes the best in Flowers, Vegetables, Bulbs and Plants, it features Grass Seed extensively, which we make an important specialty; there is a mixture for every lawn condition. Fertilizers and Insect Destroyers are listed in all the well advertised and "recognized as the best" kinds. Our line of Garden and Greenhouse Tools and Implements embraces every wanted one; supplies for the Poultry Yard are not overlooked, we handle the better kinds, including the famous Prairie State Incubators and Brooders. Behind everything we sell is a reputation of over Thirty Years of Successful Business.



WRITE FOR THE CATALOG TO-DAY. A POSTCARD WILL DO

Special Offer For 20c. (Worth 45c.)

1 pkt. of Michell's Red Wonder Tomato; 1 pkt. Giant Crego Asters (mixed colors) and 1 pkt. Orchid Flowered Spencer Sweet Peas in mixture (regular value 45c) mailed post free for 20c. Cut out this coupon, enclose remittance, sign your name below, we will do the rest.

NAME .....

ADDRESS .....

G.M. 2-21 R. F. D. NO. ..... STATE .....

HENRY F. MICHELL CO.

520 Market St. Phila., Pa.

Does away with all Mats and Shutters

Grow Bigger and Stronger Plants Weeks Ahead of the Season

The use of Sunlight Double-Glazed Sash takes all the risk and worry out of winter gardening

Besides insuring you earlier, bigger and stronger plants, Sunlight Double-Glazed Sash means increased profits with less work and added pleasure.

SUNLIGHT Double Glass Sash

Sunlight Greenhouses

are covered with Double-Glazed Sash. They are moderately priced, cost little to operate, are built entirely of cypress and glass, and shipped in perfect fitting sections. No skill or experience is required to erect them. Each sash can be taken out at will and used on a hot bed or cold frame.

with two layers of glass,—$\frac{5}{8}$ of an inch apart,—forms a transparent blanket that gives the bed full benefit of *all the light all the time. It does away with mats and the necessity of covering;* saves no end of work and worry. Simply put the sash on the hot bed or cold frame and it is complete. On bright, warm days you can easily prop it up to admit fresh air.

Free Illustrated Catalogue

Including detailed description, prices, and valuable information on hot beds, cold frames and greenhouses. Write for it To-day.

SUNLIGHT DOUBLE-GLASS SASH COMPANY
Division of Alfred Struck Co., Incorporated
927 East Broadway (Established 1860) Louisville, Ky.

The Wonderful New

ROCHESTER PEACH

Bears the First Year

HARDIEST TO PLANT EARLIEST TO BEAR RICHEST IN QUALITY

The best Peach to plant for the farm, for the city home, for the country estate. Plant an orchard if you can, but even a few trees will be a great acquisition.

The Rochester Peach is the most wonderful, most delicious peach obtainable—yellow and red free-stone—stone very small. For eating and canning it cannot be surpassed.

The new Rochester Peach has an exquisite, delicate, distinctive flavor. Its flesh is of the richest yellow, highly flavored and luscious through and through.

The new Rochester Peach is a strong, upright grower, with a well-developed top. It comes into ripening the middle of August and bears the first year. Stands shipment as well as an Elberta. Hardier even than Elberta or Crawford. Has stood 16 degrees below zero and produced a full crop.

WRITE for our beautiful Spring Catalogue, illustrated in color, describing this remarkable peach, Bearing-age fruit trees, Blueberries, Ever-bearing Raspberries and other nursery stock.

J. G. MAYO & COMPANY
World's Best Trees & Plants for the Home Grounds
905 Ellwanger & Barry Bldg., ROCHESTER, N.Y.

There is Good Reason

why so many front rank architects specify exclusively—**KOLL'S PATENT LOCK-JOINT WOOD COLUMNS**—because they are not only attractive, but are architecturally correct and mechanically perfect.

We manufacture exterior columns from 4 to 54 inches in diameter, including hardwood staved and veneered columns for interior use.

For catalogue on Exterior or Interior Columns enclose 15c and ask for catalogue "H-47." If interested in Pergolas and Garden Accessories send 10c and ask for catalogue "H-33."

HARTMANN-SANDERS CO.
2155-87 Elston Ave., CHICAGO
Eastern Office and Show Rooms
6 E. 39th St., NEW YORK CITY

Get Acquainted

With the reliable institution called *Beckert's Seed Store*, which after four decades of travel, study, investigations, experiments and exhaustive trials, *KNOWS* where and how to procure *the best seeds grown—the only kind the wise will buy.*

"ASK YOUR NEIGHBOR"

We suggest that you try the following DOLLAR COLLECTION

One regular packet of each of the following eighteen heavy-yielding kinds:

Bean, Green-pod Bountiful	Carrot, Danvers Half-Long	Lettuce, Black-Seeded Simpson	Radish, Icicle
Bean, Sure-Crop Stringless Wax	Chard, or Spinach Beet, Lucullus	Onions, Yellow Danvers	Spinach, New Zealand
Beet, Crosby's Egyptian	Corn, Early Mayflower	Parsley, Moss Curled	Tomato, Bonnie Best
Cabbage, Enkhuizen Glory	Endive, Green Curled	Parsnip, Hollow Crown	Turnip, Purple-Top Globe
	Kale, Dwarf Green	Peas, World Record	

To increase the joys of garden-making, we add, for good measure, a packet of Nasturtiums and a packet of Sweet Peas. Let these flowers brighten your garden and home

BECKERT'S SEED STORE SEEDS FLOWER BULBS PITTSBURGH, PA.

