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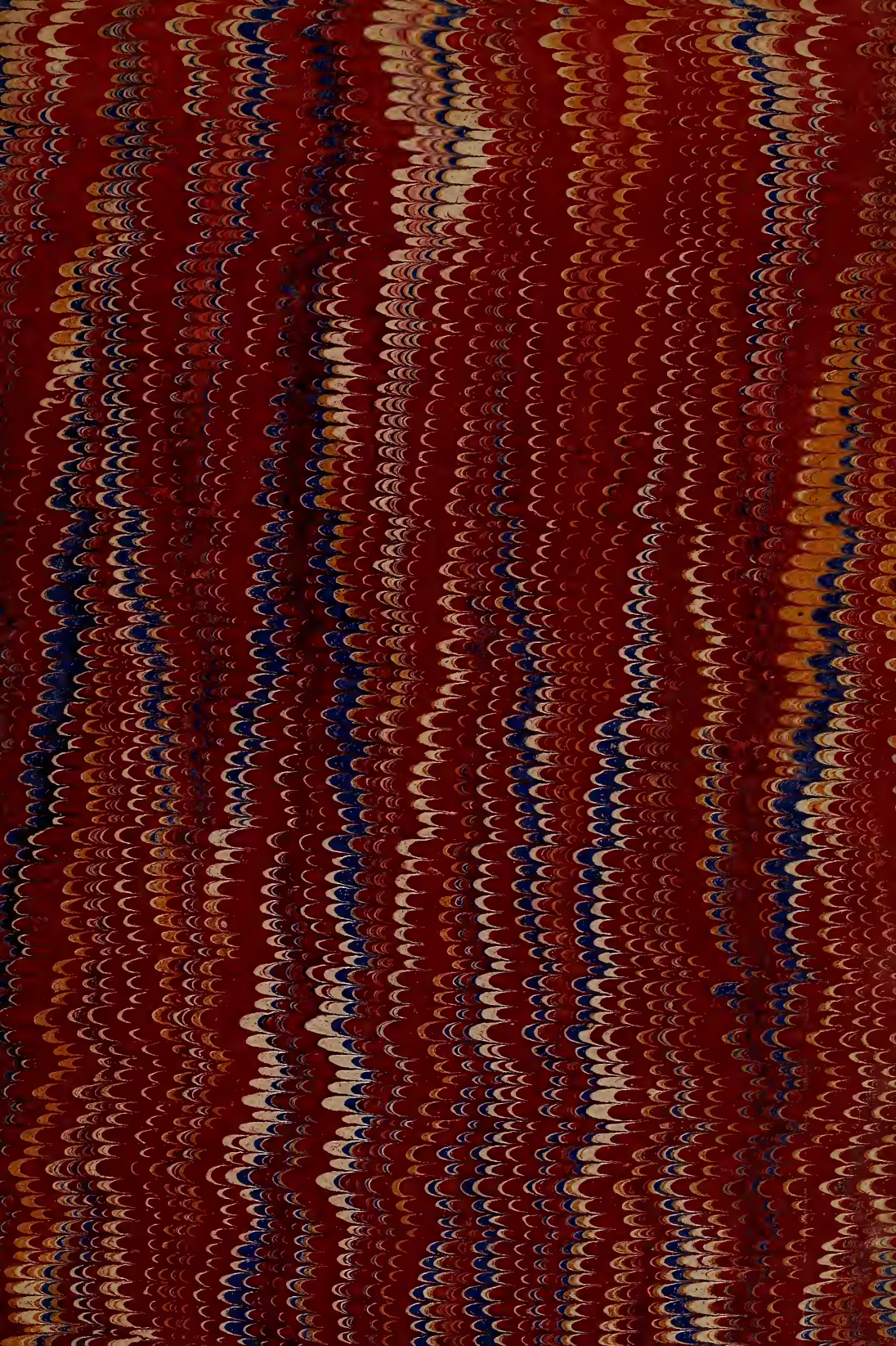
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EXTRACT

*From an Act prescribing Rules for the Government of the State Library,
passed March 8th, 1861.*

SECTION 11. The Librarian shall cause to be kept a register of all books issued and returned; and all books taken by the members of the Legislature, or its officers, shall be returned at the close of the session. If any person injure or fail to return any book taken from the Library, he shall forfeit and pay to the Librarian, for the benefit of the Library, three times the value thereof; and before the Controller shall issue his warrant in favor of any member or officer of the Legislature, or of this State, for his per diem, allowance, or salary, he shall be satisfied that such member or officer has returned all books taken out of the Library by him, and has settled all accounts for injuring such books or otherwise.

SEC. 15. Books may be taken from the Library by the members of the Legislature and its officers during the session of the same, and at any time by the Governor and the officers of the Executive Department of this State, who are required to keep their offices at the seat of government, the Justices of the Supreme Court, the Attorney-General, and the Trustees of the Library.





THE

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California Horticulturist

INT. 1893V. 1898.

AND

FLORAL MAGAZINE.

VOLUME V.—1875.



PUBLISHED BY JOHN H. CARMANY & CO.

No. 409 WASHINGTON STREET, OPPOSITE THE POST-OFFICE,

SAN FRANCISCO, CAL.

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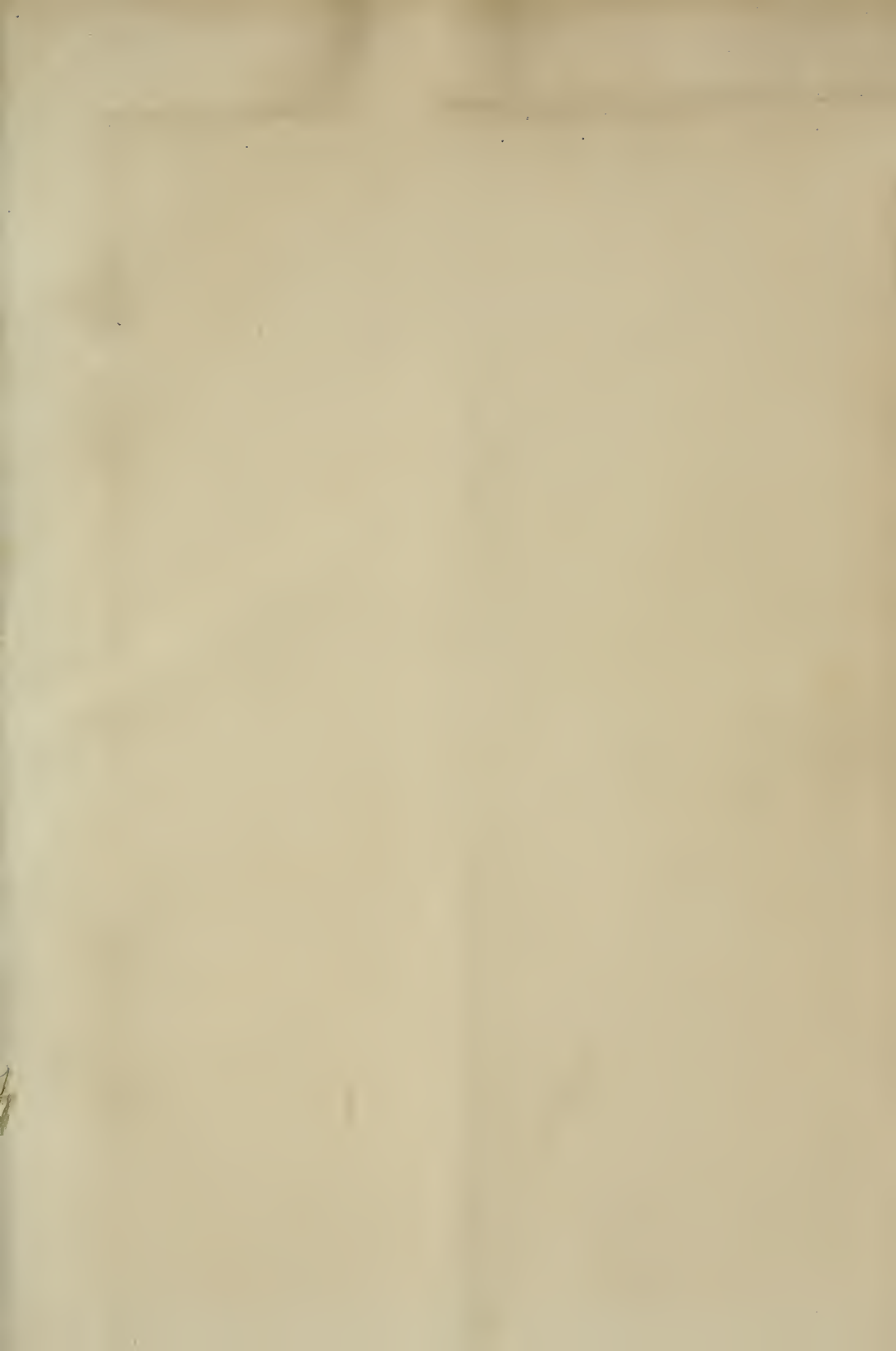
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OAK KNOLL. NAPA.

Watkins Photo.

OAK KNOLL, NAPA COUNTY, CALIFORNIA.

Country Residence of R. B. Woodward, Esq., Proprietor Woodward's Gardens, San Francisco.

For California Horticulturist.

Painted from a sketch by Joseph Lee, Esq., 1854.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, JANUARY, 1875.

No. 1.

THE LILY OF THE VALLEY.

BY F. A. MILLER.

Very few plants enjoy a greater popularity than the Lily of the Valley (*Convallaria majalis*) and the number of plants furnished annually by the bulb-growers of Holland is enormously large, which fact in itself goes far to prove that it has become a universal favorite. *The Garden*, of London, in a recent article on the subject, says: "Fortunes are being built up on this humble plant; it employs thousands for several months in the year, in this and other countries; it is the most favored of all the plants that come into Covent Garden Market, in the winter and spring months; and, loaded with little green-tipped lumps of white, is undeniably a queen among flowers." Most of our people here are under the impression that the roots exposed for sale are simply dug up from the forests of Europe. This is not the case. The roots offered here are especially grown for market.

So far but few persons have met with success in the cultivation of this pretty plant, but the failure must be attributed, first, to very inferior roots, containing no flower-buds; and secondly, to im-

proper treatment. The roots are sent out as single crowns or in clumps; the latter are masses of flowering and leaf crowns. Single crowns have no soil attached, and are apt to suffer from the effects of a long journey. In purchasing these, the crown should be carefully examined, and if found plump and firmly attached to the root, its healthy condition can be relied upon. Frequently I have seen crowns offered for sale, which were simply leaf-buds, and would not produce any flowers. The two are easily distinguished; the flowering-crown is much larger and more roundish than the leaf-crown. A very little experience will enable anyone to distinguish one from the other.

Clumps generally reach us in much better condition, and are therefore reliable, unless they were previously used for forcing, which operation exhausts the roots for at least one year. It is also very important that the roots should not be taken up from the ground until after some heavy frosts in autumn.

Our first attempt at cultivating the Lily of the Valley for this market during last year was a complete success. We received our clumps during the last week of December, and we had

them profusely in bloom from the 15th of January to the 1st of May. They met with a very ready sale, and we were much encouraged to continue their cultivation more extensively. During the present season we received an invoice of crowns and clumps as early as November 1st; the crowns were very much damaged, and the clumps were inferior. During the last week of December we received a second and very large invoice of both crowns and clumps. In unpacking them we found them frozen, notwithstanding their having been in this mild climate for over a week. However, their condition was most excellent, and those which were transferred into a warm-house are already showing their graceful snowy-white bells, and we shall be enabled to have them in bloom from this time until the 1st of May.

To bring flowering crowns or clumps into bloom is most simple, and anyone can succeed by planting them in almost any kind of soil. By giving them a position in the greenhouse or any warm room, they will come into flower much earlier than if placed in a cold room or out-of-doors. They require a liberal supply of moisture, particularly if cultivated in a warm room.

But to establish the Lily of the Valley out-of-doors seems not to be thoroughly understood here as yet. I apprehend no difficulty in making it at home in our gardens, if reasonable care can be bestowed upon it. Imported roots are generally planted in pots, until they have passed their flowering season. No sooner are the flowers decayed than the plant is totally neglected, the leaves die off for want of water and attention, and within a short period of time nothing is left except an exhausted and dried-out root, which can not be expected to regain vitality. In this con-

dition it will finally find its way to some out-of-the-way place in the garden, never to show life again.

To those who wish to perpetuate the Lily of the Valley in their gardens, I would say: Treat the plant after flowering as liberally as before and during its flowering season. Let the foliage decay under the same treatment. Transplant into a warm and shady place, well protected from our strong winds. Before planting out, work the soil over to the depth of eighteen inches, and give a good top-dressing of very old decomposed stable-manure. Place a stake beside it, in order that some well-to-do gardener may spare the root in digging over the ground; and I am quite certain its glossy leaves will make their appearance in due time, and another year's grace will surprise you with a very respectable harvest of the sweetest flowers of all. In accomplishing this much you have domesticated the Lily of the Valley.

TRANSPLANTING EVERGREENS.

In removing evergreens from the nursery great care must be taken not to allow the roots to become dried. More trees are lost in transplanting them from this one cause than from all others put together. They should, if possible, be puddled as soon as they are taken up; but at any rate puddled when received—a process which excludes the air from the roots and keeps them moist. Puddling is dipping the roots into a mixture of finely pulverized soil and water made into the consistence of thick cream, which adheres to and incases the roots and protects them from the injury otherwise arising from exposure to the atmosphere.

The trees should be planted with the least possible delay, and the earth well

pulverized before being thrown over the roots. During the filling in, the tree, if not too large, should be shaken up and down so that the earth may fill up the interstices between the roots; and the earth should, afterward, be well trodden down. If the roots have not been puddled it is better not to tread down; but, when the hole has been two-thirds filled, pour in sufficient water to well soak the soil and cause it to settle about the roots. When the water has well soaked away, fill in the remaining soil, and this will absorb any overplus of water and prevent the surface from becoming baked. If the surface soil becomes hard and baked it prevents the moisture of the soil below from being drawn up, and also prevents the air from filtrating through the soil to the roots. Should the weather be dry or hot, it may be necessary, in ten days or a fortnight after the trees are planted, to draw the earth away from the tree to a depth of three or four inches and give another good watering, and, when the water has soaked in again, return the soil. Never use soap-suds, manure-water, or any liquid except pure water, to newly transplanted trees; nor apply any manure, earth from the woods or wood-piles, or any other ingredient, to them in this operation. Nothing more is required than good fresh earth and water; anything else is positively injurious, if not certain death to them. After transplanting the trees should be firmly staked, to secure them from the action of high winds, which, by rocking them to and fro, prevent the young roots from properly taking hold of the soil and furnishing the tree with suitable nourishment by absorbing from the earth the moisture so necessary to its existence.

The operation of transplanting is a very simple one, and there are none of

the mysteries about it in which many ignorant people believe. Its success consists in preserving as many roots as possible on the tree; never allowing them to become dried; making the fresh soil in which they are planted as nearly firm as can be to that in which they were previously growing, and preserving a sufficient moisture in the new soil to insure rapid root-making. Mutilated roots, like cuttings, will not make new roots unless they have a proper supply of moisture, and not when in contact with decomposing manure or similar materials. In re-potting greenhouse plants the case is different, as then the roots are all intact (or should be), and they immediately begin to absorb the stronger plant-food. But it is impossible to remove a tree of any usual size for transplanting, without in some degree depriving it of its roots. The more carefully, therefore, these are retained and preserved, the more likely is the operation of transplanting to prove successful.—*The American Garden.*

THE OAK (*Quercus Robur*).

BY E. J. HOOPER.

Artists divide the greater number of trees into four distinct classes: the round-topped, as the Oak and Elm, the Chestnut, Willow, Ash, and Beech; the spiny-topped, which includes different species of the Fir tribe; the shaggy-topped, comprehending those of the Pine; and the slender-formed, as the Lombardy Poplar, California Pepper-tree, and the Cypress.

With regard to the Oak, in California, we have two deciduous Oaks (fruit annual), White Oak, Burr Oak (*Quercus Lobarta*, Nee.), and White Oak (*Qu. Douglasii*, var. *Gambelii*, Nutt.); the first generally found in the valleys, and the last in gravelly soils.

Of Evergreen Oaks (fruit annual), we have the common Live-oak (*Qu. Agrifolia*, Nee.), and the Mountain Live-oak (*Qu. chrysolepis*, Liebm.); the first frequent in valleys, and the last on hills near the coast.

Of the Black Oak, deciduous (fruit biennial), *Qu. Sonomensis*, Benth., inhabiting hill-sides.

Of Evergreen Oaks (fruit biennial), we have the Live-oak (*Qu. Wislizeni*, Engelm.) in the northern valleys, and Chestnut Oak (*Qu. densiflora*, Hook.) in the Redwoods.

We have, also, several shrubby Oaks. The Oak stands foremost both in dignity and grandeur; pre-eminent, like the lion among animals, and as the eagle among birds. Beauty united to strength is everywhere developed; its leaves, elegant in outline, are strongly ribbed, and firmly attached to the branches, which, although individually slender and excur-sive, are bold and determined in their aggregate; while the abrupt and tortuous irregularity of the massive boughs that start from its giant trunk are strongly contrasted with the density and richness of its luxuriant foliage. Who has not thrilled with gratification, and even with ecstasy, as I did the last summer, when visiting Oak-wooded and Oak-knolled Napa Valley, listening to the wind whispering among the branches, causing the leaves to strike one against another, where cooing doves answered their mates from out their branches, the busy woodpeckers tapped on their trunks, and the restless blue-jay fitted from one tree to the other? And thus, one may say, men have fabled that trees could speak, and thought them worthy of double honor. But the Oak has ever been pre-eminent. Poets have sung concerning it, from the earliest periods in this world's history. The Greeks bestowed upon it appropriate

honors, and from the smallest of its twigs was composed the Roman civic crown. Nuptial processions were graced with its boughs, and men carried them on commemorative days as emblems of victory. Ancient poets, equally with those of modern times, sung concerning this majestic tree. The former even attributed to it not only vegetative power, which imparts, especially in the Live-oak, eternal duration, but that it was inhabited by Dryads and Hamadryads. Some such, they sung, loved as we do to haunt these greenwood shades, and to wander by their often-accompanying clear streams; or, looking tranquilly from their fostering trees, passed a dreamy existence, as some of us do, at least for a time, in listening to the soothing sound of the winds and zephyrs among their leaves. The painter, also, selects from Oaks those tablets on which he embodies his imperishable thoughts. Salvator Rosa made great use of old Oak-trees. He liked to contrast them with young saplings. Their gnarled boughs and gray trunks look well in wild scenes, in depicting which, like our Hill, and Keith, and Bush, he so much excelled.

Observe in their pictures the bright velvet Moss that they have stationed around the roots of the Oak. Brimstone-colored lichens succeed, and extend up the trunk; some are smooth and spreading, and seem imbedded in the bark; others are rough, and hang in small rich knots and fringes; and with these are intermingled a nearly white lichen, beautiful in the contrast which it presents, and denoting that the vigor of the tree is about to fail. Different kinds of Mosses also congregate upon the bark; some dark green, others of a rich brown hue or nearly black, others of a dingy orange; others inclining to red, and even to bright yellow, resem-

bling gleams of sunshine. In this brotherhood of parasitic plants, different species blend with one another: the knotted brimstone-tinted lichens cling to an ash-gray species; these giving to the rough and furrowed trunk a peculiar character of sylvan beauty. Immense masses of rocks are seen in the Californian scenes of our artists, scattered in all directions, and in their midst, either growing among them, or else seeming to spring from out their interstices, arise wildly and widely scattered a grove of dwarf Oak-trees.

These old Oaks can tell many strange histories of Indian times, concerning the chipping of stone arrow-heads, and the fashioning of mortars and pestles, and other implements of both peace and war. Those trees have sheltered many generations of confiding birds, too; they have showered myriads of acorns from their good green boughs, and some, which the squirrel has buried for his winter store and then forgotten, have sprung up, and furnished timber and fine wood for our present generation.

"Ponderous and stately stood the firm old tree,

'Mid the thick groves, where moss-entwined and gray

The brotherhood stood round, with lichen tufts
Depending from their boughs, which up and out
Fantastically grew, and made a gloom
E'en at the cheerful hour of bright noonday."

GEORGE HOOD has in the town of Santa Rosa two Catawba Grape-vines seven years old, from a graft on a Mission Grape stalk; they have been trained upon a trellis-work, and cover a space of about 1,400 square feet. From these vines, in the yard of an ordinary town lot, Mr. Hood took a ton of Grapes. The success of this experiment should encourage further effort.

DAS VEILCHEN.