BECKERT'S SEED STORE

Complete Garden Service Since 1877

101-3 Federal Street **Pittsburgh, Pa.**

GENERAL GARDEN GUIDE SENT FREE ON REQUEST

Look at These Low Prices On Fine Large Evergreens

YOU will be delighted with our large-size specimen Evergreens. They have thick masses of foliage from tip to base. Every Evergreen has a liberal root ball securely sewed in burlap, and is backed by the Harrison reputation.

Here are a few of many bargains:

	EACH
American Arbor Vitae, 8 to 10 ft.,	$ 8.00
Blue Virginia Cedar, 8 to 10 ft.,	$ 8.00
Canadian Hemlock, 6 to 7 ft.,	$ 6.00
Plume-like Retinospora, 7 to 8 ft.,	$ 7.00
Koster's Blue Spruce, 7 to 8 ft.,	$14.00

Order direct from this advertisement. Write to-day for *free* Planting Guide and complete list of nursery stock.

Harrison's Nurseries Box 56 Berlin, Maryland

"Largest Growers of Fruit Trees in the World"

Trustworthy Trees & Plants — Members American Association of Nurserymen

A Garden for Every Home

LAWN GRASS

Muller-Sealey Co.'s Special Mixture

To Make A Good Lawn, Good Seed Is Absolutely Essential

Our Lawn Mixture is composed solely of the purest and heaviest seeds of the finest leaved dwarf growing species of grasses, carefully blended, which produces a turf in six weeks that will retain its rich green color and velvety appearance throughout the entire summer.

Grass Seed mixtures at a much lower price are generally sold but the use of these can only lead to disappointment if a really fine Lawn is desired.

WE SUPPLY ONLY ONE QUALITY—THE BEST

One pound of this mixture will sow 300 sq. ft.; 100 pounds will sow one acre.

Price per lb. 55c; 5 lbs. $2.65; 10 lbs. $5.00; 25 lbs. $12.00; 100 lbs. $45.00

Delivered Free Anywhere in the United States

For other Grass Mixtures see our General Catalogue, mailed on request.

Correspondence on Horticultural Subjects is invited, and your patronage is respectfully requested.

MULLER-SEALEY COMPANY, Inc.

Horticultural Specialists 145 West 45th Street, New York

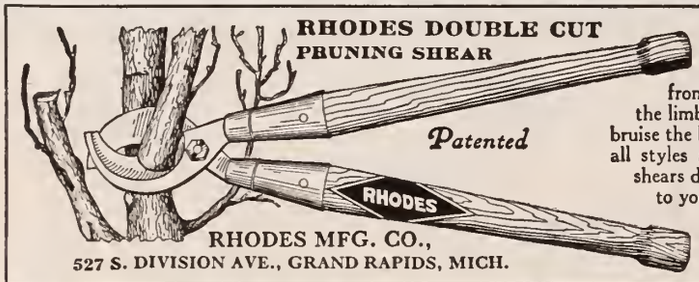
Have Rain When You Want It

"Rain when you want it"—that's what the Skinner System is. Made so that the owner of the home garden can install it himself, with no tools, except a monkey-wrench. Attach it to your garden hose. Simple, inexpensive.

Just as practical for large gardens. Send for booklet; and tell us length and width of your garden.

The Skinner Irrigation Co.

219 Water St., Troy, Ohio



THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

RHODES MFG. CO.,
527 S. DIVISION AVE., GRAND RAPIDS, MICH.

Air Pressure Does It

A FEW strokes of the pump and you're ready. Press the Auto-Pop control and out comes the spray—a real misty fog that penetrates, covers, and protects. No wonder half a million enthusiastic users rely on

BROWN'S Auto-Spray No. 1

The Standard Compressed Air Sprayer

It handles all kinds of solutions and serves many purposes. Used for spraying vegetables, flowers, fruit trees, and shrubbery. Also for disinfecting hen houses, hog houses and dairy barns.

The Auto-Spray catalog describes and illustrates a complete line of Sprayers for garden, field and orchard work. Write for it today. Ask also for *free* Spraying Guide prepared for us by Cornell University experts.

Ask your dealer to show the Auto-Spray

The E. C. BROWN CO.
850 Maple St. Rochester, N. Y.
"Use an Auto-Spray to Make Crops Pay"

An effective display of single Peonies in the gardens of Mr. L. J. Germann, Van Wert, Ohio

MY VISIT TO MRS. PLEAS' GARDEN

PROF. SAUNDERS' article, "What America Has Done For The Peony," in the September issue of the GARDEN MAGAZINE makes timely this long-cherished recollection of mine, my meeting a number of years ago with Mrs. Pleas, now one of the national figures in the Peony world.

It was Sunday, June 4, 1909, "Peony Sunday," that I made my trip to Spiceland, Indiana.

The quaint old brick house, set down among its gardens, was girt about with magnificent Colorado Blue Spruce, the finest trees of the kind I have ever been privileged to see. They bordered lawn and gardens, and out beyond them stretched fields of gleaming bloom—a sight I will never forget! Fortunate in having Mrs. Pleas as my guide I went through this colorful fairyland of her creating. The single Peonies just in their prime, were a most interesting spectacle.

Mrs. Pleas herself was all that the ardent Peony lover imagines her to be; she has spent much of her lifetime in an effort to increase the world's sum of beauty; her achievement speaks for her in no uncertain terms. Even the names of her Peonies carry something of her special charm, suggesting as they do a nature delightfully imaginative and sensitive to color—Wild Rose, Opal Iris, Rosy Dawn, Golden Wedding, Roman Candles, Cottage Maid, Quaker Lady, Midsummer's Night Dream, the world famous Jubilee, are surely more than mere labels!

Some fine blooms of the renowned Jubilee Peony grown by Mr. L. J. Germann, Van Wert, Ohio

I saw them all growing that "Peony Sunday"

(*Continued on page 360*)

There Is a Fascination in Planning a Garden

but the real joy comes when the unfolding blooms herald the coming of spring and summer days.

A garden plays such an important part in outdoor life that it demands the *best* one can give—or get. It isn't the *number* of plants that makes it a success, but the selection of *varieties* and the *quality* of the specimens.

You may expect to find—and you surely will find—at GoodHold Farm a comprehensive collection of perennials—Hardy Asters, Irises, Peonies, Phloxes, Delphiniums, seeds of the finest varieties of annuals and perennials; summer blooming bulbs, including

The Longest List of Gladioli Offered in America

The "Four Glorys," White, Purple, Orange, Rose, the most superb Gladioli yet introduced; wonderful Ruffled varieties, many offered for the first time this year; plain petaled specimens of the greatest charm and variety of color, and a splendid collection of the new Primulinus Hybrids. We offer you *varieties* not obtainable elsewhere; but most important of all, these Gladioli bulbs were grown here, and will add to the quality of your garden, for we are *growers*—not jobbers.

The GoodHold Garden Book shows the "Four Glorys" in full color, and photographic reproductions of many other choice Gladioli. It features the most desirable perennials for the year-round garden, and presents a splendid list of flower seeds for garden and greenhouse. From its pages you can readily select at reasonable cost the seeds, bulbs and plants you need to make your garden a place of recreation and pleasure. The GoodHold Garden Book is free to all who ask for a copy.

RALPH E. HUNTINGTON
GoodHold Farm
Box 211 MENTOR, OHIO

Green's Trees

Are the Careful Planter's First Choice

—Because we grow only the best varieties of fruit trees, small fruits and garden plants.

—Because our trees are true to name.

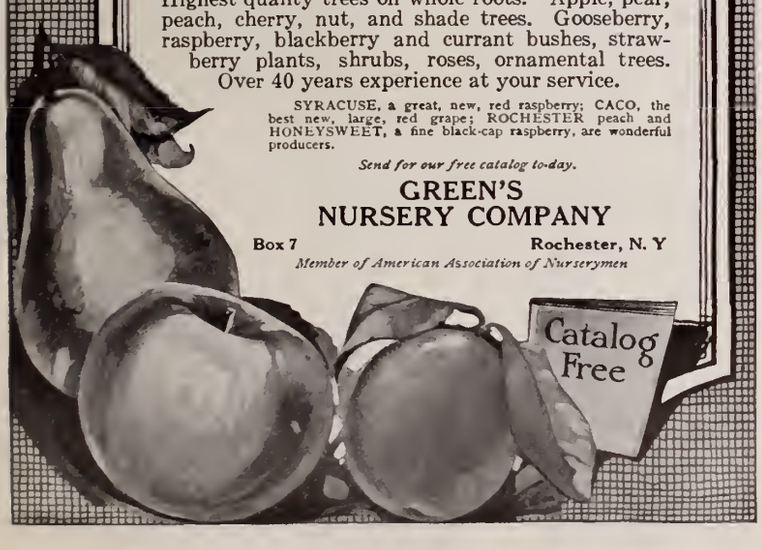
—Because we sell direct and lower the cost.

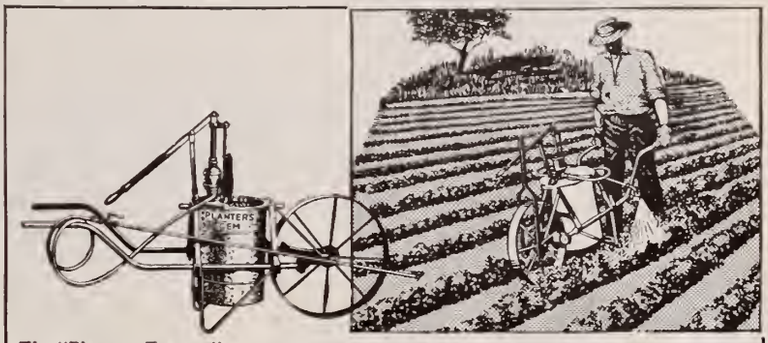
We grow everything for orchard and garden. Highest quality trees on whole roots. Apple, pear, peach, cherry, nut, and shade trees. Gooseberry, raspberry, blackberry and currant bushes, strawberry plants, shrubs, roses, ornamental trees. Over 40 years experience at your service.

SYRACUSE, a great, new, red raspberry; CACO, the best new, large, red grape; ROCHESTER peach and HONEYSWEET, a fine black-cap raspberry, are wonderful producers.

Send for our free catalog to-day.

GREEN'S NURSERY COMPANY
Box 7 Rochester, N. Y
Member of American Association of Nurserymen





The "Planters Tractor" (*Patented*)

One of twenty-five Deming Hand and Power Sprayers. The new Deming 1921 Spray Catalogue illustrating the full line will gladly be sent free on request.