FROM GOETHE.

Lonely and sweet a violet grew
The meadow weeds among.
One morn a rosy shepherd maid,
With careless heart and idle tread,
Came by,
Came by
The meadow lands, and sung.

"Ah!" said the violet, "would I were
Some stately garden flower!
Then I might gathered be, and pressed
One little hour to her sweet breast!

Ah, me!

Ah, me!

Only one little hour!"

On came the rosy shepherd lass
With heart that idly beat,
And crushed the violet in the grass.
It only said, "How sweet!
How sweet!" it said, with fainting moan,
"If I must die, to die alone

For her,

For her—

To die at her dear feet."

Old and New.

RAISING PELARGONIUMS.

Mr. Sisley, well known as the originator of several choice varieties of double zonal Pelargoniums, describes his practice thus:

"My friend Carriere, speaking of my double white zonal in the *Revue Horticole* of Oct. 1st, says that it is the result of scientific combinations. I must decline to accept this encomium, and am willing to make the horticultural world acquainted with my very simple practice, which I have never kept a secret. When, six years ago, I began the artificial fertilization of zonal Pelargoniums, I procured about fifty of the best varieties of single-flowered zonal Pelargoniums of different colors, and about 200 plants of the then-existing double-flowered varieties. And until 1870 I continued to buy all the new double varie-

ties that were brought out, and all the single-flowered sorts which were of different shades from those in my collection. Without any preconceived theory I fertilized all the single-flowered with the pollen of the double ones which had stamens.

"For three years I did not obtain a seedling worth mentioning, and I was on the eve of giving up artificial fecundation, when 1869 I obtained *Victoire de Lyons* and *Clemence Royer*, which, although not perfect in form, were very different in color from any double zonal *Pelargoniums* then produced. This led me to continue my efforts. I have not learned by my practice anything that can be called a theory, because among my seedlings coming from the same mother and the same father I have found them all differing from one another. My double white is the produce of a single white (one of my seedlings, second or third generation) by a double red; but four other seedlings from the same fecundation are either white, pink, or red, and all single flowers.

"And in this there is nothing astonishing. Why should the laws of nature vary and act differently in the vegetable world from what they do in the animal world? Nature and science have not yet taught us why the offspring of the same father and the same mother are always different from one another, notwithstanding their family likeness. And it is very likely that man will always be ignorant of this. The only thing I know and every horticulturist knows, is, that to obtain double flowers, single flowers must be fertilized by double."

THE APPLE CROP.—The largest Apple crop ever known in this State is that of the year just past. There are probably four times as many Apples as can be consumed to any advantage.

SANDAL-WOOD.

The Sandal-wood of commerce is the product of various trees belonging to the genus *Santalum*, and the species called *Santalum album* for a long time furnished the principal supply. Being a hard, close-grained, and ornamental wood, it is used for some descriptions of cabinet-work; and various carved ornamental and useful articles, such as writing-desks, work-boxes, card-cases, etc., are made of it. But its chief characteristic consists in the remarkable smell of the wood, which it owes to the presence of a peculiar volatile oil, extensively used by the natives of India as a perfume. This also has caused it to be largely used as incense to burn in the temples of China.

In course of time, Sandal-wood was discovered to be abundant in some of the South Sea Islands, where it is the product of several species of *Santalums* different from the long-known India one. There are about ten species of the genus, which are chiefly restricted to the East Indies, Australia, and Oceania.

The Indian species are *Santalum album* and *S. myrtifolium*. The former is a small tree from twenty to twenty-five feet high, which is found on the border of Wynaad, in the Peninsula, and in Mysore. The exports of the wood from Madras are large—to Bombay, Bengal, and the Persian Gulf. The tree grows in the islands of Sandal, Timor, Rotti, Savii, Sumba, Bali, and in the eastern part of Java, in the arid soil of the lower regions. The wood, which, in its color and texture resembles Boxwood, is much sought for as an article of commerce by the Chinese, who use the sawdust for making rings and pastiles for burning, as during combustion it exhales an agreeable odor. In Europe

Sandal-wood is chiefly used for carving and turning. In the India Museum, Whitehall, various specimens of the ornamental application of Sandal-wood in the East may be seen in boxes inlaid with ivory, a handsome carved Sandal-wood table from Bombay, and other objects. The Australian species of Sandal-wood are believed to be derived from *Santalum lanceolatum*, *oblongatum*, *obtusifolium*, *ovatum*, and *venosum*. The tree is found in Queensland and Western Australia. At the London International Exhibition of 1862, a fine log of Sandal-wood, weighing $4\frac{1}{2}$ cwt., from Blackwood River, Western Australia, was shown; and another three feet and six inches long by eleven inches diameter, from York. The Australian Sandal-wood is of an inferior quality as regards odor. In 1849 as much as 1,204 tons of Sandal-wood, valued at £10,711, were shipped from Western Australia. The merchants bought it for shipment at £6 to £6 10s. a ton. The Sandal-trees of any size within the radius of 150 miles of Perth have now been cut down, and little can be obtained.

It is probable that there are several distinct species of the tree in the South Sea Islands which have yet to be botanically determined. The tree is not found on all the islands of the Pacific. Its headquarters would appear to be among those of the south-western portion, including New Caledonia, the Loyalty Islands, New Hebrides, Espirito Santo, and some others. In the Fiji Islands, which have produced several thousand tons within the last thirty years, the tree has also become scarce. It is only the central portion of the tree which produces the scented yellow wood constituting the Sandal-wood of commerce. The trunk and larger branches are cut into lengths of from three to six feet, and the whole of the bark and outer

white wood are chipped off with the axe—an operation technically called “cleaning.” Thus a log one foot in diameter is reduced to a billet only from four to six inches thick. The quality of the wood depends on the quantity of the oil contained in it, as indicated by the smell when freshly cut or burned. The old trees produce the best, and in them that part of the wood near the root is the most prized. A handful of the shavings of the wood will prevent moths from attacking clothes of any description; and the same means may be used to keep away insects from specimens of natural history. Owing to a similar strong aromatic odor, furniture made of the fragrant timber of the bastard Sandal-wood of Australia, (*Erimophila Mitchelii*, *Bentham*) may be freed from the attacks of insects. The wood is hard, of a brown color, nicely waved, and beautifully grained. It will turn out handsome veneers for the cabinet-maker.

S. Austro-Caledonicum, of New Caledonia, furnishes a kind of Sandal-wood superior to that of other countries, owing to the strength and firmness of its odor. It is to be regretted, however, that this tree is being ruthlessly destroyed in the island, as the wood is of such great use in perfumery. Scarcely anything but the stumps and roots left from former trees can now be utilized. An essential oil, distilled in England and France from Sandal-wood, is sold at £3 per pound. The powdered wood for filling sachets and other uses is sold at 1s. per pound. The Pacific species of Sandal-wood are *S. ellipticum* and *S. Freycinetianum* (Gaudichaud), which are met with in the Sandwich Islands. The latter species is found in the high mountainous ranges of Tahiti; but the wood is of inferior quality, as it is not odoriferous, or only becomes so by age.

The wood of *Myoporum tenuifolium* (Foster) is sometimes used as a substitute for Sandal-wood. The fragrance of the fresh wood is very pleasant, but it loses its odor after being kept some time.—*The American Garden.*

THE EVERLASTING PEA.

While most people are well acquainted with the Sweet Pea, a charmingly fragrant and variously colored garden annual, but few seem to know its perennial brother, the so-called Everlasting Pea. Neither the Sweet nor the Everlasting Pea belong to the same genus with our common garden Pea, (*Pisum*), but they are, more properly speaking, Vetchlings, (*Lathyrus*,) though the difference between the two depends upon points which would only be noticed by a botanist.

The best-known of all the perennial Peas is *Lathyrus latifolius*, a native of Europe; the stems are six feet or more long, and broadly winged, the leaves consist of a pair of oval or lanceolate strongly veined leaflets, terminated by a branching tendril; the flowers are on stalks longer than the leaves, several in a cluster, large and showy, of a lively purplish-rose color. The plant flowers very freely, being in bloom nearly all summer. If planted where it has room to spread, a single specimen, growing flat upon the ground, is a handsome object; or it may be allowed to run upon a low trellis, or even over brush, and it may be introduced with a good effect in a wild part of the grounds where its stems may hang over rocks, or trail upon banks. There is a white-flowered variety, which is much more rare than the ordinary kind, probably for the reason that it does not produce seed freely. This Pea is an excellent plant for

cut-flowers for summer bouquets, and for that reason is well worth growing for that purpose alone. A related species, *L. grandiflorus*, has larger flowers, but only two or three in a cluster. The seeds of the Everlasting Pea may be sown in spring, or if they can be obtained early in the fall, and then sown, they will before winter make plants large enough to flower the next year. Well-established plants may be multiplied by dividing the roots.—*American Agriculturist.*

AMPELOPSIS TUBEROSA AND NAPIFORMIS.

A. Tuberosa, though not quite hardy, is a plant well deserving of attention; it has slender branches and smooth, glossy, much-divided leaves. Its roots, which are tuberous, are generally united together at the shoulders into an irregular mass, deep red or brownish in color; in texture they are cellular, and contain a good deal of mucilage something like that found in the roots of the Chinese Yam. *A. napiformis* is a hardier plant than *A. tuberosa*, but closely resembles it in appearance, and, like it is deciduous. Its roots, which are turnip-shaped, are arranged in clusters, fleshy and brittle, and covered with a wrinkled, brownish skin. They are also abundantly stored with mucilage, similar to that of *A. tuberosa*. Both of these species of *Ampelopsis*, which are natives of China, may be increased by means of cuttings put in in spring, and struck under a bell-glass. A peaty soil suits them best when young; but when established they may be planted out-of-doors in summer, when they will succeed in good garden mold. Both kinds possess considerable interest as out-door climbers in warm situations.—*Revue Horticole.*

POETRY OF FLOWERS.

BY AN AMATEUR.

Where would the poet find his images of beauty, if flowers were to perish? They are the emblems of loveliness and innocence, the living types of all that is pleasing and graceful. We compare young lips to the Rose, and the white brow to the Lily; the winning eye is as blue as the Violet, and the sweet voice is a breeze kissing its way through the flowers.

There is no land where flowers are more plentiful or flourishing than in California, or where they are more appreciated. We hang, profusely and charmingly, delicate blossoms on the ringlets of the young bride; make a floral arch under which is performed the marriage ceremony, and strew her path with flowers as she leaves the church. We place them around the marble face and loved form of the dead in the narrow casket, and they become emblems of our warmest and dearest love and affections—of pleasures remembered and hopes faded—wishes vanished, and scenes cherished in our fondest memory all the more because they can never return. We look to the far-off spring in other valleys—to the eternal summer beyond the grave, where flowers that never fade bloom in those starry fields which no chilly winter ever blew over. They come upon us in spring, and even before in our warm climate, like the remembrance of a pleasant dream—a vision that hovers above us in sleep, peopled with shadowy beauties and simple delights, embroidered with the richest hues of fancy. Sweet flowers!—that bring back again the scenes of childhood—faces remembered in youth—the love that knew not it was love! Even in our rooms they conjure up images of the mossy or shingly

bank by the river's side, where we have many a time gazed on the early pink Anemones, and where we have so often angled for the rushing trout. They recall the sheltered glen or cañons darkly green, filled with the perfume of the white Azaleas.

The flush of early flowers, and the intervals of bright but fitful sunshine in the young spring, tempt the bees to come out, and you often see one go blundering about as if he were not thoroughly awakened to the opening warmth. You wonder where he has been hiding himself during the cool weather of our mild winters, for a single glance tells you that he is a wild bee, and has a home somewhere in the thickets or chemisal or some wooded cañon. Beside the water-courses may be found the Escholtszias or California Poppies, as large as Tulips and more brilliant; and a pretty sight it is to see them mirrored in a clear stream, with the deep blue sky reflected far down below, seeming to lie like large lumps of our California gold on the water. Nor is it the early flowers alone that gives a cheerful look to the opening spring; there is a green flush upon the pastures and sides of the hills and mountains, which becomes deeper every day since the early showers of our rainy season. There is something very pleasing in looking upon the earliest tiny flowers that are the first to bloom so thickly in the green-sward and by the road-sides. Tens of thousands of them appear after our winter rains, mostly starlike and tender and delicate in all their various forms and hues. These early flowers of spring, also, bring with them sweet and sorrowful recollections, and they are fraught with the memories of childhood and youth; they bring promise of brighter days, and we know that for thousands of years they existed here in

the era when the wild Indians possessed this coast: but on them Time leaves not his gray foot-mark, as he does on us and so many other things. The revival of our spring in California affords the best opportunity of witnessing the rich effects produced by mosses, lichens, and fungi upon our Oaks, Buckeyes, Pines, etc. Here we meet with the gaudy and mingled colors of the rich green, the bright yellow, the glowing orange, the pale primrose hue, the silver gray, with browns of every tone, that go deepening down from the dusky amber to the dark hue of the more humble Buckeye, until they sink into the jetty darkness which mantles the stem of the lordly and gigantic Oak.

“CURLED LEAF” IN PEACHES. — Some time last spring I read a paragraph in some paper to the effect that the curled leaf in the Peach orchards might be prevented by scoring the trunk and limbs of the tree. I immediately tried the experiment on a fine large tree in my grounds, that had been a very prolific bearer for the past five years, but unfortunately lost nearly all of its fruit every year, in consequence of that scourge. I tried everything I could think of—plucking off the leaves, cutting off the affected branches, cleaning, and putting lime, and ashes, etc., about the roots, but all to no effect—it would ripen but little fruit. With my knife I scored the trunk and limbs all around, as high as I could reach (the fruit at that time being as large as marbles), since which not a single curled leaf has made its appearance, and the tree has just yielded a most prolific crop of unusually large and juicy fruit. I give my experiment for what it is worth, and leave to more experienced men the proof. — *Correspondence of the S. F. Call.*

THE WINDOW GARDENER.

Edward S. Rand, Jr., has written a very timely little volume, entitled *The Window Gardener*. It is not an ambitious book, and does not aspire to the dignity of an authority on Horticulture. It seeks to give, and we think does give—all the information necessary for the culture of plants in the parlor. We give the following extracts:

VENTILATION.

This must not be neglected; it is as essential to the health of the plants as to the human organization. The best method of providing it is to open the top of the window when the sun's rays are hottest on the plants. The quantity of air to be given must be proportioned to the outside temperature. In cold, cloudy days, but little, and often none, should be given. Care must be taken never to allow a direct stream of cold air to blow upon any plant.

WASHING.

This must be done frequently. A plant breathes like an animal, and not through one mouth, but thousands. As is well known, the plant draws up its food from the soil through the roots, in a liquid form. This food, very much diluted, must be concentrated, and thus assimilated to the plant. We have in the leaves of the plant a most beautiful arrangement to answer this need. They are filled with “stomata,” or breathing pores, which allow exhalation when moisture is freely supplied, and check it when the supply falls off. These little mouths are found on both sides of the leaf in most plants, but usually on the lower side in by far the greater number. They vary in different plants from several hundred to more than one hundred and fifty thousand to a square inch of leaf. Now we are careful in our

persons to bathe daily, lest, as we say, the pores of the skin become obstructed; yet we are willing to allow our plants to go unwashed for a whole winter, when the pores are much smaller, more numerous and delicate, than those of the body. The rule is obvious: wash the leaves of the plant, both under and upper sides, at least once a week; if oftener, the better. Use water moderately warm, and if the plants become very dirty, a little weak soap-suds is beneficial. This washing should be carefully done, with a soft sponge or cloth in the case of plants with thick, polished leaves, such as Camellias, Oranges, and Daphnes. Where plants have hairy leaves, or the substance is soft, water is best applied with a small syringe, fitted with a very fine "rose." To use this, place the plant on its side in the kitchen sink, syringe it well, turning it from side to side. Let it stand for a few minutes for the water to drain off, and return it to its place: it will thank you for its bath by its bright foliage. Never wet the flowers of a plant, water always injures them; nor allow drops of water to stand on any leaves in the sunshine, the rays of the sun form a focus in the drop of water and scorch the leaf. Once a month, at least, wash the stem and branches of all the hardwood plants with a soft sponge dipped in lukewarm water; this prevents the lodgment of insects, and contributes to the health of the plants.

WATERING

is one of the most difficult subjects to prescribe by rule, yet there are some rules of general application.

Let it be always done with a watering-pot with a fine rose, such as may be procured at any tinman's. The advantage of this is, it allows the water to fall drop by drop over the whole surface of the soil, whereas, if a pitcher is used,

the plants are deluged, or holes made in the earth by the stream of water, and the roots not unfrequently disturbed.

Let it be done regularly: the morning is the best time, and once a day.

The surface of the soil should never be allowed to become perfectly dry, nor should it be sodden with moisture. The temperature of the water used is of vital importance. It should neither be cold nor warm, but just the temperature of the atmosphere of the room. Thus no check, or chill, or undue excitement is given to the roots, both roots and branches being equally warm.

A good plan is, to set over night a large pan of water among your flowers; then you will be sure of a sufficiency of water of the proper temperature for the morning watering. If this is too much trouble, remember in watering, it is better to have the water too warm than too cold; that is, of a higher rather than a lower temperature than the roots and branches. Now as to the quantity of water. No rule of universal application can be prescribed. What is life to one class of plants is death to another. The amount of water necessary to make a Calla Lily thrive would kill a Cactus or a Heath, and yet the drought necessary for the Cactus would be death to the Heath.

A good rule, however, is never to allow the soil to become dusty or muddy; and with drainage in potting the latter is easily prevented; by regular waterings, the former. Particulars of treatment for different plants will be given when treating of each plant.

Never allow water to stand in the saucers of the pots unless the plants are semi-aquatic.

THE Baron de Wimpfern, in 1789, carried out the first seeds of Narcissus, Hyacinth, and Violet ever known in St. Domingo.

CALIFORNIA FRUIT IN NEW YORK.

The New York *Tribune* of November 14th gives an account of California fruit in New York, and a description of its carriage across the continent, from which we extract the following:

“The rapidity with which fruit can now be transported across the continent from California to this city, and the splendid condition in which it arrives in this market, has created for it a trade that is not only worthy of note, but is to some extent surprising. The fruit, which at the present time consists of Bartlett Pears, German Prunes, and Plums, is first very carefully picked, and then turned over to the packers. It is next sorted with great care, and those which may be over-ripe, or in the slightest degree damaged, are picked out and laid aside for home use. During this process the fruit has to be very carefully handled, as the least abrasion would render it unfit for packing; the slightest unsoundness of one Plum or Pear imperiling the whole box. The fruit is then wrapped carefully in paper, each Pear or Plum by itself, and next packed in a box so tightly that it is impossible for the Plums or Pears to shake or knock against each other while *en route* to the East. Although so closely packed, the paper wrappers prevent any undue pressure or contact between the fruit. The boxes are made sufficiently open to admit the air, and yet the openings are not wide enough for any ordinary damage through handling the fruit. These boxes are 18 inches long by 12 broad, and when intended for Pears are 12 inches deep, rendering them capable of holding about 200. When intended for Plums the depth is very little more than six inches, the box holding about the same number of that class of fruit.

“The boxes having been thus packed, are shipped East by means of the Diamond Refrigerator Line, along the Pacific Railroad, and stowed away in cars constructed for the purpose. These cars have double walls of wood, the intervening space being filled with cork, the floor covered with zinc, and a roof in which is an ice-chest capable of holding several tons of ice. When the car is loaded, thick double doors close the cooling-chest, an ordinary railroad car-door then shutting the whole from the outside world. When thus closed the only air that can reach the contents of the car is through the air-passages; a small but constant current passing under the eaves of the car into the ice-chest, where it is cooled to the temperature of melting ice, from 35 to 36 degrees Fahrenheit. This cold air then sinks by its own weight, through air-passages along the sides and ends of the car, into the receptacle or store-house for the fruit, at the same time driving out, through ventilators in the roof, any air that might have been heated inside the car. The warm air thus driven out is made to pass again over the ice, and after being cooled falls as before into the receptacle. By these means a constant current of air of even temperature is kept up—not cold enough to freeze the fruit, but sufficiently cold to prevent any change taking place in its condition. Whole car-loads of perishable fruit are thus consigned in California to persons in this city, and arrive in the market in an excellent condition. The cost of transit is very great, a certain car-load, consisting of 340 boxes of Pears and 299 boxes of Plums and Prunes, having cost, for freight and charges alone, \$1,200. But, as the fruit realized at wholesale, upon the average, about \$5 per box, the shipment of a car of fruit at this time of the year

proves to be somewhat of a profitable investment, the gross receipts being over \$3,000 per car."