Spraying for Profit, a valuable spray guide for gardeners will also be sent upon receipt of 10 cents to cover our cost.

You Get Over the Ground Speedily with a "Planters Tractor" Sprayer

THE broad tired wheel, and elimination of all surplus weight makes it easy to propel the "Planters Tractor" briskly over soft garden ground, thoroughly spraying two rows at a time. No hand pumping,—the wheel automatically drives the pump, developing a penetrating spray under forty pounds pressure. Your garden is sprayed just as fast as you walk up and down every other row.

THE DEMING COMPANY
318 Depot St. Salem, Ohio

Deming
PUMPS THE WORLD'S BEST

BUIST'S SEEDS
"Best Since 1828"

Produce Quick *and* Positive Results

Planting Buist's Pedigreed Seeds takes all the uncertainty out of your gardening. You may prepare the soil, plant and cultivate carefully; but you cannot hope for the biggest garden success unless you plant the right seeds.

Buist's are Quality Seeds. They are the seeds that will make *your* garden just what you have always wanted.

BUIST'S FREE 1921 Garden Guide
Brimfull of Valuable Information

It tells how, when and what to plant—how to make a kitchen garden reduce living cost. Our prices show a material reduction at no sacrifice of quality.

Send for Your Copy To-day—It's Free

Robert Buist Company
4 and 6 South Front Street
Dept. P.
PHILADELPHIA, PA.

Biggest Garden Success

BETTER SEEDS

Dahlia Flowered Zinnia
Giant flowers, 6 in. diameter, all colors. Bloom July to frost. New. Pkt., 15 cents.

Golden Bantam Corn
Special improved strain. More and larger ears of same famous flavor. Pkt., 10 cents.

American Beauty Asters
Very new. Finest for the garden. Large Double flowers on tall stems. All colors. Pkt., 10 cents.

Crisp-as-Ice Lettuce
Gives better satisfaction in home-garden than any other variety. Pkt., 10 cents.

Early Flowering Sweet Peas
Bloom outside in 60 days. Orchid flowering. All colors. Pkt., 15 cents.

Send for illustrated catalogue. Better seeds of new and standard varieties.

HART & VICK, Inc.
40 Stone Street Rochester, N. Y.

Easier, Faster and Better Gardening

Plowing, cultivating, mowing, hauling—any small tillage task—is done quickly and economically by Beeman with its many hitches. Besides, every owner gets 4 H. P. on the belt with—

America's Pioneer Small Tractor

Proved by four years' use by farmers, florists, orchardists, gardeners, nurserymen, owners of big estates and suburban tracts. Does the work of a horse better and cheaper. See your Beeman dealer or write for handsome folder.

BEEMAN TRACTOR CO.
306 Sixth Ave., South Minneapolis, Minn.

BEEMAN
Multi-Service Tractor

Strawberries *for Health and Wealth*

Raise Large, Luscious Strawberries from spring to late fall. Set these strong, heavy rooted WHITTEN plants. Then you assure yourself a crop of wonderful berries for your own table and the market.

$500 to $1500 Profits Per Acre

Heavy demand always. You can realize big money, too. Our 30 years of Berry Culture assures you better berries, bigger yields. Write today for Free Catalog and interesting literature about the marvelous EATON and COLLINS Strawberries, and all standard varieties. We also offer Raspberries, Blackberries and other small fruits.

C. E. WHITTEN & SON, Box 10, Bridgman, Mich.

De Lue's GOLDEN GIANT SWEET CORN
TRADE MARK REGISTERED
New Early Hybrid

This new corn furnishes the sweetest and most luscious creamy nutriment you can imagine. Acclaimed the **most important horticultural acquisition** of recent years. **Awarded the only medal** given for sweet corn by the Mass. Horticultural Society in nearly 100 years. **DeLue's Golden Giant** is the result of **15 years' selection** from the product of Howling Mob crossed with Golden Bantam and combines **all the good points** of both parents—**without their faults.**

Stalks very short and stout near the ground. Two to three ears; 8 to 9 inches long; cob of small diameter, carrying from 12 to 22 rows of long, broad kernels of deep orange color. Remains tender until nearly ready for seed.

It excells all other early varieties in size, productiveness and quality, and all the late varieties in quality and early maturity.

It is the one corn **for the home or market gardener who wants the greatest amount of highest quality corn in the shortest period of time from the smallest piece of land.**

Rural New Yorker. July 26, 1919.
"Golden Giant sweet corn is a vast improvement on the popular Golden Bantam."

Corn and Strawberry circulars sent with order
Prices: 2 oz. 25c.; 4 oz. 40c.; 8 oz. 65c.; 1 lb. $1.00; 5 lbs. $4.00; 10 lbs. $7.00; 25 lbs. $15.00; 50 lbs. $25.00

Send check or money order, no stamps

The DeLue Experimental Farm
Dept. B. Needham, Mass.

The King of Commerce Dahlia!

Never put into competition but **once** (Trial Grounds, Storrs, Conn.,) and then received a **Certificate of Merit** from the American Dahlia Society.

Limited amount of this stock will be disseminated Spring, 1921. Orders taken now—$5.00 per divided root, $50.00 a dozen. Description—True Decorative type; an iridescent Tango Color with Golden Suffusion; large size on an **exceeding** long stem and **always** in bloom. Has never been known to drop petals.

975 other varieties of fine Dahlias. Catalogue free.

INDIANA DAHLIA FARM
New Albany Ind.

Morris Nurseries

Our newest catalogue paints with words the magic of nature. It is best equipped to guide you in your selections—whether they be the charm of evergreens, trees, or flowering shrubs. No garden is complete without the Calycanthus or sweet shrub. Now is the time to get this catalogue. The Spring Planting Season is fast approaching. Write to-day.

THE MORRIS NURSERY
Box 804, West Chester, Pa.

Stewart's IRON FENCE
STANDARD OF THE WORLD

Iron Fence and Entrance Gates

in many designs for town houses, suburban homes and country estates. Designs to harmonize with architectural lines of any building.

We invite correspondence with those who are interested.

Write for book of designs.

The Stewart Iron Works Co., Inc.
"The World's Greatest Iron Fence Builders"
220 Stewart Block Cincinnati, Ohio
Sales and construction representatives in principal cities

USUALLY BEARS FIRST YEAR PLANTED

Always the Second Year

Breaks Records the Third Year

Do you ask stronger evidence, read this:

403 Perfect peaches on 4 year old tree.

Mr. C. E. Strawbridge, of Lima, Ohio, writes us under date of August 25, 1920, as follows: "On April 10, 1916, I set out one of your new Rochester Peach trees. Last year we picked 5 peaches from it, each averaging the size of an average tea cup. **THIS YEAR WE HAVE PICKED EXACTLY 403 LARGE PEACHES FROM THIS ONE TREE.** Many people have seen this tree, and can hardly believe their own eyes. One of its admirers was Postmaster J. E. Sullivan who wants me to put him in touch with the **"FELLOWS WHO HAVE SUCH TREES FOR SALE."**

TREES planted in Spring, 1918, bore 150 to 200 peaches past summer.

THE EARLIEST YELLOW FREESTONE PEACH KNOWN

"Rochester is greatest money making peach in the world."—Statement by large orchardist.

Originated in Rochester, New York, tree is a strong, upright grower, **has stood sixteen degrees below zero and produced a full crop,** while the Elberta and Crawford, under the same conditions in the same orchard, produced no blossoms and consequently no fruit.

Mr. Yarker, Greece, N. Y., who has an orchard of 500 trees, reports 17 peaches picked in August from a tree planted the previous spring.

Mr. C. M. Thomas, 215 W. 40th St., Savannah, Ga., purchased a Rochester Peach from us last February, and picked the first fruit in July.

☞ **We are headquarters for genuine Rochester Peach.**

Price, medium size, 3–4 feet, $1.00 each; $10.00 per 12. Extra size, 4–6 feet, $1.50 each; $15.00 per 12.

CATALOGUE—For descriptions and prices of a complete list of Glenwood products, send for a copy of our 1921 catalogue of Dependable Trees and Plants—it's free.

GLEN BROS., Inc., Glenwood Nursery, Established 1866
Rochester, N. Y.

Old Friends and New

is a catalogue of helpful ways of arranging plants to express your ideas. It illustrates in color some of Long Island's beautiful gardens designed by foremost landscape architects, as Olmsted Bros., Brookline, Mass., and Miss Ellen Shipman, New York. A copy of this booklet will be mailed promptly on receipt of your request.

Hicks Nurseries are ready to help you with plants that will immediately make your landscape what you want it to be. Shade trees and evergreens, 25 feet high, shipped 1000 miles and satisfactory growth guaranteed. They save you 15 years. Hundreds of carloads of these time-saving trees have been shipped; they are economical in time and money. Time-saving fruit trees, three years older than usual, have been transplanted and pruned for good results in your orchard.

A group of Evergreens to shut out the busy street, or form a background for the flower garden and separate it from the service court, is one of the things Hicks Nurseries can supply to perfection. Here are thousands of evergreens, root-pruned, transplanted wide apart and pruned to uniform shape.

New and rare trees, shrubs and flowers from the Arnold Arboretum, Highland Park, Rochester, and elsewhere will delight garden lovers.

Cover plants to creep over the ground and give pleasure with berries and evergreen foliage are a new feature of the Hicks Nurseries. Azaleas, red flowering Dogwood, Canadian Yew, Silver Bell, and many other plants are suitable for decorating the woodland.

Pruned lindens and hornbeams for pleached alleys are just the thing for entrance court or terrace. For seashore, or dry, acid hills, Hicks Nurseries have large trees, and also small trees at low rates. You are entitled to the best and the newest plants approved by garden experts and landscape architects. You will find such plants at Hicks Nurseries.

HICKS NURSERIES
Box M, Westbury, L. I., New York

The Cover of our 1921 Catalogue
Illustrated Above
reproduces in four colors a field of *gladioli* on our Michigan farm.

50 Colored Plates of Flowers
besides articles by national authorities on gardening, are contained in this home garden handbook.

Sent with every order, or a postcard brings it to your door, free

For a Garden of Gladioli

RARELY are flowers of the highest merit the most easily grown and surest of success. But such is the case with the gladiolus. If there is room for but a single flower in the garden, it should be this.

As a cut flower it is supreme. Its spikes, frequently bearing twenty buds, if cut as the lowest opens and placed in water, will keep fresh until all open. A planting of bulbs, dug each fall and carefully stored, will constantly increase.

Our fields of gladioli in Michigan and Illinois cover hundreds of acres. They include all the finest varieties, many originated by us, with a wonderful range of colors in innumerable combinations, and giant blossoms of all the beautiful types.