TREE-PLANTING IN NEW ZEALAND.

The New Zealand Government is taking up the subject of state forests in a comprehensive manner. Mr. Vogel, who considers it "the largest question demanding consideration at the present time" in New Zealand, has just introduced to the General Assembly a bill to provide for the establishment of State forests, with the objects of making provision "for preserving the soil and climate by tree-planting, for providing timber for future industrial purposes, for subjecting some portion of the native forests to skilled management and control, and for these purposes to constitute State forests." The revenue hereafter to be derived from these forests is to be devoted to the purpose of paying off the public debt. It is proposed to spend, annually for the next ten years, a sum of £10,000 for carrying out the scheme of forest development, and to select three per cent. of the area of the whole territory for forest operations. This money is to be expended on the management of state forests, the acquisition of land by renting or purchase, the instruction in forestry of persons employed in the management of the forests, the establishment of schools and colleges for teaching forestry, and so forth. A department for the management of the forests is to be created, consisting of a commissioner, who is to be a responsible minister of the crown, a conservator and two assistant conservators. With regard to the amount of revenue likely to be derived from planting, Mr. Vogel's expectations are decidedly of a sanguine nat-

ure. They are based on calculations made by T. Calcutt, of Otago, who is stated to be a competent authority. Mr. Calcutt shows the cost of planting and subsequent management of 100 acres of suitable land in trees. Starting on the basis that the land is obtained free of cost, he estimates the expense during the first year for plowing, subsoiling, trenching, seed-planting, weeding, and the like, fencing and contingencies, at £500. For a period of five years £100 a year is allowed for labor. The trees are to stand five feet apart, so that 100 acres would contain 174,500 trees; and in the sixth year an income would begin to be derived by thinning out to 10 feet apart, "thus taking away 130,700 trees, which, at an average of 3d. each, would yield £1,533 15s., for an outlay of £1,038 15s., leaving a balance of £495." At the end of ten years the remaining trees are valued at 2s. 6d. each, equal to £5,412 10s., and at the age of twenty years £1 each, or £43,500. He concludes by affirming that "£10,000 expended properly in planting trees would, within thirty years, result in their having a market value of half a million sterling." The kind of tree proposed to be planted as the easiest to rear, and the quickest growing, is the Australian Gum.—*Melbourne Leader*.

STRENGTH AND DECAY OF TIMBER.

Some questions have been raised of late about the durability of the Fir timber of this coast. Fir piles driven into the mud last a long time if the teredo lets them alone. Thus, on Long Bridge it is found that the piles of Fir will endure as long as three sets of beams or cross timbers. Very extensive repairs are now being made on this bridge. Many of the old beams have been removed

and new ones put in. Of course these beams were not worn out, and the exterior appearance indicated sound timber. But on boring into the centre it was found that decay had set in, and in some instances it was far advanced. So, the bottom of a ship framed of Fir will outlast two or three sets of top-timbers of the same material. The best that can be said of Fir on the point of durability is, that it is a middle-class timber, neither the best nor the poorest. But its great strength and cheapness make it the most available timber on this coast.

There were on exhibition at the Mechanic's Fair, several samples of timber from the Eucalyptus-tree. The breaking strain shows it to be all that could be desired in this particular. The timber from the Red Gum resembles Mexican Cedar, but is more dense. It is a very handsome timber, and will yet have a prominent place in the list of woods for ornamental use.—*Bulletin.*

THE FALL OF THE LEAF.

The phenomenon of the "fall of the leaf," common as it is, is very difficult to explain satisfactorily. The following are the facts, so far as we understand them, which are exceedingly interesting and instructive. It seems that nature begins the provision for separation almost as soon as the leaf is born in spring. When first put forth into the atmosphere the stalk of the leaf, supposing one to be present, is continuous with the stem. As the leaf and its stem grow, however, an interruption between their tissues (fibrous and cellular) occurs at the base of the leaf-stalk, by means of which a more or less complete articulation or joint is gradually and ultimately formed. This

articulation is produced by the continuation of the growth of the stem after the leaf has attained its full growth, which it generally does in a few weeks. The growth of the leaf being completed, the base of its petiole, or foot-stalk, is no longer able to adapt itself to the increasing diameter of the stem, and a fracture between that base and the stem necessarily ensues; the excision advances from without inward, until it finally reaches the bundles of woody fibre which form the main support of the leaf. While, however nature is forming a wound, she is at the same time making provision to heal it, for the cuticle or epidermis of the stem is seen to grow over the surface of the scar, so that when the leaf is detached the tree does not suffer from the effects of an open wound. The provision for separation being thus completed, the leaf is parted from the stem by the growth of the twig at the bud base, the force of the wind, or even by its own weight. Therefore, as soon as the glorious colors of the autumn leaves begin to fade, this provision for separation is completed, and the winds sing their death-dirge as they carry them away from their summer's home on the branches of the trees, and scatter them in countless numbers upon the ground. The fall of the leaf is, therefore, the regular vital process, which commences with the first formation of the leaf, and is only completed when it is no longer useful to the tree. There is no denying, however, that the frosts of autumn, by suddenly contracting the tissues at the base of the leaf-stalk, accelerate the fall of the leaves. All must have noticed, on a frosty morning in autumn, that the slightest breath of air moving among the decayed and dying leaves will bring them in complete showers from the trees to the ground. The leaves of the Beech, Hornbeam, and

Oak die in autumn, but frequently remain attached to these trees throughout the winter months, provided that the trees are not so situated as to be exposed to violent winds. Such leaves, when examined, will be found to be continuous with the stem, and therefore without that articulation or joint which so naturally assists in the separation of the leaf from the tree. Those dead leaves fall off when the new leaves are put forth in spring; they are, in fact, pushed off by the expansion of the stem when the growth of the season commences. The leaves of evergreen trees and shrubs, and of coniferous trees, as the Pine and Fir, do not fall in autumn, but in spring, when the growth of the season is proceeding; and, as this annual leaf-fall is only partial, consisting of one-half or one-third at a time, there is always a sufficient number of leaves left on such trees to keep them clothed with perpetual verdure. Hence it is that their foliage consists of leaves which have been attached to the stem from one to three or five successive years.—*The London Garden.*

REMOVING TREES BY STEAM.—A method of removing trees by dragging them out by the roots by a steam-engine, has been successfully introduced on the Duke of Sutherland's estate in Scotland. The engine (a twelve-horse power, being one generally used for plowing), was placed in a field 150 yards distant from the trees; a chain was passed round each at some distance from the ground, and the engine being then set on, the tree was tumbled over and dragged out with a large ball of earth adhering to the roots. In this way, 300 trees, from six to twelve inches diameter, were removed in a few hours; but trees of three feet diameter have been dragged out by the same means.

PRUNING DOUBLE-FLOWERING PEACH AND ALMOND TREES.

Several years ago I saw the statement in a well known horticultural journal, that it was not advisable to cultivate the double-flowering Peach and Almond, because when old they had an unsightly appearance—although the writer admitted that when young they were very beautiful. I propose to show that with proper pruning they retain their beauty as they become old.

As the Peach and the Almond produce their flowers on wood of the previous year's growth, and as the shoots year by year grow longer, the lower parts of the branches necessarily become bare of flowering wood, while only the upper parts of the shoots produce leaves and flowers. In this way the tree becomes unsymmetrical and unsightly. In pruning the ordinary Peach-tree the shoots of the previous year are cut back to one-half or two-thirds their length, and if this practice were applied to the double-flowering Peach and Almond, it is evident that one-half of the blossoms would be sacrificed every season.

Several double-flowering Peach and Almond trees which were growing in my garden had begun to show the bad effects of non-pruning. As this could not be remedied by an annual shortening in at the regular pruning season, I saw with regret the beauty of the trees gradually disappear. As no means of preventing it occurred to my mind, I applied to a number of experienced horticultural friends, but was unable to obtain the needful advice. Just at that time I received from a nursery some trees which by mistake had been delayed seven weeks and reached me as late as the 15th of May. On opening the package I found that the Peach and

Almond trees had commenced growing, the shoots being as white and leafless as young Asparagus, so that I had little hope of doing much with them. But, after all the young white shoots had been cut off, and the stems had been pruned back until they resembled walking-canes not much over three feet high, I planted them. Shortly after this planting I was agreeably surprised to find that a number of dormant eyes began to break, and make a vigorous growth during the ensuing summer, blooming beautifully the following spring. I was also enabled, by thinning out all unnecessary shoots, to bring the heads of trees to good form.

Profiting by this experience, I cut back each of the shoots to two or three eyes immediately after they had bloomed. These eyes then pushed out shoots which made a fine growth during the summer and formed flower-buds in abundance. The next spring I pursued the same course with the like gratifying result, the heads of the trees becoming nearly doubled in size. And now every spring they are covered with an abundance of their beautiful blossoms; not one has a bare shoot, and they excite the admiration of all who see them. I cultivate all the varieties of the double-flowering Peach, and I think nothing more elegant and imposing than they when in full bloom after being thus treated. The red and the white Dwarf Almond, when being grafted or budded either on Peach or Plum stocks, should be pruned in the same way. They then make charming little trees.—*Correspondence of The American Garden.*

THE GAZZERAT Wheat, Barley, Ashmond Rice, Pulse, etc., as also a species of Mangosteen—plants taken to Jamaica by the Earl of Effery in 1790—succeeded beyond expectation.

THE CULTIVATION OF FLAX.

It has been suggested that California is wonderfully adapted to the cultivation of Flax, and its manufacture into pieces of linen for all the coarser purposes, such as towels, crash, and similar uses, and eventually, if not at once, for the finer and more delicate and costly fabrics. In our Eastern States the weather is too uncertain, the rain too certain at times, and on the seaboard the fogs during a portion of the summer altogether too common, for the preparation of the Flax after it has been pulled. If rain and cloudy weather in the warm days of summer and autumn, and particularly if the fogs which invades the sea-shore counties and vicinity of rivers and lakes, comes upon the Flax spread out for the outer covering to rot, it is more than likely to mildew and be ruined, particularly for any nice manufacture. But away from the region of our fogs, no such objection lies against Flax culture on this coast. During our long summer months we have no rain at all.

We have an unbroken summer of dry weather. In extensive portions of the State we have not a particle of dew, even. And where fogs prevail generally, except on the immediate coast, they float away early in the day and leave a clear and beautiful sky and sun. That our soil is well adapted to the cultivation of Flax we have no doubt, although we can not speak from experience and observation. If the supposition is correct, why should not California not only produce Flax and the coarser articles of linen manufactured from it, but also fine linen? When such shall be the case, we may expect real linen when we purchase what is called such. Now, that which is sold for linen almost invariably is composed in part of cotton,



LOBELIA PUMILA GRANDIFLORA FLORA PLENA.

One of the greatest acquisitions of the season. It is a beautiful light blue color, resembling the shade of the Neopolitan Violet. The flowers are large, full and very double. It is a free bloomer, as well as a fine grower.

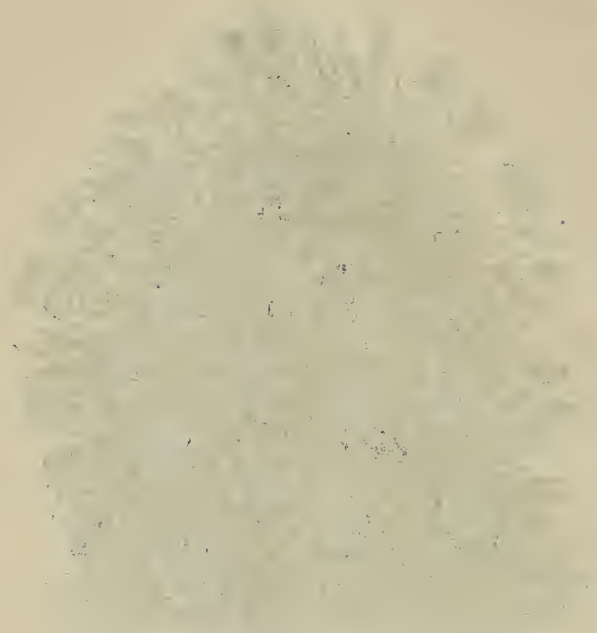
The above plate is a very good representation of it, but it should be seen to be appreciated.

Price, - - \$1.00 each.

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and often in very considerable proportion. Some of our intelligent cultivators of the soil must know by experience and observation whether we are right in this supposition, and we should be pleased to hear from them on the subject.—*Alla.*

FANCY WORK WITH AUTUMN LEAVES.

The bright tints of autumn leaves are very lovely for ornamenting our parlors, boudoirs, and dining-tables. Brackets and picture-frames can also be adorned with them, and they add greatly to the beauty of one's surroundings. Collect a large quantity, combining every hue, from crimson to scarlet, from scarlet to yellow, and from yellow to green. The red Beech and the beautiful variegated Sumach are very desirable, as also are the Oak, and Ferns, but the Maple exceeds them all in the great variety of its tints, and the various sizes of its leaves. Smooth every leaf on the wrong side, with a moderately warm iron, holding it upon the leaf only a minute. Then take a camel's-hair pencil, and a little Olive oil, and carefully brush over every part of the leaf. Place them on a flat surface to dry, and let them remain until the next day. For wiring these leaves into garlands, &c., or for preparing them for bouquets, take the fine green-covered reel wire, such as is always used in manufacturing wax flowers, and attach it around the stem, first laying it so that it will extend the entire length of the leaf to support it. Afterward wind around each stem to conceal the wire, either narrow strips of green tissue paper, or brown Berlin worsted, and join the leaves together in sprays; of course the individual leaves on each spray must be of the same species. Prepare a large number of these sprays mounted

on wires, and then arrange them in vases, about picture-frames, over mirrors, and as ornaments to lace curtains, and your apartments will present a festive appearance, although the dreary winter weather has browned the face of nature. Oak-leaves, Acorns, and brightly colored Beans, gummed upon a cardboard frame, will make handsome corner brackets or wall-pockets and vases to hold your beautiful leaves. The Acorns and Beans ought first to be cut in half, when used for this purpose.

AMERICAN GRAPE CULTURE.

The admirable report of Prof. Planchon, for the French Government, has been translated for "*Our Home Journal*" of New Orleans. We give the following from this source, in relation to the experiments in this country with the European Grape, in connection with the Phylloxera:

"In 1633, William Penn essayed in vain to cultivate the Grape of Europe in Pennsylvania. In 1790, a colony of Swiss, faithful to their generous vines of Lemane, attempted to grow them in the county of Jessamine, Kentucky. A fund of \$10,000 was uselessly spent in this enterprise. In 1801, they transported their penates to Vevay, Indiana, in the thirty-ninth degree of latitude. They cultivated there with better success a seedling, said to be indigenous, which they called the *Schuylkill Muscatel* or *Cape Grape*; but this variety, now almost abandoned, must have proved to be unproductive, because the vineyards of this colony gradually declined, and in 1819 the botanist Nuttall saw fields of grain waving over the earth once occupied by them. To-day, Vevay retains nothing Swiss but its name, and of its vines only a few scattered individ-

uals. The same check occurred to the vineyard of an obscure laborer from Lorraine, named Pierre Legand, who, toward the end of the last century, made repeated and obstinately persevering efforts to cultivate, near Philadelphia, roots from France, Spain and Portugal. Two analogous unsuccessful attempts are well known, those of our compatriots of the Field of Asylum, and that of Lakanal. Chased out of Texas, where they had first established themselves, the first old soldiers of the Empire founded upon the banks of the Tombigbee River, in Marengo, Alabama, a small agricultural colony. They were naturally desirous to cultivate the vines of Europe, but all their cares ended in deceptions. Lakanal, their companion in exile, whose name remains attached with honor to the Institute and the Museum of Natural History, made equally vain efforts in behalf of the European vines, in Kentucky, Tennessee, Ohio, and Alabama. It would be fatiguing to multiply the examples. The number is large, over all the extent of the Union, and I could easily gather them up out of the American books on viticulture. But I will speak only of one quite recent, which I have seen, from notes I made in September, 1873. Kelley's Island, in Lake Erie, is a charming place, whose vineyards make it wealthy. This culture dates only from 1848. One of the first colonists, a German by birth, the late Thomas Rush, planted there, in 1860, eight hundred roots of German vines, comprising seventeen varieties, all coming from Neustadt, on the Hardt, in Bavaria. These vines pushed admirably during three years, since which they declined rapidly, and were replaced by indigenous roots. The only European roots I saw living there, very miserable indeed, and with roots garnished with *Phylloxera*,

were two or three *Traminer*, a variety well known in Germany, which, perhaps, resists somewhat the *Phylloxera*. All these facts have convinced the Americans that European vines will not flourish in their country. This can not be the effect of climate, because America has every sort of climate, from Florida and Louisiana, where the Banana ripens, to Canada, where rivers freeze over every year; and vines have been brought from everywhere in Europe. The same soils are found on both sides of the Atlantic. It is only in California that the European vines, planted by the Spaniards, flourish! The reason of this destruction is very small in appearance, but fearful in its devastations. It is only the *Phylloxera*! This cause, first recognized by Riley, and confirmed by my recent severe examinations and careful study, is certain. California is filled with European vines! *It has not yet the Phylloxera*! East of the Rocky Mountains it reigns supreme! Some of the American vines resist it. Let us study their characteristics."

CALIFORNIA NUTMEG. — FROM R. M. Cochran we had the pleasure of receiving a branch of the California Nutmeg-tree. It represents, as near as we can judge, the pinnate leaves with the nuts growing at the extremities of the stems. It is an evergreen, and grows from fifteen to thirty feet high. The nut, about the size of a common Plum, is concealed in an outer covering, which on being taken off discloses the hard nut. The meat is of a reddish color with white heart, and has the flavor of the Nutmeg. Mr. Cochran got this branch from a tree on the Humboldt road, and he thinks it would make a handsome ornamental tree for a city garden.—*Chico Enterprise*.

THE SNOW-PLANT OF THE SIERRA.

(*Sarcodes Sanguinea*, Torrey). — One of the grandest objects which meets the eye of the traveler in our mountains is the exquisite plant whose name we have quoted at the head of our article. It is an inhabitant only of the higher Sierra, being rarely found below an altitude of 4,000 feet, and its glorious crimson spike of flowers may be seen early in May forcing itself through the snows which at that period cling about the sides of our Pine forests. The portion of the plant which is visible above the soil is a bright rosy crimson in color, and presents the very strongest contrast to the dark green of the Pines and the "shimmer of the snow." Its root is succulent, thick, and abundantly full of moisture, attaching itself to the roots of other plants, principally to the species of the Pine family. Hence it is among those curious members of the vegetable world which are known to botanists as parasites, and is consequently entirely incapable of cultivation. The deer are extremely fond of it, and it is not an uncommon circumstance to find a number of the plants uprooted and robbed of the fleshy part of their underground growth by these animals. It belongs to the natural order *Orobanchacea*, and is met with through the whole of the Sierra region, becoming rarer as we approach the south. It must have been a rare treat to an enthusiastic botanist like John Torrey to have figured and described this exquisite flower, and must have furnished him with a joy such as none but those of similar pursuits can know.

A magnificent specimen of the plant, one of the largest ever seen in California, was brought not long since from the Mammoth Grove, Calaveras County, by Harry Edwards, and may now be

seen at the Bohemian Club-rooms. This specimen measures twenty-eight inches in length, inclusive of the root, the spike of flowers being over thirteen inches, and containing ninety-eight separate blossoms. It has been photographed by Bradley & Rulofson, and is well worthy of the examination of all who are interested in the botany of this State. — *Bulletin*.

IRRIGATION AND ALKALI. — Col. Dudley, of the Third Cavalry, U. S. A., has written to the Nebraska State Horticultural Society an account of his experiments in agriculture in Lodge-pole Creek Valley, 400 miles west of the Missouri River. An epitome of the letter states that the soil of this valley is very rich, and the application of horse-manure to "fertilize" it proved a positive injury. The excess of alkali is no detriment so long as the land is properly irrigated. Colonel Dudley worked several acres, with the greatest success. In the first place the land has to be thoroughly plowed and harrowed. It is then laid out in long, narrow beds, with small ditches between for conducting the water. The water is not permitted to overrun the tops of the beds, but is allowed to run into and fill the ditches a few times during the season, remaining long enough to ooze through the soil, so as to moisten the roots of the vegetables. Some kinds of vegetables were found to require less water than others, and, to regulate this, all that was needed was a small piece of board at the end of a ditch or furrow to keep the water from coming in contact with certain beds. The garrison at Sidney Barracks, in the valley, consists of about 150 men, and they have more Corn, Onions, Beets, Squashes, Peas, and Beans than they want, and bushels of Cucumbers are going to waste.

RAISIN CULTURE IN CALIFORNIA.

Horticulture will take a new departure this season in regard to the cultivation of raisin Grapes. It having been demonstrated by years of actual experience that this is a good Grape country, and that the culture of raisin Grapes is a sure and profitable business, many will immediately embark in the business, to be followed by thousands of others. It being a business requiring little or no capital, and one in which immediate returns may be had, it must become one of the most general industries. It is one peculiarly adapted to land in the foot-hills of this State, where the Grape grows very luxuriantly, and where hundreds of tons of the best raisins could be produced annually. The vineyard once bearing, the entire labor of picking, drying, and boxing could be performed by the husband and wife, assisted by their family. The only outlay would be the cost of box-lumber, which is now quite cheap. The increasing demand for our raisins renders a sale positive, and at remunerative cash prices.

There is a wide market for raisins suitable for cooking, and it is a field of industry which the people of California, who are compelled to earn a livelihood, should not be slow in entering. A few acres of vines of the best raisin variety will produce a thousand or two thousand dollars worth of raisins annually, and the expenses would prove trifling, where the labor was performed by the hands of the family. Raisin-making is far preferable to wine manufacture. Our wines are cheap, and the cost of pressing, casking, and getting to market is much more than raisins. Where the viniculturist has vines adapted to wine-making he can easily substitute the best raisin Grape by grafting. We ob-

serve that this change is in progress in many parts of the State, and that the white Muscat is being grafted upon the old cions. There a new variety called the Peruvian Huasco, which is to be tried by our horticulturists. It is said that raisins from this variety of Grape have a very pleasant flavor, and are believed to be preferable to the Muscat. An increased attention is also being given to curing or drying of raisins, and it is probable that some cheap furnace may be invented by which the Grape may be converted into a cleaner and brighter-looking raisin. We are learning every year new means of utilizing our semi-tropical products, and we are vain enough of our remarkable climate and its various productions to believe that in a few years we will not only drive out the imported raisins, but supply our brethren on the other side of the Rocky Mountains. Sooner or later we will read of the shipment to New York and Boston of car-loads of California raisins.—*Marysville Appeal.*

AMERICAN APPLES IN ENGLAND.—The London *Garden* speaks as follows in regard to the importation of our national fruit: "American Apples of the past season's growth are now selling at moderate rates in provincial towns, both in England and Ireland. The high-colored and well-flavored Baldwin is the commonest kind as yet. As usual they come in barrels, without any kind of packing material, and are, as a rule, in excellent condition. That Apples should be sent several thousand miles, and then be sold as cheaply as home-grown fruit, is a noteworthy fact. At this rate of progress fruitless and cold regions will soon be supplied with the finest fruits at a cost that places them within the reach of all classes."

Editorial Portfolio.

OAK KNOLL, NEAR NAPA.

THE COUNTRY RESIDENCE OF R. B. WOODWARD, ESQ.

We present our readers, this month, with a splendid photograph, from a fine painting of Jos. Lee's, of the princely mansion and grounds of R. B. Woodward, the energetic and enterprising proprietor of the famous and most popular "Woodward's Gardens," the great park of the Pacific. We will give a description of this lovely and extensive estate, situated in one of the most beautiful valleys in the world, in the words of E. J. Hooper (in an article sent to an Eastern paper), who visited it last summer. He says:

"We entered this fine property through a gate by the side of the California Pacific Railroad. We walked to the noble mansion of the owner over a good carriage road or avenue, lined and shaded on either side by grand native evergreen Oaks, Acacias or Locusts, Ailanthuses or "Trees of Heaven," and other fine trees and shrubs. It took more than a mile's walking to reach the house. We saw some large grain-fields, and pastures for horses, cattle and sheep; there being on the ranch, together with the fruit and ornamental grounds, much land for raising these animals. When we approached this splendid country-seat, extensive orchards of Apple, Pear, Peach, Apricot, Nectarine, Plum, Fig, Almond, and other fruit-trees, presented themselves continually to our admiring gaze, with large vineyards of foreign and native Grapes, and patches of Strawberries, Raspberries, Blackberries, Currants, and Gooseberries:

"Before the new mansion, lately erected near the site of the old house of the last owner of the property, was a large

and well-kept lawn, made verdant by the dry season water-sprinkling apparatus, movable at will. The finest and rarest evergreens, shrubs, and parterres of Roses and the richest flowers, adorn this delightful grass-plot, with, here and there, magnificent specimens of old, wide-spreading, gnarled, native evergreen Oaks and two other kinds of Oaks, and many indigenous shrubs and wild-flowers.

"A wide and pellucid trout-stream meanders through the premises of this valuable and choice property of 2,000 acres of cleared land and woods. The proprietor's young son drove us through and around it, and if we had gone over all the roads we should have traveled twelve miles.

"Domesticated wild geese and other water-fowl were seen swimming and gamboling in a small and highly picturesque pond. We drove under the early Pear, Apple, Plum, and Apricot trees to feast on their already ripe and luscious fruits, although it was but the commencement of summer. The Apricots were as large as medium-sized Peaches, and mostly of the Moorpark and Royal kinds. The Columbia Plums were also gigantic, though size is common to all the fruit and vegetable productions of this favored valley, and indeed the State in general. The night-fogs from the ocean and bay are very beneficial to this portion of the coast, consequently all vegetation is kept green and healthy.

"The mansion itself is very elegant, light in architecture, liberal in its dimensions, highly convenient, and furnished with every modern improvement, and many exquisite works of art."

FIVE ears of pop-corn from one stalk contained 3,454 grains! So says the *American Agriculturist*.

PLANTS WORTHY OF CULTURE.

We presented to our readers in the December HORTICULTURIST illustrations of a few flowers which might be very advantageously cultivated in our gardens, and which will thrive well under very ordinary treatment.

The *Carnation* is one of those old-fashioned and popular flowers which is rarely met with in our gardens. The *Carnation* differs from the *Pink* proper in having broad stripes running from the edge to the base of each petal. *Carnations* may be raised from seed, but we can not always rely on obtaining good varieties in this way. Good varieties must be propagated by layerings or cuttings.

Crepis is an annual, with purple, white, or yellow flowers, which has not yet found its way into our gardens. It is worthy of a place in the border.

Daturas, both single and double, are showy flowering plants for the garden; some herbaceous, and others shrubby or tree-like; the latter are most generally known as the *Brugmansia*. The flowers are very fragrant, and mostly white.

Thunbergia is a very graceful and neat climber for the garden, as well as for the greenhouse. It is considered an annual, but in California we have frequently seen plants do well for several years. It is also a very pretty basket-plant. The flowers are either white, yellow, or buff, with very dark eye.

 WOODWARD'S GARDENS.

IMPROVEMENTS, ADDITIONS, AQUARIUM, ETC.

The liberal and public-spirited proprietor of these favorite and most popular grounds is evidently unceasing in his outlays to institute, improve, and add everything that can conduce to the

interest, amusement, taste, and instruction of the public. The cabinets of Natural History, of beasts, birds, fishes, reptiles, etc., have within the last year been re-arranged and classified, the cases being enlarged, and more sashes and glass made, in order to show more light upon the specimens, so that they may be inspected with plenty of it on all sides. It is, I believe, contemplated that the second-story shall be taken down, and the first-story much enlarged.

The aviary has been removed to the grand building on the hill, if its inmates can be kept comfortably warm there (not receiving so much sun as in its former locality). It is a good situation, and is much more ornamental than the old building. This latter conservatory-like apartment is now devoted to the splendid collection of Ferns, with which it is filled, it having received accessions brought by Mr. Schuman from the Sandwich Islands. And this leads us to say that there is a fine and extensive collection of Palms, Ferns, and other plants, also brought by the same gentleman from those islands, ready for placing in a large and new conservatory to be built adjoining the present cabinet building, and where the swings and gymnastic apparatus now are; these last to be placed in some other suitable portion of the Gardens.

It is likewise designed by the energetic and enterprising owner of these most attractive premises, that that part of the grounds which lies back of the entrance and office, and where the old road is, shall be appropriated to the planting of a varied and large collection of all the semi-tropical and some of the tropical plants of the globe.

During our last visit to this grand "Central Park of the Pacific," we observed in the aquarium, specimens of

lakes Tahoe and Ontario trout. The Tahoe trout are most distinctly and beautifully speckled with black spots nearly all over the body, the ground of which is a very light yellow, and the form rather more elongated than the eastern brook trout. The Ontario trout is very singularly marked with whitish blotches intermixed with red and golden specks, the general color being rather a dark yellow.

The California brook trout, with a few eastern, have now reached a large size, some of them weighing nearly five pounds. What sport they would yield to the angler or fly-fisher could they be hooked in their native element, in their natural state!

There is in one of the tanks a large "cod" or the "green-fish," properly *Opplomona pantherina*, which is so tame as to come to the top of the water and eat pieces of beef from the hand, but will snap at the bare hand, and, as it has long, sharp teeth, the feeder has to be careful in presenting it near his codship without food.

All the tanks are continually replenished when deaths occur, or added to when anything in ichthyology is discovered new, curious, and interesting.

A FINE SPECIMEN OF THE EUCALYPTUS.
—A great deal has been published in reference to the rapid and luxuriant growth of the *Eucalyptus globulus*, or Blue Gum-tree, in various portions of the State. In the garden of Richmond Davis, corner of G and Fifteenth streets, is a tree of this order, planted in 1863, which measures six feet four inches in circumference at the trunk, and is about sixty feet in height, its branches covering a diameter of about forty feet. It has been trimmed, and a third of it cut away, but it is yet a noble tree.—*Sacramento Union*.

AGRICULTURAL LECTURES.

Professor C. E. Bessey, M. S., of the Iowa Agricultural College, Ames, Iowa, commenced Monday, Jan. 18th, the courses of lectures before the College of Agriculture, which he has been invited by the Regents of the University of California to deliver at Berkeley.

1. The first course will be on Economic Botany, or the Vegetable Products used by Man; including a discussion of the Cereals, Forage Plants, Textile Plants, Medicinal Plants, Timbers, etc.

2. The second course will be on the Improvement of Varieties in Plants and Animals; including a discussion of the principles and methods which control such improvements.

Students in Agriculture are required to attend these lectures; the Resident Graduates and the Senior Class are advised to do so; the members of the University generally, and other persons interested in Horticulture and Agriculture, are invited to attend.

The lectures will be given in the Senior Lecture Room, North Hall (Room 17), on Mondays, Tuesdays, Wednesdays, and Thursdays, at three o'clock.

On Fridays, in the Assembly, at a quarter past two o'clock, Professor Bessey will deliver four public lectures, beginning Jan. 22d, 1875.

MR. J. J. H. GREGORY, of Marblehead, Mass. has his annual advertisement in our columns. He was the original introducer of some of the best vegetables now found on every table. He comes this year with a new Squash, and a number of tempting specialties, some of which are finely illustrated from engravings taken from photographs. The fact that so many of his varieties of seed are of his own growing, is a golden fact for farmers and gardeners.

VICK'S CHROMO FOR 1875.

This pretty production has been received at our office. It is lettered "H" in the series of chromos issued by Mr. Vick, and is called "Winter In-doors and Out:" representing a stand covered with winter flowers, house-plants, etc., while from the window are seen the leafless trees, the snow-covered hill-side, and other evidences of winter. It is a charming picture. Send 75 cts. to Jas. Vick, Rochester, N. Y., and it will be sent to your address post-paid.

NEW AND RARE PLANTS.

New Roses.—Messrs. Miller & Hayes send us specimens of a large number of new Roses, blooming on the first of October. Among those particularly fine we note: Hybrid perpetuals—Mad. Guillot de Mont Favel, a beautiful deep blush, and of full-cupped petals, to whom we take at first sight in spite of her horrid name; Elizabeth Vigneron, another large full-petaled variety, of a deep purple rose; Paul Neron, a very large light rose; Mad. de Ridder, crimson rose. There are some beautiful Teas among them, especially Comtesse de Nadellac, a bronzy salmon; Montplaisir, a rosy cream, and which we have before noticed favorably in our notices of exhibitions; La Jonquille, one of the deepest of yellows, almost orange, and La Nankin, a white with a nankin base.—*The Gardener's Monthly*.

Dahlia coccinea.—Mr. Salter exhibited in London recently cut-flowers of *Dahlia coccinea*, an old but extremely handsome species of unwonted brilliancy of color—in fact, of a vivid fiery scarlet hue. The single flower looked like a rich-colored form of *Anemone japonica*. Like the ordinary Dahlia, it is a ten-

der perennial, propagated in the same way, growing three feet and a half to four feet high, and blooming at this season of the year. After all that our cultivators have done in the way of improving the quality of the double Dahlia of our day, they have never been able to get into it the splendor of hue belonging to this brilliantly colored species. It is a plant that richly deserves to come into cultivation again, and many of our horticulturists were making inquiries for it.—*The Gardener's Monthly*.

A New Colorado Conifera.—Dr. Englemann has been exploring in Colorado this summer, and has found *Abies concolor* in Glen Eyrie, at the foot of Pike's Peak. It is a sad commentary on the use of eyes when it is remembered that such usually wide-awake fellows as Meehan, Hoopes, Parry, Porter, and other collectors have been through this glen without seeing it!—*The Gardener's Monthly*.

New Shrubby Spirea.—Mr. Thomas Hogg, writing from Japan, states that he has found there a new shrubby Spirea, with long racemes of white, fragrant flowers; and which in his opinion, will be a decided acquisition to our lists of hardy shrubs. He had thus far found but one plant, though he entertained the hope of finding others, or of obtaining seed.—*American Garden*.

A New White Pansy—"White Treasure."—Among all the varied colors presented by Pansies it is not strange that there should be white ones; indeed there are several old named sorts of this color, or rather lack of color; but there are not so many that a new and meritorious white variety is not welcome. "White Treasure" originated with Mr. J. W. Morris, a florist at Utica, N. Y., who sometime ago sent us specimens of

the flowers, and more recently we have been able to inspect entire plants. The strong stocky habit of the plant is its most striking characteristic; it is very short-jointed and large stemmed without the straggling weakness that often makes these plants unsightly; the foliage is of good substance and dense, and stands the sun well; a photograph taken of the bed in August shows a vigor of growth quite unusual with Pansies in hot months. The flowers are well up above the leaves, upon strong stems, and of good shape and texture, perfectly white except a small orange-colored eye. The fringe at the base of the side petals is pure white, and by its different texture from the petals themselves, increases the beauty of the flowers. The flowers were quite an inch and three-fourths across. This variety comes true from seed, which the plant produces freely. Almost every grower of flowers is fond of Pansies, and will regard a white one with favor, and it will no doubt be a valuable Pansy for forcing.—*American Agriculturist*.

NEW AND RARE FRUITS.

New Western Cherries.—The far West is entering the lists with the East as a raiser of seedling fruits. The following are said to be Oregon seedlings of high excellence:

Willamette.—A seedling from the Royal Ann; very large, light red color, sweet, late; a good market variety.

Clackamas.—An extra fine large black Cherry, ripens just before the Black Tartarian, which it much resembles; rich, fine flavor.

Major Francis.—A new Cherry of Mr. Walings' raising; very large, black, fine rich flavor, ripens just before the Black Tartarian; one of the best Cher-

ries in their time; tree vigorous and productive. Took the first premium two years ago at an Oregon exhibition in succession over all other Cherries.—*Gardener's Monthly*.

Brier's Sweet Crab.—Mr. A. G. Tuttle, Baraboo, Wis., writes: "We send by mail, to-day, a package of fruit of a new Crab, which is causing quite a sensation West. It is sweet, and perfectly devoid of the astringency, or bitter taste, peculiar to the Crab family. Is called 'Brier's Sweet Crab.' Please test quality and size, color, etc."

[This shows a remarkable improvement in Crabs. It was quite as good to eat as any ordinary Apple. Indeed one would not know by the flavor alone, that he was eating a Crab.—Ed. G. M.]
—*Gardener's Monthly*.

New Melon.—A new Melon has been introduced into England, the seeds of which were brought from Africa by Sir Samuel Baker. It is said to be wholly distinct from every variety yet known in Europe or in this country. In size it resembles a large Gourd, but has a true Melon skin of a deep golden color, beautifully netted; with a flavor of the finest possible quality.—*American Garden*.

THOUGH the Orange-tree grows true to the seed, yet, like all other fruit, it is improved by grafting. The Konah Orange, a large and well-flavored variety, has been introduced here this year, and budding the Konah into the ordinary Orange has become quite the fashion hereabouts. It is said that the China Lemon root budded with this variety will bear four years from the graft, thus saving four years time, as the ordinary Los Angeles Orange only begins to bear at eight years from the seed.

FRUIT CULTIVATION, AND REPORT ON
THE FRUIT AND VEGETABLE
MARKET.

BY E. J. HOOPER.

Upon no subject connected with Horticulture has more been written than upon the cultivation of fruit-trees, a fact to which the shelves of the Bay District Horticultural Society, in common with those of most other libraries, bear ample testimony. But, although cheerfully granting to the authors on Pomology their full meed of praise for the valuable materials laid open in their writings, from which the writer of this article has derived both pleasure and instruction, he can not help lamenting that one of the most important subjects in this interest has been hitherto much neglected on this coast among all the agricultural and horticultural societies as well as among the producers and salesmen, namely—the correct nomenclature of the science, so that purchasers of fruit should become acquainted with their correct names, and thereby become properly cognizant of their merits as well as their demerits, and not to be directed so much by the beautiful complexion, form, and size of the various fruits, as by their flavor and excellence.

Horticultural societies should be careful and diligent in forming for their own benefit and that of the public, select lists of the various kinds of fruits, with their synonyms attached thereto. They should contain only such sorts as are really worth cultivation. None should be admitted but varieties of the highest character, and such as will repay the cultivator for his trouble and expense. The selections should be made for our latitudes, and planters can then make the necessary allowance, if they live in a higher or lower latitude in our State.

Mr. Robert Thompson, of the Horticultural Society of London, has done much in the arrangement of the nomenclature of fruits there, and Dr. John A. Warder has done as much, if not more, for the United States, especially in his admirable large work on "Apples." Knight and Lindley in England, and Wilder, Barry, Thomas, Elliott, and others in America, have treated the subject physiologically, and to all these every horticulturist is deeply indebted. Pomology as an inductive science can only be said to have originated in the beginning of the present century in England, and only the last fifty years in the United States. Much yet remains, however, to be determined in regard to names, to enable the fruitist to select the best sorts from the many inferior ones sometimes in cultivation in many parts of the country. With respect to Peaches in particular, there are not half so many distinct sorts as there are names in use; and of that half, most likely, two-thirds are not worth cultivating. Of most of the sorts originated from seed, sufficient time may not have elapsed to judge of their merits; they may be described as good; but unquestionably many of them are worth little in comparison with the best old sorts. The same may be said of Cherries, and perhaps, also, Pears and Apples.

In forming a collection of fruits, it will always be found more satisfactory not to attempt too great a number of sorts, and to endeavor to fix upon those that are already well known, and also such as are found to suit the latitude and circumstances of the situation. There is unfortunately a mania with some persons for collecting endless varieties of fruits, and in a few cases I have known the oldest and best sorts have been cast out of gardens, or cut down and

grafted with others far inferior to them in every respect. Many French and English fruits at one time were introduced, which, perhaps, though excellent in their native climate, were quite unfit for many parts of America. The proprietor consequently has sustained a serious loss, although in this climate, favorable in general, to all vegetation, many fruits have been found happily congenial to it. As to such fruits as Strawberries, Raspberries, Gooseberries, etc., which bear early, the disappointment is of little consequence, because a year or two at most will rectify the mistake; but in the case of Apples, Pears, Cherries, Plums, etc., which require some years, even in California, to bring them into a profitable bearing state, the disappointment becomes very serious. It were better to be contented with a few good kinds, that produce well in most seasons here, than to plant many sorts for the sake of variety. It is no doubt of very great importance to select and adapt the kinds to the climate, soil, and aspect; and in some situations a greater variety may be planted with propriety than in others. This matter must be determined by existing circumstances, by the fancy of the proprietors, and by the direction of a first-rate gardener and pomologist, or the advice of the most experienced cultivators.

Some attention should be also paid to selecting sorts suitable to their destined soils, as some that would succeed well in a strong clay or adobe soil, would languish in a poor, light, sandy one; but as to this State, fruits in general succeed in all parts of it. There are situations, however, where the Apple and Pear thrive better than the Cherry and Plum.