Our RAINBOW MIXTURE, all large bulbs, 1½ to 1¾ inches in diameter, prepaid to 600 miles from Chicago or New York.

D1— 20 best kinds, each different $1.00
D2— 3 sets of D1 (60 bulbs) 2.50
D3—125 bulbs, 30 kinds 5.00
D4—Homewood mixture, 50 *medium* bulbs, but all bloomers, not less than 5 colors 1.00

If you live more than 600 miles from Chicago or New York, ADD 10 CENTS FOR EACH DOLLAR'S worth ordered.

VAUGHAN'S SEED STORE
10-12 W. Randolph St., Chicago 41-43 Barclay St., New York

RIPE TOMATOES

Earlier Than You Ever Had Before

Hundreds of Market Gardeners are more than doubling their profits by using my wonderful Plant Forcing devices. Don't be satisfied with a garden like the other fellow—beat him to it. No matter how backward the spring, it's easy with

The Ball Seed & Plant Forcer

cheap enough to use them by the thousands. Send for my Beautiful Free BOOK. HOW to GROW BIGGER, BETTER and EARLIER CROPS than you ever had before. It gives you gardening information found in no other publication. It tells you how you can have a garden with flowers in full bloom and vegetables for your table a month earlier than you ever had before. Just drop me a postcard and I'll send you your copy by return mail.

THE BALL MANUFACTURING COMPANY
Department "E" Glenside, Pa.

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FLOWERS for EVERYBODY

CATALOG FREE

Plan for a beautiful garden this year. We can help you. Our Roses, Hardy Flowers, Shrubbery and Seeds in large variety at very reasonable prices, delivered free everywhere. Write today for illustrated Catalog No. 16.

The Sidney Floral Co.
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Gorgeous Iris Collection

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Do you know that you can obtain more health, pleasure and profit from a garden of strawberries and raspberries than from any equal amount of land on your place? My beautiful new Catalogue greets you with a smile, and tells you something about ourselves and our favorable location where soil and climate combine to produce plants of superior quality.

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It tells: How to select varieties best adapted to your soil and needs. How to prepare the soil for planting. When to plant. The different systems of small fruit growing. How to plant. How to care for the patch. How to pick and market the fruit so as to obtain the highest prices. How to renew the patch. It is a Fruit Grower's Guide and whether you buy your plants of us or not you will need this helpful book—Nevins' "Success with Small Fruits." Send for your copy to-day. A postal will bring it.

Elmer H. Nevins
Bush Fruit and Strawberry Specialist
Ovid, Mich.

(Continued from page 356)

of 1909, and the careful observer has no difficulty in guessing the significance of each thoughtfully given name. When we came to Quaker Lady, Mrs. Pleas told me that the beautiful, delicate flower was her mother's namesake.

My own garden is a perennial reminder of that red-letter morning spent with Mrs. Pleas, for in it grow more than five hundred varieties of Peony, of which not a few originated in the gardens of Spiceland.

L. J. GERMANN.

PROTECTING THE HERBACEOUS BORDER

IT TAKES quite a little discrimination to give adequate protection to tender Perennials, and winter them successfully. If one uses too much covering, a mild, damp spell will do as much damage as heavy freezing; a very practical method is to lay some heavy brush over the plants, putting the mulching material over this. The brush should be heavy enough to keep the protecting material up from the plants, and if it does get matted down with heavy rains or snow it should be shaken up a little. Campanulas, Anemones, Anchusas, Delphiniums, and beds of Lilies winter best when protected in this way.

A heavy mulching of manure may be applied to the beds of bulbs as soon as the ground freezes —not before—not only for protection, but as a food for the bulbs which continue to make roots practically all winter.

The strawberry patch should also have a mulch of manure applied; and a light covering of salt hay over the plants—just enough to keep the sun off—is of benefit. A few sticks or heavy brush will prevent its blowing away.

SOWING SWEET PEAS

FOR the earliest flowers Sweet Peas must be sown as early as the ground can possibly be worked; and in the cold sections some sort of protection is necessary. The method outlined below has been well tried. Seeds are sown in the open and in a trench, a board a foot wide being attached to light stakes on each side of the trench. When the ground freezes the space between the boards is filled up with dry leaves, and another board fastened to the upper edges of the sides, to keep out the wet; then litter may be placed at both sides of the trench, the depth of the boards. During mild weather the top board may be removed, also the leaves, to admit air to the plants. The trenches are prepared the same as for spring planting, but since one has more time to devote to the work the trench should be carefully prepared. Three feet is not too deep, and don't forget the barnyard manure as the work of trenching proceeds.

For The Connoisseur

GARDEN COLLECTION OF

10 MAGNIFICENT GLADIOLI

$1.00 POSTPAID

Among these you will find some of the patricians of these lovely summer bloomers. From a small beginning, our Gladioli acreage has grown until we annually devote nearly *40 acres* to them. *Three million bulbs* represent our crop of last year, and we are going to *grow more* next season. To acquaint you with true value of bulbs of surpassing blooming power, we will mail you *Ten Fine Bulbs* (ten separately named varieties) *for One Dollar.*

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Largest Rose Growers in the World Springfield, Ohio

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ROSES
EVERGREENS
RHODODENDRONS
TREES AND SHRUBS
OLD-FASHIONED FLOWERS
FRUIT TREES AND BUSHES
SPRING-FLOWERING BULBS

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3 Packets of the best for only 25c

EVERY home and market gardener should plant Gregory's early, intermediate and late Golden Sweet Corn this year. Our three leading varieties are Bantam Evergreen, which is Golden Bantam crossed with Stowell's Evergreen, producing ears 7 to 9 inches, 12 to 14 rows. Its quality is hard to beat. Charlevoix is another delicious yellow grain corn; ears about 7 inches, of sweet, rich nutlike flavor. Our Golden Bantam, third in this assortment, is of excellent flavor and a great favorite.