The retail markets are now at their best this season of the year. At the

holidays the stalls were, of course, set out with as good a display of fruits and vegetables as the season would permit. Notwithstanding that it was the off season for farm and garden products, there might have been a better display than the one made; under more favorable conditions of weather, no doubt there would have been a marked improvement noticeable in the quality of many of the vegetables offered, and there would have been some descriptions occupying a conspicuous position on the stall that did not then appear. But the long, and for this State, extraordinary cold weather (the thermometer being in some places 16 degrees below the freezing point), and frosts have retarded the growth of early vegetables, and materially affected the appearance of late descriptions. There was no description of vegetables then in season wherein this was more apparent than in the case of Mushrooms. Up to the middle of December, the cold weather had not seriously injured the crops. The supply was undiminished, and the size and quality were up to the standard; but its continuance to the end of December has interrupted their growth, and while the supply was much less, the quality was correspondingly inferior. The price had consequently advanced from 10c. to 15c. @ 25c. per lb. Asparagus was also dearer, being quoted at 50c. to 75c. per lb. Christmas managed to draw a supply of Artichokes from secluded corners, although this vegetable has been nominally out of season several weeks, and a fancy price asked and paid for it as a luxury, retailing at \$1 to \$1 25 per dozen. Jerusalem Artichokes were unchanged, selling at 8c. per lb. Cauliflowers now sell at 15c. to 25c. each, an unusually high price. The reason is obvious; it was almost the only presentable vegetable

within the reach of the masses, and the demand for it was enormous. Green Peas were classed among the luxuries, but their exceedingly poor condition did not encourage much demand. Common Potatoes were getting scarce, and threatened to become very dear. Other vegetables are unchanged.

The best Oranges in the market were from Solano County. They were riper, larger, and cleaner than the Los Angeles Orange, and command a much better price, selling at 10c. each. The Australian steamer *Mikado* brought a small consignment of a delayed picking of the last crop of Australian Oranges. The lot was received in excellent condition; and owing to the unusual size of the Oranges embraced therein, and the fact that they were of a description foreign to this coast, the entire consignment was sold for fancy figures, none of it finding its way into the hands of retailers. Los Angeles Oranges betray a marked increase in the ravages of the scale-bug. Fruit from groves hitherto exempted from the undesirable presence of this obnoxious insect came to hand extensively stained with its secretion. Unless growers make a determined effort to annihilate this parasite, it will very soon assume such proportions as to materially prejudice their interests; Mexico, thus early, this season, sending in its Orange crop, and Mexican Oranges have not a stain on their golden skins. Lady's Apples were in abundant supply at the last week's prices. Prunes and Raisins (California dried) were unchanged. Grapes were nearly out. Black Morocco retailed at 15c. to 25c. per lb.; Flame Tokay, 25c.; Muscats, 15c. Gilded Nuts for Christmas-trees, 25c. per dozen.

For the first time in three years Peas were out of market about the 8th of this month (January). The unprece-

dent period of cold weather, north winds, and frosty nights finally put an end to the supply of Green Peas, String Beans, and Tomatoes, and materially curtailed the receipts of Mushrooms, which have been so abundant this fall and winter. Rhubarb could still be had in small quantities up to about the 10th of January, but the quality was poor. We quote Spinach at 8c.; Lettuce, 20c. to 25c. per dozen; Salsify, 8c. to 10c. per bunch; Potatoes, by the sack delivered, \$2.00 to \$2.50; Onions, \$1.50 to \$2.00 per cental.

The market has been well supplied with Oranges, the best being from Mexico. The California fruit is still rather too green to be very salable. Poor and medium sized Apples have been and yet are very plentiful and cheap. Pears have been and remain to this time scarce and dear, owing to heavy shipments to the East early in the season. The continued frosty nights have cut off the supply of Strawberries and Grapes for more than three weeks. About the 13th of this month, the frosts began to cease their (for this coast) great severity, and rain seems near at hand, the wind being in the south, where it has not been, except for a few hours, for over a month past. Eastern Chestnuts are retailing at 35c. per lb.; Apples by the box retail at \$1.00 to \$2.00; Pears, \$2.00 to \$3.00, delivered.

Continued cold weather has kept back the new crop of Green Peas later than usual, and none are expected for several weeks. New Potatoes have put in an appearance, but are very small, and do not sell readily. Rhubarb is again out of market, and no more will be received until the weather is warmer. Asparagus in small quantities comes forward regularly, and commands high prices. We quote Spinach at 8c.; Lettuce, 20c. to 25c. per doz.; Salsify, 8c. to 10c. per

bunch; Potatoes by the sack, delivered, \$2.00 to \$2.50; Onions, \$1.50 to \$2.00 per cental.

Oranges, Lemons, Limes, and Apples are plentiful. Pears of all kinds are scarce, and ripe Easter Beurres are bringing fancy figures. Most of the Oranges in market are from Los Angeles, but none of them are sufficiently ripe to sell readily. Apples by the box retail at \$1.00 to \$2.00 delivered.

Editorial Cleanings.

THE EDIBLE PASSION-FLOWER. — Few greenhouse or conservatory climbers are more beautiful than this *Passiflora*, and yet one meets with it very rarely in modern collections. Planted out in a border of rich moist earth it grows rapidly, often making shoots ten and twelve feet long in a single season. When in vigorous health it gracefully drapes pillars, arches, or rafters, with a profusion of glossy foliage. The flowers, although ornamental, are not so showy as those of many of the other species. Under good culture they are succeeded by bright purple fruits, each the size of a hen's egg, which are favorites with many on account of their fine sub-acid flavor.

Although this is, undoubtedly, the best of all the edible Passion-flowers, *P. macrocarpus* and *P. quadrangularis* are by no means useless additions to the dessert; and those who have not acquired a taste for them in a fresh state rarely fail to relish them when preserved. Even in the absence of fruit *P. edulis* well deserves cultivation, as it is the most beautiful of all the *Passifloras* in habit, *P. (racemosa) princeps* not even excepted. Like most of its congeners it is readily propagated either by cuttings, layers, or seeds; and those who require a climber of a deep

tint, for the ornamentation of a conservatory or corridor, can not do better than avail themselves of it. — *London Garden.*

ROSES FOR BUTTON-HOLES. — The following varieties are highly recommended by an English florist for forcing for button-hole flowers. This has become quite a trade in this country, hence this list may prove an aid to some of our readers: Abel Grand, Beauty of Waltham, Duke of Edinburgh, Duke of Wellington, Fisher Holmes, General Jacqueminot, Henri Ledechaux, Jules Margottin, Louisa Wood, Madame Victor Verdier, Virgindale, Monsieur Norman, Princess Mary of Cambridge, Vicomte Vigier, Victor Verdier. Bourbon: Souvenir de la Malmaison. Tea: Abricot, Allia Rosea, Catherine Murnet, Devoniensis, Goubault, Isabella Sprunt, La Nantes, Madame Falcot, Charles Mauvin, Safronet.

THE BEAUTY OF TREES. — A tree undoubtedly is one of the most beautiful objects in nature. Airy and delicate in its youth, luxuriant and majestic in its prime, venerable and picturesque in its old age, it constitutes, in its various forms, sizes, and developments, the greatest charm and beauty of the earth in all its countries. The most varied outline of surface, the finest combination of picturesque materials, would be comparatively tame and spiritless without the inimitable accompaniment of foliage. Let those who have passed their whole time in a richly wooded country — whose daily visions are deep, leafy glens, forest-clad hills, and plains luxuriously shady — transport themselves for a moment to the desert, where but a few stunted bushes raise their heads above the earth, or

those wild steppes, where the eye wanders in vain for some "leafy garniture"—where the sun strikes down with parching heat, or the wind sweeps over with unbroken fury—and they may, perhaps, estimate by contrast their beauty and value.

YELLOW-JACKETS.—Every country has its plagues. Ancient Egypt had its locusts; our Western territories have their grasshoppers; and it seems to be reserved for California, or at least this part of it, to have its plague or pest—the yellow-jackets. They seem to be rapidly increasing in numbers year by year, and their ravages, especially among the Grapes, are becoming alarmingly destructive. They eat tons of fruit on the vines, and in some instances make nearly a clean sweep of that part of the crop spread out to be dried for raisins. A friend suggests that about the best way to abate the nuisance, would be for the State to offer a premium with a view to encouraging the destruction of their nests. The nests he thinks could be found quite readily, by watching the little marauders when laden with their pellets, as they then fly in a "bee line" straight to them. This suggestion looks plausible, but to be effective the plan would have to be generally adopted and perseveringly carried out.—*Folsóm Telegraph*.

THE GARDENS OF MOROCCO.—The groves of Rose-trees and the flower-farms of Morocco are said by a recent traveler to exceed in extent and value those of Damascus, or even those of the valley of Mexico. The general climate of the country is very favorable to this kind of culture. Swept alternately by the breezes of the Atlantic and the

Mediterranean, and tempered by the snows of the Atlas ranges, the degree of heat is much lower in Morocco than in Algeria, while the soil is exceedingly fertile. To the Date-palm, and to Orange and Lemon trees, the climate appears to be especially suited, the Dates of Tafilat having been famous even from Roman times. The Orange plantations are of great extent in various parts of the country, while Olives and Almonds are also staples exported in large quantities. Seeing that this fertile land, lying within five days' steam of London, produces so much vegetable wealth under the most barbarous cultivation, it appears extraordinary that European enterprise does not, in such a climate, seek profitable employment for its over-abundant capital, in its application to the development of such vast resources, so close at hand, instead of going so far afield as Australia or America.

THE plan adopted by most of the Riverside people is this: They purchase twenty acres, build a home, and commence setting out trees. On their line fronting on the street they set out a hedge of Limes, whose bright-green varnished foliage produces a lovely effect. Then some twelve feet outside of that they plant Monterey Cypresses, eight feet apart. The deep sombre hue, and trim, conical shape of these trees contrasts finely with the Lime hedge, and the two together make a boundary line to the farm and an avenue for the street which it would be hard to excel in any country. In place of division fences some set the Eucalyptus, with its leaden-green foliage; others the softly drooping Pepper-tree, whose delicate fronds glint and shimmer in the sunlight as they tremble in

the passing breeze. Each, all, are simply differing forms of beauty, and being evergreens, retain that beauty "the changing seasons through."

CALIFORNIA DRIED FRUITS.—Up to within a short period the United States has been dependent entirely upon the south of Europe for its supply of the luxury of dried fruits, such as Raisins, Zante Currants, Prunes, Figs, etc. The total amount imported by the United States is not less, in round figures, than \$15,000,000. Several years ago California started on a large scale the cultivation of the Grape, and it was successful. Succeeding this came the experiment of drying the fruit to a raisin. Samples of these raisins were sent to Europe, and shown to Mr. Clemens, the great raisin factor of Malaga, who remarked that in time the California raisin would supply the United States home market to the exclusion of the foreign product. California is now coming to the front in this matter, and from recent experiments made by the Alden Evaporator it has become evident that the United States is soon to be made independent of foreign supplies in raisins, Currants, Prunes, etc. There is another article of dried fruit that bids fair to become important in the commerce of this country, and that is dried Peaches.—*Boston Traveller*.

OPERATIONS IN OTTO OF ROSE.—This world-renowned perfume, for which such fabulous prices are paid, even in these modern times, as to furnish grounds for belief in the extent of the disbursements of Oriental potentates for similar luxuries in times long ago, is of no small importance to the peasantry of Turkey, and as regards prices especially, when there is a falling off in the crop of Roses. Such is expect-

ed to be the case this season, when the whole distillation, it is thought, will not exceed 1,600 pounds, where last year 2,700 pounds were produced. There has of late been some activity in the market here, based on these reports, and after \$6, gold, per ounce had been accepted, the prices advanced to \$6.50 and \$6.75, gold, and now rule quite firm, owing to this falling off in the crop, and also, it is stated, to an advance both in Paris and London of thirty per cent. within a short time. Nearly 600 ounces have been purchased here within a few days, and the tendency of the market, owing to the influence of this, and the advices from the other side, seems to be toward higher prices. There are eight provinces in Turkey, which in total yield 3,600 pounds ordinarily, the largest giving about 1,900 pounds; but sometimes the aggregate reaches 6,600 pounds, as it was in 1866, while again it may fall off to 1,700 pounds, as was the case in 1872. This will show how variable the yield is. The business is entirely in the hands of peasants and farmers, who have their stills and condensation tubes busily at work during the season. The cultivation requires the greatest care, and a considerable quantity of Roses are required to produce a respectable yield of oil. The crop is variable, but we are told that it requires an average of 3,000 pounds of Roses to produce one pound of otto of Rose.—*New York Commercial Bulletin*.

THE BEST TIME FOR PRUNING.—We have heretofore noticed, in common with many others, that Roses pruned in the autumn and winter are, in many instances, almost bare of buds, whilst those pruned in the spring have a profusion of blooms. We have therefore always advocated spring pruning not only for Roses, but all other out-door shrubs.—*American Garden*.

Rain-fall in San Francisco, Cal., (1849 to 1874) as Recorded by Thomas Tennent.
FROM 1849 TO 1861.

	1849.		1850.		1851.		1852.		1853.		1854.		1855.		1856.		1857.		1858.		1859.		1860.	
	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.
July.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
August.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
September.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
October.....	3.14	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
November.....	8.66	8	1.92	7	2.12	5	5.31	12	2.28	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December.....	6.20	12	1.05	4	7.10	14	13.20	20	2.32	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.
January....	8.34	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
February....	1.77	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
March.....	4.53	7	1.94	9	6.68	14	4.86	6	3.51	11	4.64	12	1.60	5	1.62	6	5.55	8	3.02	11	3.99	13	4.08	8
April.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
June.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	33.10	53	7.40	44	18.44	48	35.26	70	23.87	79	23.68	67	21.66	54	19.81	61	21.88	56	22.22	68	22.27	73	19.72	70

FROM 1861 TO 1874.

	1861.		1862.		1863.		1864.		1865.		1866.		1867.		1868.		1869.		1870.		1871.		1872.		1873.	
	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.	Quantity.	Days.
July.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
August.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
September.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
October.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
November.....	4.10	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December.....	9.54	16	2.35	9	1.80	8	8.91	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.
January....	24.36	18	3.63	9	1.83	5	5.14	9	10.88	16	5.16	15	9.50	17	6.35	14	3.89	9	3.07	7	4.22	10	2.17	8	4.85	14
February....	7.53	10	3.19	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
March.....	2.20	11	2.06	8	1.52	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
April.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
June.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	49.27	83	13.62	52	10.08	37	24.73	59	22.93	65	34.92	71	38.84	78	21.35	58	19.31	47	14.10	46	34.71	79	18.02	49	23.98	85

Average Rain-fall from the season of 1849-50, to that of 1873-4—25 Seasons—23.9 inches.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING DECEMBER 31ST, 1874.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.22 in.
do 12 M.....	30.22
do 3 P. M.....	30.21
do 6 P. M.....	30.20
Highest point on the 4th, at 9 A.M.....	30.36
Lowest point on the 26th, at 6 P.M.....	29.88

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	43°
do 12 M.....	48°
do 3 P. M.....	50°
do 6 P. M.....	44°
Highest point on the 1st, at 12 M.....	59°
Lowest point on the 28th, at 9 A.M.....	36°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	38°
Highest point at sunrise on the 1st.....	47°
Lowest point at sunrise on the 26th and 30th.....	31°

WINDS.

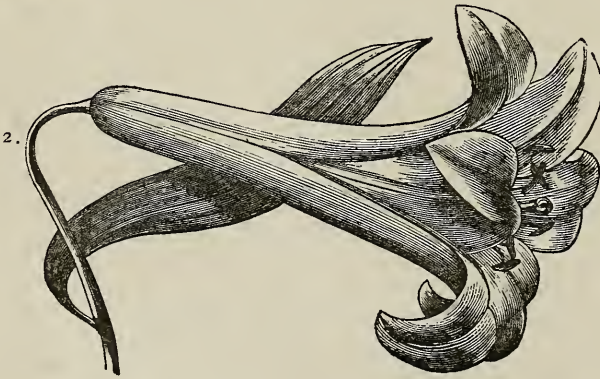
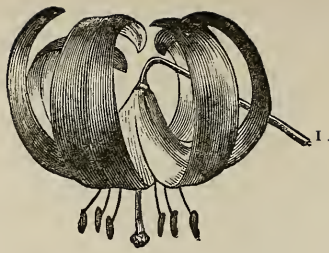
North and north-east on 15 days; south-east on 2 days; north-west and west on 14 days.

WEATHER.

Clear on 18 days; cloudy on 5 days; variable on 8 days; rain on 4 days.

RAIN GAUGE.

1st.....	0.06
2d.....	0.02
3d.....	0.08
24th.....	0.12
Total.....	0.28
Total Rain of the season to date.....	9.01



GROUP OF LILIES.

- | | |
|---|-------------------------------|
| 1. <i>Lilium chalconicum</i> | 3. <i>Lilium auratum.</i> |
| 2. <i>Lilium japonicum longiflorum.</i> | 4. <i>Lilium lancifolium.</i> |

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, FEBRUARY, 1875.

No. 2.

THE TREES OF CALIFORNIA, INDIGENOUS AND EXOTIC.

BY DR. HENRY DEGROOT.

The soil and climate of California are well adapted to the vigorous and healthful growth of a great variety of trees. She had a rich flora of her own to begin with. The varieties of her native trees were numerous, to say nothing of her plants and flowering shrubs. Fifty genera of trees grow between San Francisco and the Columbia River, to which the country south adds a considerable number; the Palm and other numerous families being found only in that direction. Already the exotics—fruit, ornamental, and timber trees being included—outnumber those of native origin; this preponderance being every year rapidly increased through the importation of new varieties. There are now growing in some of the nurseries of this State more than fifty different genera of trees, some of which embrace many species—the entire number well grown, or sufficiently advanced for transplanting, exceeding a million. While these collections are made up mostly of fruit-trees, they contain also

a great many forest and shade trees; the whole having been gathered from nearly all parts of the world. A majority of the fruit and forest trees are importations from the Eastern States, though many, both of these and all other kinds, have been obtained from Australia, Europe, China, Japan, and countries on the continent to the south of us. While California has many noble families of forest-trees, she has produced but few native fruit-trees of value, only the wild Plum and a few others being much esteemed as esculents.

The kindly manner in which exotics of every description take to our soil and climate, and the rapidity and vigor with which trees of all kinds grow here, establish that arboriculture must early become one of the leading pursuits of California. In no other part of the world is this vegetable growth so quick and so hardy as here. Trees here advance with the luxuriance of the tropics, combining with these the solidity and strength of the higher latitudes. Apple, Plum, and Cherry trees, one year from the bud, frequently stand ten and twelve feet in height. Cuttings set out in the winter bear Grapes in the fall, and the hardier fruits become prolific

bearers within two or three years from the time they are planted.

It is a singular circumstance, however, that while almost all exotics find in California a congenial home, many of the plants and trees native to this country do not readily thrive elsewhere, and in some instances can not, when sent abroad, be acclimated at all. Seeds and young trees sent to other countries, and planted with care, have refused to germinate, or take root; or, if they did so, were either short-lived, or maintained only a feeble and sickly existence. One reason of this may be that the flora of this coast, owing to its isolated situation, is possessed of inherent peculiarities. Bounded by an immense stretch of ocean on the one hand, and by lofty snow-covered mountains and broad deserts on the other, it remains in its primitive condition, uncontaminated by intermixture with the flora of other lands. Confirmed by centuries of habit, these peculiarities have become constitutional to a degree that unfits these plants and trees for thriving in any but their native soil and climate. On the other hand, some of the vegetable products of California do well when transplanted to a distance, growing with a readiness and vigor unsurpassed in their birth-place. Unquestionably the range within which fruits mature covers a greater variety of products in California than in any other country. In fact, it may be said to reach over both the temperate and the torrid zones, since there is scarcely a tree or plant common to both but what can be successfully grown in the open air at some locality within her limits.

To enumerate the different kinds of fruit-trees now cultivated in California would be simply to catalogue the best varieties of these known throughout the world. Whatever is choice in oth-

er countries has been introduced here—sometimes aggregated in a single nursery. Imported trees, valuable for fuel and timber; also, trees and shrubs selected for purposes of adornment—we have in great variety. Thus we count, among ornamental trees, the Palm, the Willow, the Pepper-tree, the Acacia, the Magnolia, the Weeping Elm, and many others, including some of strange and beautiful form brought from China and Japan. Among the useful varieties are to be seen the Locust, Eucalyptus, Ash, Walnut, Poplar, Linden, Maple (including the Rock or Sugar Maple, which it is thought will thrive here), and a great many other trees, valuable in an economical point of view. Some of the Palms and other ornamental trees are very superb, and sell often for high prices—as much sometimes as four or five hundred dollars being paid for a single specimen.

When the arborist turns his attention to the native forests of California, he finds a broad and wonderful field opening before him. Along the northern and central coast he encounters the belt of awful Redwoods; the slopes of the Sierra Nevada being covered to the height of nine or ten thousand feet with a majestic growth of Pine, Fir, and Cedar.

These Redwoods are of two kinds, the *Sequoia sempervirens* and the *Sequoia gigantea*. The former, usually styled simply *Redwoods*, are confined to the foggy belt of the Coast Range, reaching, with some interruptions, from the northern limit of the State down to the vicinity of San Luis Obispo, a distance of more than five hundred miles; while the latter, under the name of the "Big Trees," has a much more restricted habitat, being found only at seven or eight points along the higher foothills of the Sierra Nevada. The *Sequoia*

occurs nowhere out of California, nor is it met with here at any other places than those above stated. From the Redwood forests along the coast many millions of feet of lumber of a very valuable kind are made every year.

There are sixteen species of Pines in California, the most valuable of which is that known as the Sugar Pine. This tree grows to a great size, reaching often a height of three hundred feet, and a diameter of twelve feet. It makes an excellent lumber, being much sought after for inside work, cabinet ware, and various other uses.

Twelve species of the Oak are recognized by botanists as belonging to this State. The most of these are very beautiful, and several of the species are large and picturesque trees, but only one or two are of any value for use as lumber, the wood being soft and brittle. The Oak here does not grow tall, with a straight grain and tough fibre, as in most other countries; consequently it is not a serviceable timber except for the purpose of ship-knees and the like, though every variety burns well. The Live-oak, which grows often in clusters, has a very hard wood, rendering it fit for certain mechanical uses. One species of the White Oak has also a fine grain and tough fibre, rendering it suitable for farming utensils. What are known as the Poison Oak and the Huckleberry Oak are mere shrubs, growing only a few feet high. The White or Long-acorned Oak, very common in California, has wide-spreading branches; its diameter being often greater than its height, which seldom exceeds sixty feet. The wood is crooked and brash, but the acorn it grows is very large, being sometimes over two inches long. When roasted it tastes not unlike the Chestnut, though slightly bitter and astringent. This acorn, like that

of the Burr Oak, was formerly much used by the Indians for food.

The Burr Oak has the longest trunk and is the most common of all the Oaks of California, though its habitat is confined to the large valleys, it never being found in the mountains. It is a graceful and noble tree, being the Oak that gives to the country such a park-like appearance. The Pale Oak, which much resembles in its external form the above species, is likewise a very picturesque tree, being the kind that a little way off looks so much like an old apple-orchard. The Chestnut Oak, which grows only along the central portion of the Coast Range in the vicinity of or among the Redwoods, though it affords a worthless wood, is very valuable for the bark, which is extensively used for tanning leather. The Drooping Live-oak, generally diffused but not very abundant, is another very beautiful tree, having long, slender, depending branches.

Several varieties of Spruce and Fir grow on the mountains of California. The largest and most common of this family is the Red Fir or Douglass Spruce, which often has a height of three hundred feet, and a diameter of ten feet. The wood is coarse-grained but very tough, rendering it fit for many common purposes, such as the construction of flumes, fences, ship-building, etc. The Yellow Fir or Spruce grows with and is in all respects a good deal like the Red, while the Black Fir, a smaller tree, is of but little value. The White or Balsam Fir is a large tree, from the bark of which there exudes a resinous fluid known as "balsam of Fir," much esteemed for its supposed curative properties. The leafy-coated Silver Fir has a straight slender trunk, which grows over a hundred feet high, and two and a half feet through, and is

covered with long drooping branches almost to the ground. From this tree the resinous pitch is obtained that in the Catholic Church service is burned as an incense.

Then we have among the characteristic trees of California the Madroña, an evergreen, with lustrous oval leaves, and a bark that peels off every year, showing at first a pea-green color, which afterward turns to a bright red: the Nutmeg, also an evergreen, tapering like the Fir, but more slender and graceful, and reaching a height of only about sixty or seventy feet—it yields a fruit resembling the Nutmeg of commerce, but unfit for use as a condiment, having an unpleasant turpentine taste: the Yew, growing thirty feet high, with slender depending branches and a valuable wood: the Laurel or Bay-tree, a handsome evergreen, fifty to sixty feet high, and two and a half to three feet in diameter—the wood hard, with a spotted and rippled grain resembling curled Maple, and which, being susceptible of a high polish, is largely used in veneering and for making costly furniture: the Horse-chestnut or Buckeye, a low spreading tree or rather shrub, yielding a large nut, which the Indians eat: the Manzanita, and the Wild Lilac, also shrubs: with the Alder, the Willow, and the Cottonwood trees, all too well known to require any description.

ARRANGEMENT OF FLOWER-BEDS.

BY WILLIAM SUTHERLAND.

The planting of flower-beds and borders has of late years attracted a great deal of attention; there has been a number of pros and cons on the subject of how to produce the best display.

Some have advocated the planting of colored leaf plants only, while others

equally enthusiastic would have nothing but flowering plants.

But in my humble judgment a proper combination of both kinds produces the best effect. What is more effective than a bed of Scarlet Geraniums, edged with some colored leaf plant, or a bed of Scarlet Sage, ringed with White Sage and edged with Alternanthera?

There is really quite as much art in taking care of the beds after they have been planted, as there is in planting; and here let us remark, that unless the beds or borders are going to be looked after when they are planted there had better be no extra pains taken in setting out the various lines or clumps of plants, as they soon get one confused mass. This applies especially to colored leaf plants. Coleus, Achyranthus, Centaurea, etc., all want the tops taken out very frequently; while the Alternanthera, when used as an edging, requires to be clipped with the shears pretty often to keep it within bounds.

The best flower-beds I have seen this season were at Girard College. I have known this institution and grounds some fifteen or twenty years, and never saw the place look as well, which is saying a good deal for the abilities of the present gardener, Mr. George Huster, who certainly displays great taste in the arrangement of the flower garden. Thinking some of your readers might gain a few hints by knowing how these beds were arranged and planted, I give you a few notes below.

The flower garden of which I am about to speak extends from the gates up to the front of the main building of the College, covering a plat of ground nearly two acres in extent, the curving of the carriage-drive forming it somewhat into a crescent shape, with a walk through the centre. Just within the gates on either side of the straight

walk leading to the main building, are beds 150 feet long by six feet in width, planted in seven distinct lines, beginning with a front edge of *Alternanthera versicolor*, next a line of *Centaurea candidissima*, next the golden *Coleus Queen Victoria*, next a line of *Coleus Verschaffeltii* which forms the centre line, then a line of *Coleus Golden Beauty*, next a line of *Achyranthus Lindenii*, and lastly a line of *Alternanthera amabile*, with a fine specimen of *Draccena tricolor* at all four ends. These long beds add lustre to the garden, but the glory of all are two star-shaped and four circular beds. The star beds are slightly raised, and filled with a fine specimen of the Pampas-grass (*Gynerium argenteum*) in the middle, with General Grant Geranium around it, and *Centaurea gymnocarpa* on the edge. Two of the circles are planted with a standard *Abutilon Thompsonii* in the middle, General Grant Geranium around it, with an edging of the Golden Feverfew. The other two circles are planted with General Grant Geranium, edged with variegated Geranium Brilliant and Mountain of Snow.

The other flower-beds consist of large and small ovals, square and geometrical figures, planted as follows: Some with Tuberoses and Roses, ringed with Stock Gillies; and Cockscombs ringed with Rose Geranium and edged with *Cuphea Platycentra*. Another was filled with Double Petunia Belle of Baltimore, edged with variegated Ageratum. Others were filled with Abutilons in the middle, ringed with double Geranium Gloire de Nancy, ringed with double Geranium Madame Lemoine plunged in pots, (which Mr. Huster finds blooms more freely than when planted out) edged with gold and silver variegated Geranium. Other beds were planted with Tritomas, single and double Tuberoses, Gladiolus and Carna-

tions, edged with *Centaurea* and *Artemisia*, with fine standard Lemon Verbenas (*Aloysia citriodora*) in the middle; several beds of *Phlox Drummondii* and Verbenas, with standard Lantanas in the middle, also several beds of *Echeveria metalica*, ringed with *Echeveria secunda*, ringed with *Echeveria secunda glauca*, and edged with *Sempervivum Californicum*, which had a very pretty effect. Two beds were planted with Tea Roses, ringed with *Nierembergia* and *Phlox*, and edged with *Peristrophe angustifolia aurea*.

One large oval bed was planted in the middle with *Colocasia esculenta* and *Javanica*, ringed around with some twenty varieties of Caladiums, with an edging of variegated leaf Begonias Rex, Mad. Wagner, Picta Grandis, Grace Fahnestock, Philadelphia, and others. There must have been at least 200 plants in this bed, and what surprised me most, with little or no shade. Another fine bed was planted with Heliotropes, edged with variegated Ageratum; another with Hybrid Perpetual Roses and Tuberoses in the middle, ringed with variegated Rose Geranium Lady Plymouth, edged with *Cuphea platycentra*. There were also two lines of Fountain Plants, (*Amaranthus salicifolius*) and between the flower-beds were some fine specimens of Musas, Cannas, Agaves, and Palms, also some standard Sages, Lantanas, Abutilons, Hibiscus, Cocolobas, Erythrinas, and Ficuses; the whole making one of the grandest displays I ever saw.—*The Gardener's Monthly*.

THE ship *Edwin*, sent from Bermuda by Governor Tucker, returned from the West India Islands, in 1616, with figs, pines, sugar-canes, plantains, pawpaws, and other plants, which were immediately cultivated with success.

SEMI-TROPICAL FRUIT CULTURE.

We have long had evidence of the adaptability of the soil and climate of California to semi-tropical fruit culture. We are not quite so certain, however, that we are cultivating the kind of semi-tropical fruit for which the soil is best adapted, and which will return most profit to the cultivator. For instance, we have been, for many years, extensive wine-producers, yet we are undecided as to which is the best variety of Grape-vine to propagate in our yards; and there is a difference of opinion among the most experienced culturists as to which is the best land for the vine—the valley or the foot-hills. The latter is becoming more and more popular, but the verdict is far from being unanimous in its favor. We are only just beginning to learn that we can raise a Grape that will make a tolerably good raisin, but it may be a long while yet before we settle upon any particular variety of Grape as being the one best adapted for curing. The founders of the California missions discovered eighty years ago that the Orange would thrive and bear fruit in a few favored spots in the southern counties, but it has taken all these many years to find out that as good if not a better Orange can be raised within the winter snow-belt of the northern counties. It is only within the last few years that Solano County has demonstrated a capability of producing Oranges nearly two months in advance of the Orange-groves of southern California. We have Date-palms now growing in our soil which have leaved and blossomed profusely and uninterruptedly for a century, but we have yet to learn whether they can be made to bear fruit, like the Palms of Arabia, by artificial fertilization. The fact that the Palms of

Arabia would not bear fruit were this artificial fertilization discontinued, may perhaps enlighten us as to the cause of the barrenness of our own. The Banana is successfully raised in Florida, which possesses a climate during winter much more rigid than ours, but it is only a few years since the experiment was first tried here.

The first Banana-tree planted in the State of California was in all probability planted by one of the professors of St. Vincent College, Los Angeles, in the college-grounds; but the first plant to bear is now growing in Paradise Valley, near San Diego. The pods were small, but exceedingly delicious, and this has been the character of the fruit of all the Banana-trees that have since fruited in other parts of this State. Many semi-tropical fruit culturists are of the opinion that we shall find out, by-and-by, that there is a hardier Banana-tree than the particular one with which experiments have been made hitherto, which can be more successfully cultivated in California.

Fruit culturists in this State have been until lately groping in the dark. Some of them are doing so still. They have been to apt to regulate the nature of the trees and plants in latitudinal order, without making any allowances for isothermal changes. The isothermal line does not follow the parallels of latitude on the Pacific Coast, and especially in this State, any more than it does on the eastern slope of the Rocky Mountains. The northerly variation is, in fact, much greater, which unquestionably requires a corresponding modification of the laws governing the culture of fruits. These facts and surmises suggest a wider range to our semi-tropical fruit-producing territory than that which we have been heretofore willing to allow it.

MORAL OF FLOWERS.

BY AN AMATEUR.

—"Not a tree,

A plant, a leaf, a blossom, but contains
A folio volume. We may read, and read,
And read again, and still find something new,
Something to please, and something to instruct,
E'en in the noisome weed."

Flowers have been, to the poets of all ages, and in all countries, a never-failing source of inspiration, and to mankind at large, "a joy, a pure delight," from the creation even to the present time; and will be so, while we have eyes to see and hearts to understand and appreciate the blessings that are scattered around us; for, as Keats says:

"A thing of beauty is a joy for ever;
Its loveliness increases; it will never
Pass into nothingness; but still will keep
A bower of quiet for us, and a sleep
Full of sweet dreams and health."

And is not a flower "a thing of beauty?"—is it not a thing of surpassing loveliness? Who can gaze on its exquisitely perfect form, its unrivaled brilliancy of hue, without a thrill of admiration and a sensation of pleasure—pleasure which passes not away, but dwells in the memory like a pleasant perfume, that remains long after the object has perished. And why is this? Because of its purity, its freedom from aught that is gross and therefore perishable. None we venture to aver can gaze on those beautiful "alphabets of creation," those adorners of earth's bosom, unmoved, but such as have hearts utterly corrupted, and rendered impervious to every sweet and gentle impression, and even such will at times feel stirring within them at the sight thoughts that have long slumbered; and awakened by those "silent monitors," the "still small voice of conscience" is heard, inciting them to shake off the trammels of guilt, and

return to the ways of pleasantness and peace, wherein their feet once trod, when

"The flowers in silence seemed to breathe
Such thoughts as language could not tell."

We have called the flowers "silent monitors," and not unadvisedly, for many are the lessons they teach, of patient submission, meek endurance, and innocent cheerfulness under the pressure of adverse circumstances:

"They smilingly fulfill
Their Maker's will,
All meekly bending 'neath the tempest's weight,
By pride unvisited,
Though richly raimented,
As is a monarch in his robes of state."

Many are the moral precepts they inculcate, bidding us admire the wisdom of their Omnipotent Creator, in their infinite variety of forms and colors, and perfect adaptation to the situation they occupy.

—"Not a flower

But shows some touch, or freckle, streak, or stain,
Of His unrival'd pencil. He inspires
Their balmy odors, and imparts their hues,
And bathes their eyes with nectar, and includes
In grains as countless as the sea-side sands
The forms with which He sprinkles all the earth."

They tell us to be grateful for these abundant manifestations of His attentions, not only to our actual wants and necessities, but also to our comforts and enjoyments; opening to us this source of pure and innocent gratification, in order to strengthen us against the allurements of folly, and wean our hearts from the guilty pleasures of sensuality into which they are too apt to be drawn.

"God might have bade the earth bring forth
Enough for great and small,
The Oak-tree and the Cedar-tree,
Without a flower at all.
He might have made enough, enough,
For every want of ours

For luxury, medicine, and toil,
And yet have made no flowers.

* . * * *

"Our outward life requires them not,
Then wherefore had they birth?—
To minister delight to man,
To beautify the earth;
To whisper hope—to comfort man
Whene'er his faith is dim,
For whoso careth for the flowers
Will care much more for Him!"

CULTIVATION OF THE CASTOR BEAN.

A correspondent of the San Diego *Union* furnishes that journal with the following: "Last spring Mrs. M. A. Burton, who is a woman of rare energy and business capacity, decided to put under cultivation about one hundred acres of land on the Jamul ranch. It was too late to plant grain, the land was not fenced, and there was no chance for irrigation. So it was decided to attempt the cultivation of Castor beans.

"The land was plowed and laid off as for Corn, and the beans dropped in the furrows and covered with a plow. It required 250 lbs. to plant the 100 acres. When the plants came up they were thinned out, leaving only one to each hill, about five feet apart one way and three the other. The land was cultivated once, but not irrigated, and needed no fencing, as no stock will touch the plants. About August the beans began to ripen and picking commenced. They grow in the shape of "spikes," from eight to fifteen inches long, containing a large number of pods, each of which contains three beans. The sort cultivated is different from the tree kind grown as an ornamental shrub; it forms a plant about six feet high, and is an annual. The peculiarity rendering it profitable to cultivate is, that when ripe the pod bursts open with such violence that the beans are thrown out to a distance of several feet.

"The method of gathering and preparing for market is as follows: Every day the ripe spikes are gathered by hand, put in sacks, and hauled to the 'popping-ground,' which is a space of about an acre, made smooth and hard like an old-fashioned buckwheat thrashing-ground. Here the spikes are spread, and during the day they pop open from the heat of the sun, throwing out the beans. Each morning the straw is raked off, the beans shoveled up, cleaned in a fanning-mill, and sacked, ready for market. By the time the field is once picked it is ready for another picking. Eight to ten men have been employed picking on one hundred acres.

"The yield is estimated at 1,500 lbs. per acre, worth four cents per pound, or a gross yield of \$60 per acre. The expense of cultivation, etc., is estimated this year at one-half this amount, but is greater than it probably will be another season, owing to inexperience and preparing new land. There is probably no crop so easily raised that will yield so large a return."

INCIDENTAL NOTES ON THE FLORA OF JAPAN.

FROM A PRIVATE LETTER.

The approach to Yokohama is very interesting for miles, the shores being sandstone bluffs in plateaus, finally rising into hills; then sharp jagged peaks, sometimes conical, and clothed to their tops (in October) with quite a luxuriant foliage, with frequent Fir-trees of a variety looking from a distance like Palms. Japan is said to be the richest in its coniferæ of any country in the world—The trees in the dense grove back of the temples at Tokio are of great variety—some with soft foliage and graceful drooping branches, others with rich waxen leaves, and many varieties of

coniferæ. The beauty and purity of the greens I never saw equaled. There are several miles of drives winding round in the grove surrounding the great temple, and the trees have been trained in their early growth so as to incline toward each other on either side of the road, so that it gives one a feeling that they are doing homage to the passer-by. They are very tall, and some in the grove are very large, and nearly all the trunks are covered with vines climbing and winding about them. I took a ride of seven miles from Tokio, and climbed a point which gave me an extended view of a large cultivated valley, backed by a range of hills. The whole country is picturesque and varied in scenery. In the spring and summer the country is said to be charming from the richness and variety of its flora. There are large groves of the Japonica, and the Azalea is often seen mixed with the Tea-plant, forming long hedges. That magnificent Lily we sometimes see in gardens and drug-stores to sell is as common here as the Poppy in California.

The hills around the bay of Nagasaki are very picturesque and thickly covered with trees, shrubbery, and vines, and the stone walls and old temples on sunny sides are covered with mosses, lichens, and ferns, and this growth extends over the floors and pathways. Before reaching this place we passed through the island sea. It is so full of islands that navigation is difficult. They are all clothed with verdure, and, although many of them have quite high points, they are terraced and cultivated to the top.

TIMBER, for durability, is usually cut in midsummer or midwinter, as then the seasoning process is more rapid and perfect.

BLUE GUM AND ITS CULTURE.

The Eucalypti family is rather numerous—there being not less than thirty species, of which the “Blue Gum” or *Eucalyptus globulus* ranks highest in the estimation of Californians. Of all trees, whether of this family or any other, “Blue Gum” is the most rapid grower—besides possessing medical qualities which add much to its value. For a sparsely wooded region, where the temperature does not descend below 25 degrees Fahrenheit, no variety of tree can be grown to the same size in the same period of time. Its wood is valuable for fuel as well as manufacturing. There are, however, other species of the family, but little known here generally at present, that will at no distant day become quite if not more popular than the “Blue Gum,” whose wood is harder, closer grained, and better adapted to the thousand uses to which timber is applied. When it becomes known that this family has among its members species whose wood, can be converted into shingles, studding, and weather-boarding, and that buildings constructed of such will not only be remarkable for their durability, but nearly as “fire-proof” as are iron buildings, and on which underwriters will willingly issue policies at half the rates common on other buildings, then the value of such species will be better appreciated by tree-growers.

Culture.—Make boxes about two feet long by sixteen inches wide, and from three to four inches deep, allowing small holes in the bottom for drainage. Fill up till within half an inch of the top with fine alluvial soil, moderately rich. Smooth the surface; sprinkle the seed evenly all over it, and cover with an eighth of an inch of soil composed of half sand. To attain the best results

the boxes should be placed in a "cold frame." If sown in summer, shade the glass by a covering of whitewash or light muslin. In the absence of glass, make a frame of boards with a movable cover made of laths nailed from one-fourth to one-half inch apart, under which place the boxes. Water will be needed daily if the weather is warm and little moisture in the atmosphere, and should be applied with a fine sprinkler. Seed will germinate in from eight to fourteen days. When plants are two inches high, begin to "harden" them by allowing more air, increasing from time to time until they have become hardy enough to withstand the hot sun of the day and the cool air of the night. When six inches or more high they may be transplanted to a temporary or permanent place, care being taken to remove the plants with some earth attached to the roots, at least not to allow the roots to be exposed to the atmosphere. For forest culture, the young trees should be planted from eight to twelve feet apart each way, and between the rows should be cultivated for two years, when they will be strong enough in trunk and root to care for themselves.—*Cotton Culture.*

THE KUM-QUAT.