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What shall the outside construction be?
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Tom Lundy—Hybrid Cactus—Beaming Red.

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We should all have a little sentiment; it is best acquired by reading the poets.
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GROWERS AND ORIGINATORS OF FINE VARIETIES OF BEARDED IRIS

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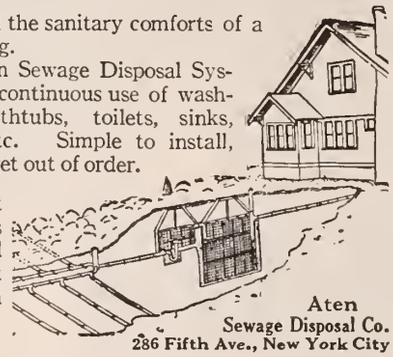
The Aten Sewage Disposal System allows continuous use of wash-stands, bathtubs, toilets, sinks, showers, etc. Simple to install, nothing to get out of order.



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ARE you already acquainted with my *Gladiolus Primulinus?* Nothing is more elegant and beautiful than my Gladiolus Primulinus, with their artistically arranged flowers, and their Oriental colors. And nothing is more bright and brilliant than my Gladiolus Chautauqua Red.

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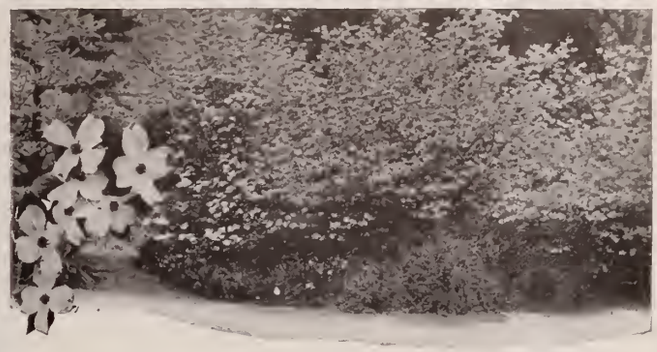

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My Catalogue for 1921

Lists practically all of the standard varieties of Dahlias, including the wonderful Slocombe Dahlias. I should be pleased to send you a copy.

Those readers who favored me with orders at any of the Fall Shows up to October 1st, will kindly send me copy of same, as the orders booked up to that time were in a brief case stolen from my machine.

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Gooseberries Currants
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Best varieties. Well-rooted and vigorous plants. Catalogue sent to you free. Write for it to-day

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Pot-grown rose bushes, on own roots, for everyone anywhere. Plant any time. Old favorites and new and rare sorts, the cream of the world's productions, "Dingee Roses" known as *the best* for 70 years. Safe delivery guaranteed anywhere in U. S. Write for a copy of

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A WONDERFUL library, covering every phase of Home Landscape Gardening, sent all charges prepaid for Free examination.

These remarkable books tell in simple words and show by over 100 attractive illustrations just how to lay out your grounds, choose plants, care for shrubbery and trees, prepare seed beds—create beautiful, harmonious, colorful surroundings on large estates and small home lots.

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Little Wonder
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No dripping!
No soiled floors or rugs.
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They are ideal for steam heated apartments or homes, because with the patented irrigator the heat just makes the plants grow faster.

PRICES AS FOLLOWS, PREPAID:
Moss baskets: 4 inch 85c; 5 inch $1.00; 6 inch $1.25; 7 inch $1.50; 9 inch $2.00.
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AMERICAN ROSE SOCIETY

New Offices Opened—Visit Portland, Oregon —The New Van Fleet Introductions —The Boston Show

THE new Secretary, Mr. John C. Wister, has opened an office in the rooms of the Pennsylvania Horticultural Society, 606 Finance Building, Philadelphia, where it is hoped the members of The American Rose Society will call when they are in Philadelphia. At a meeting of the Executive Committee held Nov. 29th last, Mr. Currey, of Portland, Oregon, presented pictures of Roses grown in Portland and showed plans of the new Test Gardens there. Mr. Pennock urged that an attempt be made to have The American Rose Society visit the Portland Rose Festival as a body, and he and Mr. Currey were appointed a committee to arrange for a private excursion train for the members of The American Rose Society and their friends, to visit Portland in June, 1922. Mr. Currey promised that the hospitality of Portland would be extended to all who took this trip and that a special Rose programme would be arranged for. He believed that a trip of this kind by the Rose Society would prove of great benefit to the Society in the way of bringing in new members.

Regarding affiliation with local horticultural organizations, the following arrangement was made: no reduced rate of membership would be accepted in 1921 from affiliated members, but local societies are urged to join in a group, and in order to encourage this The American Rose Society would for every group of 10-50 members return the sum of 50 cts. per member to the local organization to be used for the purpose of encouraging Rose growing in the community; that for every group of 50-100 members seventy-five cents per member should be paid back to the organization, and for every group of more than one hundred $1 per member. It is hoped that by this scheme many organizations throughout the country will be encouraged to join The Rose Society.