BY A FRUITIST.

The fruiting of the Kum-Quat in various parts of California, especially in the more southern counties of the State, should awaken an interest among pomologists in the fruit. It is a small species of Orange, *Citrus Japonica*, which is found in both Japan and China, as well as in a few places in the Sandwich Islands. It was figured and described in Europe in the last century

by Thurnberg, but it was not known in cultivation there in their conservatories until 1842, when Mr. Fortune introduced it into England, and it was cultivated at Chiswick, near London; of course, in a hothouse. Later it has been successfully fruited there, and is likely to become a popular plant. We see specimens of it in some of our gardens in San Francisco and elsewhere, but it requires a warmer climate than most situations on our middle coast near the ocean, and fruits very seldom in the open air in these localities—perhaps, chiefly from their being so much moisture.

In China the Kum-Quat is grown as a shrub about six feet high; but trained to the back-wall of a greenhouse, it has in England reached the height of fifteen feet. The plant resembles a dwarf Orange-tree, but with smaller and thinner leaves; it flowers freely, and is very attractive in bloom. The fruit, which is about the size of a gooseberry, is like an Orange in miniature, having a bright orange rind, which, when scraped, gives off a highly agreeable perfume. Within there are five cells, filled with an exceedingly acid pulp. The fruit picked with its leaves attached makes a beautiful ornament for the dessert, and when preserved with sugar forms a sweetmeat which is highly esteemed. According to Mr. Fortune the Kum-Quat grows in the greatest perfection in a portion of China so cold that the Orange will not thrive, and that in the Orange region of southern China the Kum-Quat does not succeed so well. The Chinese grow it in pots, but it does better in the open ground. The plant requires a warm summer to ripen its wood, and a dry winter, and it would no doubt prove hardy in many localities in the Middle States, as in China it endures a cold of

below 20°. It being an ornamental plant in both flower and fruit, and useful as well, it is hoped that our nurserymen will cultivate it for sale more than they do.

The Kum-Quat will not graft upon the Orange; the proper stock is *Citrus trifoliata*, a small hardy species, which propagates from cuttings. The preserved fruit is to be found for sale in our Chinese and Japanese stores, and also on the stalls in the streets of our "China-town." It is a small, nice preserve, quite sweet, with, for most people, a peculiarly pleasant flavor. It is sold with its dry, brittle, rough rind, which is easily broken by the hand. They must be very plentiful in China, for the price is quite reasonable even here. The stone or seed is hard, and the soft pulp is all around it.

LILACS.

Lilacs are indigenous to a comparatively limited area in Europe, but they have a wide range in Asia. In addition to several distinct species (for the most part well known and widely cultivated), our collections have been from time to time enriched by the accession of a large number of splendid varieties, obtained either by hybridizing or by selection from garden sports. There are few garden soils in which Lilacs will not grow, and even thrive; though they succeed all the better in such as are deep and rich with a cool subsoil. An occasional moderate allowance of well-rotted manure, pointed in among the roots, is always acceptable.

SYRINGA VULGARIS (the common Lilac) is recorded as indigenous to Hungary and Persia, and has been cultivated in British gardens since 1597. It is naturally a many-stemmed broad bush, vary-

ing in height from 15 to 25 feet, according to soil and situation; but when trained as a standard it makes an extremely handsome lawn plant, producing its grand panicles of fragrant lilac flowers, about the middle of May, in wonderful profusion. As it grows freely and rarely fails to flower, even amid the disadvantage of dust and smoke in towns, it should never be overlooked in making a selection for planting squares and street gardens. Of this species there are a large number of interesting varieties, of which the following may be noted as very distinct, and, both as regards foliage and flowers, no less beautiful than the parent: *Alba*, the well-known old white-flowered Lilac; *Noisettiana*, also white, but with larger panicles; *Cœrulea*, flowers deep blue; *Violacea*, a kind with violet flowers; *Charles X*, purple, panicles very large; *Philemon*, lavender-colored; *Dr. Lindley*, rich purple, panicles very large; *Triomphe d'Orleans*, pinkish purple; *Rubra insignis*, dark red; *Duchesse de Mours*, pale blue, panicles and flowers very large.

S. PERSICA (the Persian Lilac), indigenous to Persia, from whence it was first introduced in Europe in 1640. It is perfectly hardy, and forms a neat dwarf bush of from four to six feet high, with numerous slender branches; its panicles of pale-purple sweetly scented flowers coming out, in May or June, in such abundance as almost to hide the foliage. The leaves are smaller than those of any of the other species, somewhat lanceolate in form, and of a dark-green color. It is invaluable for small gardens or shrubberies, growing vigorously in any kind of good garden soil, and in any situation in which a shrub could be expected to thrive. Of varieties, *alba*, with pure white flowers, and *laciniata*, with leaves more or less

deeply pinnatifidly cut, are both quite as hardy and as easily cultivated as the parent, and well deserving of a place among the choicest dwarf shrubs.

S. Emodi, (the Himalayan Lilac,) is found abundantly on the Himalayan Mountains, and was first sent to England in 1836. It is a broad thick-foliaged shrub of about ten feet high. The leaves are larger than those of the common species; of an elliptic-oblong form; bright green above and slightly glaucous below. The flowers are light purple; produced, like those of the other species, in panicles, and usually in perfection in May. Though thriving best in a moderately sheltered situation, it is a very hardy shrub, quite distinct in appearance from the others. It is ornamental enough for association with the finest of its class, forming a neat standard when properly trained, and is very desirable for small lawns as a single specimen.

S. JOSIKÆA (Josika's Lilac).—This is indigenous to mountains on the Rhine, and was named in compliment to a lady—the Frau Baronin Von Josika—who discovered it on the Siebenbergen Range in 1830. It forms a handsome bush of about ten feet high, somewhat erect in its style of growth. The flowers—which are produced much later than those of any of the other species—are of a very deep color and sparingly distributed over the long panicles. The leaves are similar in size to the common Lilac, but more lanceolate in shape; with a rough leathery texture, and a dark sombre-green color. Though this plant neither produces its flowers in such rich masses or so copiously as the common Lilac and its varieties, it is nevertheless a valuable ornamental shrub. It is hardy enough for the most exposed situation, and so distinct in appearance, from its peculiar habit and

foliage, that it produces the finest effect when contrasted with other shrubs of lighter tints in mixed borders. It thrives best in a deep, rich, and moderately damp soil.

S. ROTHOMAGENSIS (the Siberian, or Rouen Lilac).—Some writers assert that this is a native of Siberia, and a distinct species; others that it is a hybrid raised about the latter end of the last century by M. Varin, the then Director of the Botanic Gardens at Rouen, the parents being *S. persica* and *S. vulgaris*. The probabilities seem to be in favor of the latter theory, as in general appearance it is just what might be expected from the blending of the styles of growth, foliage, and flowers of the two species. In any case the same plant is found in collections both under the name we have adopted and under that of *S. sibirica*. It was first introduced into our gardens in 1795, and has since been widely distributed. It is well known as one of the showiest, most beautiful, and hardiest of flowering shrubs. Though more robust in its habit of growth than *S. persica*, it has a general appearance suggestive of a large variety of that species, and is a grand plant either for a shrubby border or as a close bush for a lawn specimen.—*The Gardener*.

TREE LABELS. — The *Massachusetts Ploughman* says that the best and cheapest labels for trees are simple strips of zinc, corroded by contact with the air, and then written on with a black lead pencil. This is said to have been an accidental discovery of Colonel Wilder. When you first write on them with a black pencil, you can not, if you try, rub off the name, and in a few months the name becomes permanent so that it can not be rubbed

off as long as the zinc continues to corrode. Colonel Wilder has many labels that have hung on the trees for thirty years, which are as perfect as ever. Sometimes the labels will get a little coated with a white substance that gathers on them, but a light rubbing with a moistened finger will bring out the name with perfect distinctness.

THE BEECH-TREE.

BY E. J. HOOPER.

The Beech (*Fagus Sylvatica*) grows, as we all know, to a considerable stature, though the soil be rather stony and barren; as also on the declivity of hills and mountains, where they will resist the winds better than most other trees. They would, no doubt, do well on our Coast Range of mountains; but then the nurseries for the young plants ought to be made upon the same soil, for if they are raised on too rich ground and warm exposure, and afterward transplanted into a bleak, barren situation, they seldom thrive; which principle holds true with most other trees, whether fruit or otherwise.

The timber is of great use to turners for making trenchers, dishes, trays, and buckets; also to the joiner for stools, bedsteads, etc., and is esteemed excellent fire-wood. The mast, as is well known, is very good for fattening swine and deer, and affords a sweet oil.

It delights in rather stony ground, where it generally grows very fast. The bark of the tree in such land is clear and smooth; and although the timber is not so valuable as that of many other trees, yet as it will thrive on such soils, where few better trees will grow, the planting of them should be encouraged, especially as it affords an agreeable shade, and the leaves make a fine ap-

pearance in summer, and continue green as long in autumn as any of the deciduous trees; therefore in parks and other plantations this tree deserves to be cultivated among those of the first class, especially where the soil is adapted to it.

Thus much for the more practical part relating to the Beech. This tree is a favorite tree with naturalists and poets. Gilbert White, in his charming *Natural History of Selborne*, where he lived and wrote his famous book, pronounces it one of the most beautiful objects in creation. He says: "Find me another tree that looks so much like a gem of emerald when the sunbeams fall full upon its foliage, and the gentle wind steals softly over its branches, producing an effect which no artist could ever represent. Then, again, it has the smoothest and clearest bark in the forest; and many a lover has cut his fair one's name upon its polished rind. There is also a sweeping grace in its drooping branches, hanging in every grand and unimaginable form." "They make spreading trees, and noble shades with their well-furnished and glistening leaves," says old Evelyn; and but few men understood better the beauty of trees.

There is also the Purple Beech, another beautiful ornament for parks and pleasure-grounds, which has been known to grow to the height of thirty feet, although some botanists contend there is only one variety.

Trees are a delightful study, and it is pleasant to be so far acquainted with them as to be enabled to distinguish their different characters at a glance. This is less difficult in winter, when the ramifications or forms of the branches of the deciduous ones are so distinctly outlined; but in summer, when they have put on their full foliage, they are

more alike, and there are some kinds which bear so close a resemblance to others as only to be recognized by a practiced eye. In autumn, too, the pleasure of a country walk is increased by being able to point out every particular tree by the rich color of its leaves, the varied hues of purple, olive, red, gold, green, and even crimson (as in the Scarlet Oaks), which each tree at that time assumes.

Music breathes from the Beech, as from many other trees; its numerous spreading branches, at one time aspiring in airy lightness above the general mass of foliage, at another feathering to the ground, are the haunt of innumerable birds. Then its fine shade—" *Sub tegmine fugi,*" as the poet Virgil says.

Summer winds, too—how nimbly they come and go, causing that gentle rustling among the leaves, which sounds in accordance with the rushing of yonder mountain stream or prairie rivulet!

Every tree has its peculiar characteristics. Majesty is developed in the Oak, gracefulness in the Ash, an undefined sense of beauty in the Birch, and cheerfulness in the Beech.

Old Beech-trees in the East are often found covered with gray lichens or tufts of moss, in which field-mice love to nestle.

No other bark equally allures the young enthusiast to carve thereon the name of his beloved:

"As the letters of our names increase,
So may our love."

Enthusiasts in all ages confided their thoughts to trees, even before Virgil sung, or Shakspeare haunted the wild-wood. Poetry has, also, its imperishable associations, and many a lone tree awakens those deep emotions which are kindled whenever memory recalls the creation of poetic genius. How

appropriate, therefore, the elegant effusion of one of our poets, when, wandering in a ravine of Beeches, he thus personified one of those noble trees, which a wood-chopper had marked with his axe:

"Thrice twenty summers I have stood
In bloomless, fruitless solitude,
Since childhood in my pleasant bower
First spent its sweet and sportive hour;
Since youthful lovers in my shade
Their vows of truth and rapture made,
And in my trunk's surviving frame
Carved many a long-forgotten name.
O! by the sighs of gentle sound,
First breathed upon this sacred ground,
By all that love has whispered here,
Or beauty heard with ravished ear;
As Love's own altar honor me:
Spare, woodman, spare the Beechen-tree."

All lovers of woodland scenery maintain that no tree is more beautiful when standing in parks and pleasure-grounds. In woods at the East, as already noticed, these favorite trees grow clear of branches to a great height, and hence, as sung the poet:

"There oft the muse, what most delights her,
sees
Long living galleries of aged trees,
Bold sons of earth, that lift their arms on
high,
As if once more they would invade the sky.
In such green palaces the first kings reigned,
Slept in their shade, and angels entertained;
With such old counselors they did advise,
And, by frequenting groves, grew wise."

The stately strong Oak has abundance of acorns, and from year to year scatters millions upon the earth. The Beech's liberality is equally manifested, and its fruit is deserving of brief notice. Observe the ovate form of the inclosing calyx, its silkiness, and pliant prickles, and how beautifully the brown and glossy mast fits within that elegant receptacle.

The Beech's boughs, though comparatively unpeopled during the summer

months, are resorted to in autumn by squirrels. This nimble and light-hearted creature, with his numerous relatives, is here warily laying up a store for winter consumption.

Many a noble tree owes its birth to Beech-mast, which birds and squirrels have dropped in their haste, or perchance forgotten when carefully laid by.

UNHEALTHY PLANTS—THE REMEDY.

BY PETER HENDERSON.

Whenever plants begin to drop their leaves, it is certain that their health has been injured by over-potting, over-watering, over-heating, by too much cold, or by applying such stimulants as guano, or by some other means having destroyed the fine rootlets by which the plant feeds, and induced disease that may lead to death. The case is not usually important enough to call in a "plant doctor," so the amateur begins to treat the patient, and the practice in all probability is not unlike that of many of our household physicians, who apply a remedy that increases the disease. Having already destroyed the, so to speak, nutritive organs of the plant, the stomach is gorged with food by applying water, or with medicine by applying guano or some patent "plant food."

Now the remedy is very nearly akin to what is a good one when the animal digestion is deranged—give it no more food until it re-acts. We must then, if the roots of the plant have been injured from any of the above-named causes, let the soil in which it is potted become nearly dry; then remove the plant from the pot, take the ball of soil in which the roots have been enveloped, and crush it between the hands

just enough to allow all the sour outer crust of the ball of earth to be shaken off; then repot in rather dry soil (composed of any fresh soil mixed with an equal bulk of leaf-mold or street sweepings), using a new flower-pot, or having thoroughly washed the old one, so that the moisture can freely evaporate through the pores. Be careful not to overfeed the sick plant. Let the pot be only large enough to admit of not more than an inch of soil between the pot and ball of roots. After repotting, give it water enough to settle the soil, and do not apply any more until the plant has begun to grow, unless indeed the atmosphere is so dry that the moisture has entirely evaporated from the soil; then of course water must be given, or the patient may die from the opposite cause—starvation. The danger to be avoided is in all probability that which brought on the sickness, namely: saturation of the soil by too much water. Other causes may induce sickness to plants, such as an escape of gas in the apartment, or smoke from a flue in the greenhouse, but in all cases, when the leaves fall from a plant, withhold water, and if there is reason to believe that the soil has been poisoned by gas, or sodden by moisture, shake it from the roots as before advised, and repot in a fresh flower-pot. Many years ago, when I used smoke-flues in my greenhouse, some kindling wood, carelessly thrown on the top of one of them, ignited, and the smoke caused the leaves of every plant to drop. There were some 3,000 plants, mostly Tea-Roses, in the greenhouse; it would have been too much of a job to repot all, but by withholding water for some ten days, until they started a new growth again, very few plants were injured.—*American Agriculturist.*

FACTS ABOUT HOME-MADE RAISINS.

We have made a record from time to time of all the important facts within reach about the production of raisins, because there is now a good prospect that this may become an important industry in this State. The early storms this year were very destructive to the raisin crop. But the business in many localities has been advanced beyond the experimental stage. We have noticed both processes of manufacture, viz: that by artificial drying, and by sun-drying.

A correspondent of the *Rural Press* furnishes some important data about raisin production in Yolo County:

"I irrigate my vineyard by covering the ground with water when the Muscats are about the size of small Peas. If irrigated earlier they drop their fruit; if later, the ground remains too wet at the time of ripening and causes mildew. Two years ago I did not irrigate all the vineyard. On some portions that I did not irrigate I raised twenty pounds of first crop and fifty pounds of second crop per vine. But where I irrigated the yield was still larger—so much so that I determined always to irrigate in future. I can raise on larger vines fifty pounds average at the two crops. This will make seventeen pounds of raisins, which, at present prices, will sell for \$2.00—this much for raisins from each vine. I set 500 vines per acre, which gives \$1,000 per acre for Muscat raisins. I have made raisins of the Flame Tokay Grapes. They are not good. The seeds are too large and too hard. They yield larger crops than the Muscats, but the superiority of raisins from the latter more than compensates for the difference. Besides, my Muscats grow very large. I have measured them five inches in their longer circumference.

"It costs one day's labor for every 250 pounds of fresh Grapes that we pack in boxes for the San Francisco market; but when picking for raisins they do much more than this. Each hand will pick and lay out for drying 800 pounds per day.

"I have only twenty-six acres of vines. They are of all ages—from six years downward. I raised about 100 tons of Grapes this year. Many of them were sent to San Francisco for table use. I am going very slowly in raisin production, and shall not try to do any more than I can do well, but I have already done enough to see that when once master of it, it will be a most pleasant and profitable business.

"I lost about 250 boxes this year by the rain. But such a spell of wet weather so early in the season was never known before."

This is one of the few instances which we have noted where irrigation has been resorted to for Grape-growing. Irrigation has been generally discarded where Grapes are grown for wine-making. If the product of an irrigated vine is fifty pounds of Grapes, or seventeen pounds of raisins, worth in the market \$2.00, certainly the poorest vineyard would be turned to a better account than rooting it up. The vines can be easily grafted and brought into partial bearing the second year.

The same correspondent reports the following facts about the experiments of Mr. Briggs, of Davisville:

"I have forty acres of Grape-vines in my vineyard. This year I have made 1,750 boxes of raisins, containing twenty-five pounds each. When the rains came on this fall I had about 400 tons of Grapes nearly cured for raisins lying out on the ground drying. The rain spoiled all of them. Had our rains held off this fall as they usually do, I



From a Photo by MURBRIDGE.

MALE SEA-LION SLEEPING.



From a Photo by MURBRIDGE.

MALE SEA-LION WAKING.

SEA-LIONS, OR SEALS, AT WOODWARD'S GARDENS.

[See page 63.]

should have made this year over \$20,000 worth of raisins, but our very early rain destroyed more than three-fourths of them. Last year I made no raisins, on account of the late frost having killed my Grape crop; but year before last I made a quantity that readily sold for ten or eleven cents per pound. My raisins are made from Muscat Grapes. They yield well with me every year. The crop this year was very good. We gathered over twelve tons of Grapes from one acre of vines, many vines producing 150 pounds each, while the average was about sixty pounds per vine—that is, too, without irrigation. I have set a new vineyard of 160 acres, near the Cache Creek Ditch. I have chosen that locality so that I can irrigate them when, from drouth or other cause, there shall be any necessity for doing so. These vines I have set ten feet apart each way. I think they will insure a better growth of vines with larger Grapes.

—♦♦♦—

NAMES OF PLANTS—ENGLISH VS. LATIN.—My friend asks: "What is this pretty flower?" "*Galasine azurea.*" "What a long name!" "I can not shorten it." "But why have a Latin name? Better call it 'Blue Smiler,' in plain English." "Then you like such names as 'Shamrock,' 'Blue Bells,' 'Eglantine' and 'Culowkeys'?" "Certainly; everyone can understand them." "You can recognize the plants?" "Easily." "Well, I can show you in point endless discussions as to what they are. On the other hand, I defy you to produce two persons who disagree as to what is meant by '*Eucharis Amazonica.*' Paradoxical as it may seem, Latin is, in such matters, more intelligible even to an Englishman than English."—*Journal of Horticulture.*

THE FUCHSIA.

Within the mountain lodge we sat
At night, and watched the slanted snow
Blown headlong over hill and moor,
And heard, from dell and tarn below,
The loosened torrents thundering slow.