Professor Corbett brought up the subject of the dissemination, through The American Rose Society, of the Dr. Van Fleet Roses raised in the Department of Agriculture's experimental gardens. The Department is anxious that these be distributed as quickly and as widely as possible, but under present conditions the Department cannot itself do this, nor can it sell direct to nurserymen who would propagate them. The matter of enlisting the aid of The American Rose Society was introduced some time ago, and at this meeting it was officially discussed from all its angles, and was finally turned over to a committee with power to act.

An invitation from the Massachusetts Horticultural Society to coöperate in the Rose Show to be held in Boston in April, 1921, was read and referred to a special committee for definite action.

The present membership of the Society is reported as more than twenty-five hundred, and it is hoped the advance in dues from $2.00 to $3.00 will not materially affect this number.

The demand for back copies of the Rose Annuals continues great and the supply has become so diminished that the price has been advanced to $3.00 a copy for the 1917, 1918, 1919, and 1920 Annuals and $5.00 a copy for the 1916 edition. The 1921 Annual will be published in March, an edition of three thousand being authorized.

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Every year, for 34 years, thousands of people have adopted Olds' Catalog as their farm and garden guide. The carefully tested and selected seeds it offers have produced heavy field crops and successful gardens everywhere. Customers have long since learned that

Olds' Catalog Tells the Truth

Its descriptions, both in word and picture, are truthful in every respect. You can positively depend on garden, flower and field seeds, potatoes, plants and bulbs listed in this book being exactly as represented. All seeds conform to the strict Wisconsin seed laws. When you buy Olds' seeds, good yields are assured from the seed standpoint. You take no chances.

Write for This Book To-night

A postal will do. But don't delay. Start right with right seeds.

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BRING THE BIRDS

Put out houses for the birds before they arrive. The one here shown, for Bluebirds or Wrens, has four rooms. Socket in bottom for pole makes it easy to erect. If suspended for Wrens the socket is covered by a rosette. Sure to please both birds and purchaser.

No. 36. Price $6.00

Give the birds a few log houses just such as they find in the natural forest, $1.20 each, three for $3.00. Mailing weight three pounds each.
Prices f. o. b. Verona.

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Has automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No salves. No lies. Durable, cheap. Sent on trial to prove it. Protected by U. S. patents. Catalog and measure blanks mailed free. Send name and address today.
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Wagner Hardy Flowers, Roses, Shrubs and Evergreens in great variety are shown in our profusely illustrated catalogue. Every garden lover should have this for reference.

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Sturtevant's Ready Reference Cards for Garden Flowers

$1.00 per set of 25

A list selected for succession of bloom and ease of cultivation. Full directions for treatment, attractive descriptions and UNUSUAL suggestions for effective planting.

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The following special offers will be sent postpaid. All are full sized bulbs grown for exhibition purposes.

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2 each Myrtle, Mrs. Frank Pendleton, Mrs. W. E. Fryer, Mrs. G. W. Moulton, Lilywhite, Marie Tennell (all Kunderd's) $1.25.
1 each Kunderd's Beautiful Primulinus Hybrids, Alice Tiplady, Attaic, Myra, Capella, Topaz, $1.50.
1 each Crimson Glow, Blue Jay, White Giant, Prince of Wales, Goliath, Loveliness, $1.50.
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I will appreciate your orders and fill them conscientiously, in due time

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Resist Heat Better

We grow quite a large number of the best Dahlias in all classes under conditions that give them a peculiar drouth resistance. May we mail you a copy of our complete price list describing our stocks?

Let me suggest that you plan to grow in your 1921 Garden

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The distinctive growth of the plant and the unusual beauty and wonderful colors of the blooms will hold your interest from June to October.

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can be had in many different varieties, with colors from waxy white to crimson and royal purple. Anyone can have a water-garden; the requirements are so simple. Ask for our catalogue, and let it show you how—sent free on request.

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Success Depends on Perfect, Carefully Selected Stock

This Spring we offer a finer selection than ever before of Strawberries, giant Raspberries and Blackberries, sturdy Currants and Gooseberries, strong, well-rooted Grapes and all kinds of hardy Garden Roots. If you are at all interested in Berries, ask our Berry Specialist for free advice.

You will also find a complete assortment of Ornamental Plants offered in our attractively illustrated catalogue No. 101, which will be sent without cost to all inquirers.

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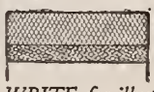

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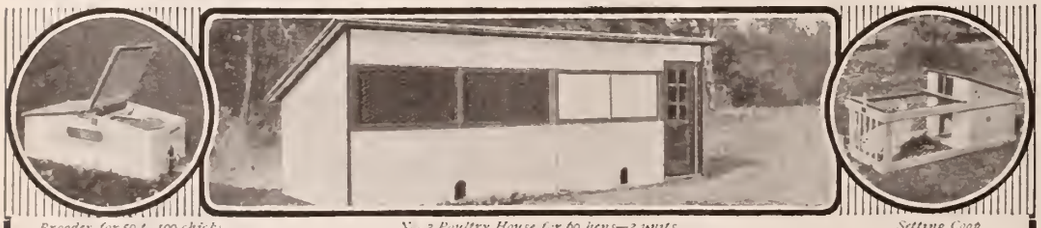

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