'Twas such a night as drowns the stars,
And blots the moon from out the sky;
We could not see our favorite larch,
Yet heard it rave incessantly,
As the white whirlwinds drifted by.

Sad thoughts were near; we might not bar
Their stern intrusion from the door;
Till you rose meekly, lamp in hand,
And, from an inner chamber, bore
A book renowned by sea and shore.

And, as you flung it open, lo!
Between the pictured leaflets lay,
Embalmed by processes of time,
A gift of mine—a Fuchsia spray,
I gathered one glad holiday.

Then, suddenly, the chamber changed,
And we forgot the snow and wind;
Once more we paced a garden path,
With even feet and even mind—
That red spray in your hair confined.

The Cistus trembled by the porch,
The shadow round the dial moved;
I knew this, though I marked them not,
For I had spoken, unreprieved,
And, dreamlike, knew that I was loved.

Sweet wife! when falls a darker night,
May some pure flower of memory,
Hid in the volume of the soul,
Bring back o'er life's tormented sea
As dear a peace to you and me.

—♦♦♦—

WILD TOBACCO.—The Tobacco-plant appears to be indigenous to Nevada. It grows wild in several parts of this county, and the stalks attain a height of three or four feet in some places, particularly where the soil has been disturbed. The weed flourishes along the railroad embankment near Kemler's Mill, where it may now be seen by those who have any curiosity to examine it.—*Winnemucca Silver State.*

SOME GOOD ROSES.

BY F. A. MILLER.

So many varieties of Roses have been introduced, that it is difficult for an amateur to select from the list in the catalogues issued annually by nurserymen. It is true that every year some excellent acquisitions are made in Roses; but the introduction of new Roses is decidedly overdone, nine-tenths of them being inferior to old and well-known varieties.

The points to be taken into consideration in selecting a collection of Roses are:

1st. Flowering season. The most valuable in this particular are the varieties which produce flowers for the longest period of time. Those which flower with us all the year round will of course be considered the most desirable.

2d. Color. In the selection of varieties, distinctly contrasting and decided colors should receive due consideration.

3d. Form, which is a most important point in the quality of a Rose. While some varieties produce exquisite buds, others are most beautiful when in full bloom.

4th. The habit of the plant in growth, as well as the disposition of the flowers. Some varieties of Roses are very strong growers, while others are of dwarfish habit. Some may be pruned into any desirable form, while others will produce comparatively few flowers if the pruning-knife is used severely.

5th. Fragrance in Roses is also entitled to consideration. However, some of the most beautiful Roses are the least fragrant.

A most important point for us in California is the prevailing mildew, to which our Roses have been subjected during the last five or six years, and which attacks some varieties more than others. The old and well-known Gé-

ant de Batailles, for instance, is so badly affected that it is of rare occurrence to see a good flower. All sorts of remedies have been suggested for this evil, but none have proved very satisfactory, owing perhaps to our dry atmosphere. This subject should be taken up in good earnest by our practical florists, as the fatal disease has discouraged many persons from planting Roses. I have been informed by some growers that where the Australian Gum-tree is planted extensively, Roses have kept nearly free from mildew; and, so far as my own observation goes, I have at least noticed that Roses within a short distance from the Blue Gum seem to have kept comparatively free from mildew. This may have been due to other conditions, yet some further close observations may throw more light on this subject.

I am inclined to believe that florists will do well to import a new stock of Roses from the East for a few years, in order that clean wood may at least be obtained for the purpose of propagation. Roses budded on Manetti stock seem to be least affected by mildew; but our people object to planting budded Roses, so that the only remedy seems to lie in the importation of new wood of the most desirable varieties.

The varieties of Roses which I may be permitted to call constant bloomers are few in number.

General Jacqueminot (Pauline) of brilliant crimson color, is the best ever-blooming Hybrid Perpetual; it flowers tolerably fair with us during the winter months.

Eliza Sauvage (yellow to white), *La Sylphide* (flesh to pink), *Safrano* (apricot to buff), *Devoniensis* (creamy white) *Delphine Giradot* (white and blush) *Gerard Desbois* (bright red), and *Reine du Portugal* (deep yellow), are, as far as I

have experienced, the best winter-blooming Tea Roses, and flower most profusely during the summer months.

Agrippina (brilliant red), *Cels Multiflora* (blush pink), *Daily White* (pure white), *Mrs. Bosanquet* (clear flesh), and *Tancredi* (deep red), of the class called China Roses, are excellent and constant bloomers, in winter as well as in summer.

Gloire de Rosamene (brilliant velvet carmine), *Hermosa* (bright pink), and *George Couvier*, are well-known Bourbon Roses, which are always in bloom, winter months not excepted.

Of the Noisette (Climbing) Roses, *Lamarque*, *Marechal Neil*, and *Celine Forestier*, are most constant bloomers.

[To be Continued.]

FRUIT CULTIVATION, AND REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

In the raising of all kinds of fruits, except every one of the extremely or purely tropical, and there are some exceptions even with these, California certainly takes the lead of all her sister States of the Union. With regard to Apples and Peaches, there are many states east of us which equal us in the plentiful production of them, but as to Pears, Plums, Apricots, and Nectarines, California is far in advance of them, and also of the Southern States. We have greatly the advantage over the Eastern and Northern States in seldom having any frost sufficiently severe to destroy the crops, Apricots and Grapes being the chief fruits that are at times cut off partially by frosts in some places; therefore our Pears are never injured by freezing weather to any extent worth mentioning. Nor have we any blight, insectivorous or atmospheric, to attack

them. With Pears, as with all the other varieties of fruit, everything else in our climate and soil is much in their favor. We have no curculio to destroy our Plums, a fruit so remarkable for its prolific as well as delicious qualities. The stalls in the markets of San Francisco and all our other cities actually groan with the immense abundance of this valuable crop, as indeed they do with all the other riches of Pomona.

All the more hardy, and, also, the most tender-fleshed Cherries thrive well here in most situations, as we seldom have at the season of their ripening rain sufficient to cause them to rot, so frequent in the rest of the States. Nor have we any curculio to puncture them, and render them uneatable. We are not aware of any disease to which they are subject. We do not know exactly the reason, unless it is the enormous quantities of many other fruits at the time the Cherry is ripe, but the early sorts, as the Morellos, and Early Richmond, are but little cultivated in this State compared with the sweet class of Cherries. Some of us who have been accustomed to see the Eastern fruits, especially the Plums and Cherries, so deformed by insects, and so often rotted by the rains, are sometimes almost in ecstasies at the soundness, large size, and beautiful complexions of these, and, in fact, all other fruits here.

Our mountains and valleys, but particularly the foot-hills and slopes of the Sierra (these latter lands being comparatively little occupied as yet), are admirably adapted to fruit-raising, and of these the best lands for the culture of the vine are the least valuable of our hill-sides. It is certainly our opinion that in America there is not a more inviting field for industrious horticulturists than California. And besides the middle and more northern districts of

the State, there are the southern counties, where the semi-tropical fruits are raised in great abundance; and if the markets should be glutted, as they have been sometimes, by the vast quantity of all kinds of fruits, there are the canning and Alden drying processes, that can be resorted to, always ready to enable persons to dispose of the superabundance for home or foreign sales.

In speaking above of the success in Pear-raising in the East in some special localities, we are led here to speak of the continued efforts, energy, and success of the worthy and venerable President of the United States Pomological Society, Hon. Marshall P. Wilder, of Dorchester, near Boston, who we observe has again sent to the *Horticulturist* of New York, as he has done to other horticultural journals for many years, notices of nine new Pears, namely: *Vicar Junior*, *Madame Henri Desportes*, *Docteur Koch*, *General de Bonchamp*, *Dr. Lindley*, *Maurice Desportes*, *Lucie Aubusson*, *Madame Loriot de Baruy*.

About the 22d of last month (January) Oranges were becoming very plentiful, and prices were declining. Solano and Sonoma Oranges figured prominently in the market stalls, and commanded the highest price. While Los Angeles Oranges are badly stained with the exudation of the scale-bug, those of the northern counties bear no signs of its presence, which gives them a decided preference with buyers. A fair quality of Orange is sold by street peddlers at 25c. per dozen; in the markets the same price is asked for the poorest. The range about the end of January was from 25c. to \$1 per dozen. Pears were getting to be very poor. Most of the fruit in market was from Oregon. Apples were abundant, and in fine condition. These were then, and are still, the only fresh fruits we have in season,

and the only ones that will be until Strawberries are in season.

Dried fruits and nuts are quoted as follows: German Prunes, 15c. to 25c. per lb.; California Plums, 15c.; Dates, 25c.; Butternuts, 25c.; Chestnuts, 35c.; Almonds—California soft-shell, 25c.; imported do, 35c.; Walnuts, 20c. to 25c.; Filberts, 25c.; Cocoanuts, 10c. to 15c. each.

About the last of January there was a notable scarcity of good vegetables. Old crop Potatoes were all more or less affected by the rot. New Potatoes were small, and far from being ripe. An inexorable demand was the only excuse that could be offered for digging them up in their then condition. Pinkeyes were quoted at 6c. per lb. The range of other varieties of new Potatoes was from 6c. to 8c. A small quantity of early Green Peas—the first of the season—found its way into market on the 20th of January, and sold at 25c. per lb. Cabbage Sprouts retailed at 10c. per lb.; Field Lettuce at 35c. to 50c.; Horseradish, 20c.; Mushrooms, 15c. to 25c.; Asparagus, 62½ to 75c.; Okra (dried), 50c.; Kale, 50c. per doz.; Artichokes, \$1; Oyster Plant, 75c. per dozen bunches.

There was no particular change in the retail markets since the 20th of last month (January). Early Green Peas and new Potatoes came in slowly in small quantities. Mushrooms were of course much more plentiful after the rain, and a material decline had taken place in the price, being quoted on the 29th of January at 10c. to 15c. per lb. Other descriptions of vegetables were retailing at the same prices as the week before. There was nothing new to note in the fruit market. There were no new descriptions of fruit, nor was there any change in price. Pineapples, Bananas, Oranges, Lemons, Limes, Apples, and

Pears were the only fresh fruits in season about the last of January, and the stalls were largely filled with dried fruits and nuts.

The settled state of the weather the first week in this month (February) improved the condition of the farm, garden, and dairy produce offered for sale in the various retail markets. The supply of new Potatoes continues limited, and the size and quality poor, but the price is still high, ranging from 8c. to 10c. per lb. Puget Sound Kidney Potatoes (old crop) are at present about the best for domestic use in the market, and retail freely for 3½c. to 4c. Mushroom rooms are very plentiful and cheap, and are, furthermore, in demand. The retail price to day is 15c. per lb. Dried Chili Peppers are quoted at 50c. per lb.; Cabbage Sprouts at 10c.; Horseradish at 20c.; Dried Okra, 50c.; Green Peas, from Warm Springs, 25c., although they sold a few days ago for 35c.; Salsify, 75c. per doz.

Oranges are in good supply, and as the season advances are improving in condition and cheapening in price. Solano Oranges command the top price, 75c. per doz.; Los Angeles and Loreto Oranges range from 25c. to 75c. per dozen, according to size and condition. Excellent samples of sun-dried California Raisins are offering for 20c. per lb; California (dried) Plums, 15c.; German Prunes, 15c. to 25c.; Dates, 25c.; preserved Bananas, 25c.; California Almonds, soft shell, 25c.; imported do., 35c.; Walnuts, 20c. to 25c.; Butternuts, 25c.; Chestnuts, 25c.; Cocoanuts, 15c. each.

Green Peas in considerable quantities are coming regularly forward, and meet with ready sale. Small quantities of Asparagus are brought in by the gardeners, and sell for large prices. The continuance of the present warm weath-

er will, however, soon increase the supply. The best Apples and Pears are scarce, and prices are advancing. By the box, Apples retail at \$1.25 to \$2.50, delivered.

Editorial Portfolio.

LILIES.

We embellish the present number of the HORTICULTURIST with the pictures of four handsome Lilies furnished us by James Vick, the eminent florist of Rochester, New York. These are *Lilium lancifolium*, *Lilium auratum*, *Lilium Japonicum longiflorum*, and *Lilium chalcidonicum*. The three first-named are from Japan. The fourth is a native of Palestine, and is supposed to be the flower referred to by Christ as the Lily of the field arrayed in glory far exceeding even the glory of Israel's most voluptuous monarch. With regard to Japan Lilies, the elegance of these comparatively new additions to our collections is of such high and chaste order as to meet the taste and admiration of every beholder. No wonder, then, they have so rapidly extended; for they are certainly desired, if not present, in every garden. Added to their universally admitted attractions of stately grandeur and brilliant coloring, may be mentioned their great docility, generally, of cultivation; being, in fact, manageable by the merest tyro, without trouble or other means than thoroughly good soil. They are grown in various ways: a portion are potted and brought forward in a gentle heat, to afford an early bloom for the conservatory; others are also placed in pots, but allowed to grow in a natural manner, so as to bloom after the first named; while a considerable number are planted into the beds of the flower-garden, as permanent or-

naments to that part of the charge. Their culture, therefore, is attainable by anyone, let his conveniences be what they may.

To grow them in pots for the greenhouse is the most usual practice, where their beauty is unquestionably heightened, and preserved for a longer time than can be expected with those exposed to the vicissitudes of even California seasons, or of others influenced by a foreign regimen in the early stages of their growth. Large pots are essential to a vigorous growth; for a full-grown bulb, capable of flowering, the pot should be a foot or fourteen inches in diameter, and, if there are two or three bulbs together, of course a still greater size will be necessary, without being at all disproportionate; for the plants attain a height of from four to five feet, and should there be three or four stems, the foot-stalks of the flowers will extend in a lateral direction and form a large head. The soil most suited to them is a mixture of turfy loam and peaty earth, with a proportion of about a third of thoroughly rotten manure. This compost should be used in as rough a state as possible, with a proper regard to its being well mixed, leaving all the roots, sticks, and similar matters in it, and a good drainage being placed in the bottom of the pot. The soil must be pressed firmly round the bulb, leaving its crown about two inches below the surface. A liberal supply of water should be given daily while the plants are growing, and an occasional soaking of liquid manure will add to the general vigor. At the ripening of the season's growth a gradual reduction of the supply of water should take place, until, by the end of autumn, the soil in the pots is left dry, and the roots in a dormant and fit state to pass through our short season of rest.

Those which are grown entirely out of doors—and the whole of them are perfectly hardy—should be planted in soil similar to that recommended for potting, and must have attention to staking and watering in dry weather, though the trouble they occasion is scarcely worth mention, until the season of comparatively small growth here: and a layer of fresh leaves or other litter may be



No. 1.



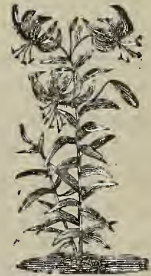
No. 2.

thrown over the beds to preserve an equal temperature, lest they make too early a growth and then suffer from adverse weather.

Frequent removals of them are injurious, by destroying the roots. All Lilies, but especially the California, require quite deep planting. The Japan Lilies are very fragrant.



No. 3.



No. 4.

Lilium chalcedonicum, or Scarlet Martagon, grows wild in every country from Galilee to Greece. But whether the blue Lily *Ixioleirion montanum*, or the *L. chalcedonicum* was the true Lily of the field, according to Scripture? Dr. Lindley, on the authority of Sir John

Bowring, came to the conclusion that the Scarlet Martagon was the Lily of the field, because that traveler happened to pass through the country when the Martagon was in bloom. But Sir E. Smith, the traveler, was of the opinion, with the traditional idea of some shepherds, that the reddish-blue and azure Lily—*Liolirion montanum*, the only Lily in all Syria, was the one referred to in the Sermon on the Mount. Some have thought the *L. chalcedonicum*, like the Potato, may have overrun the countries of the old world, through being so gay, as the Potato has for its usefulness. It may have been a stranger in Galilee in the time of Christ. After all, probably, no particular Lily was meant at all. The *Liolirion montanum*, the Blue Bells of the Holy Land, Mr. Beaton the florist says, once and once only flowered in England: he had the opportunity of seeing it in bloom, about the middle of May. It is a slender-growing plant, very much like the growth of a long-leaved *Ixia*.

P. Hanson, Esq. of Brooklyn, L. I., has one of the largest collections of Lilies in the United States. His collection numbers over 150 sorts, if the sub-varieties are included.

In addition to the very fine representation of the bloom of four Lilies in the frontispiece of the present issue of the HORTICULTURIST, we have given space to miniature illustrations of the plant and flower of each of them, so that they may be the more easily recognized; the numbers here given corresponding with those placed underneath each figure in the large plate, as follows: 1, *Lilium chalcedonicum*; 2, *L. Japonica longiflorum*; 3, *L. auratum*; 4, *L. lancifolium*.

We again take this opportunity to acknowledge an indebtedness to James Vick, the great seedsman of Roches-

ter, N. Y., for his kindness in furnishing us these and many other plates for illustration and description.

SEA-LIONS, OR SEALS, AT WOODWARD'S GARDENS.

In addition to our cuts of flowers this month, we present to our readers four chiefly outline but handsome engravings of sea-lions in their varied natural attitudes; animals for so long a time such attractive objects in that most popular place of public resort, Woodward's Gardens. These life-like pictures of seals are taken from that most valuable and interesting work, *Marine Mammals*, by Capt. Charles M. Scammon. The sea-lion is known among naturalists as belonging to the sub-family *Trichophocinæ*, of which there are three genera and several varieties distributed in various parts of the world. Two species at least inhabit the coast of California; at any rate, quite as far south as the Farallones. The largest specimen found disporting in the pond and often climbing the large central rock, at the Gardens, must be twelve feet in length, and correspondingly gigantic in form. He is indeed a noble fellow, and a great favorite with the public. These wonderful animals are found to be rather migratory in their habits, changing from the cold latitudes to the tropics; as arrows or spearheads, such as are used by the northern sea-coast natives, have been found in the bodies of those killed upon the southern coast of this State.

Our zincographic illustrations exhibit well the facial expression of some of these creatures when sleeping, waking, and when in a state of excitement, which is manifested by howling or roaring. The young pups, or whelps, are of a slate or black color, and the year-

lings of a chestnut brown. Great numbers of seals are to be found almost at any time during a clear warm day, upon the rocks adjacent to the sea (sometimes also in our bay), where they keep up a plaintive howling, croak hoarsely, or send forth sounds like the bleating of sheep or the barking of dogs. They show the fondest regard for their young calves, over which they keep the closest watch. Some of the older ones appear, at first, to be very brave, and often, when teased, make toward you with open mouths, displaying at the same time their tusks. But we have discovered them to be, as a general thing, great cowards. The simple wave of your hand will often make them "take water." Still, should they be so pressed as to render a fight inevitable, they would, in our opinion, prove very ugly customers to handle. At all events they fight almost like tigers among themselves. They live upon fish, mollusks, crustaceans, and sea-fowls. When in pursuit of the last, chiefly the penguin, Capt. Scammon states that the seal "dives deeply under the water, and swims some distance from where it disappeared; then rising cautiously, it exposes the tip of its nose above the surface, at the same time giving it a rotary motion, like that of a water-bug at play. The unwary bird on the wing, seeing the object near by, alights to catch it, while the sea-lion, at the same moment, settles beneath the waves, and at one bound, with extended jaws, seizes its screaming prey, and instantly devours it."

Don't fail to read the advertisement of T. C. Maxwell & Brothers, Geneva, N. Y. They are reliable men, and have a large stock of the best of Trees, Plants, etc. It will pay you to correspond with them.

CATALOGUES RECEIVED.

From Ellwanger & Barry, Mount Hope Nurseries, Rochester, N. Y., No. 1: "Descriptive Catalogue of Fruits, 21st edition," from the nursery established as early as 1840. Some new Pears which promise to be of value are placed in a separate list under the head of "Select New Varieties." Mr. Rivers' "New Seedling Peaches," which have attracted so much notice in Europe, are placed in a separate list. There is also a more extended list of varieties of the Fig. Every new fruit is tested on their specimen ground; and there is this to be said of California, that if any kind of fruit will succeed anywhere, it is most likely to do so here. Messrs. E. & B. cultivate in every department over 600 acres of ground.

Also, from Ellwanger & Barry, No. 2: "Descriptive Catalogue of Ornamental Trees, Shrubs, Roses, Flowering Plants, etc." In this Catalogue are handsome engravings and descriptions of weeping and drooping trees, purple-leaved, cut-leaved, and variegated-leaved trees. Much attention is now given in Europe, as well as in our own country, to these kinds of very ornamental trees. Messrs. E. & B. are, of course, obtaining all the new varieties of every family of flowers, hardy perennial border-plants, and evergreens.

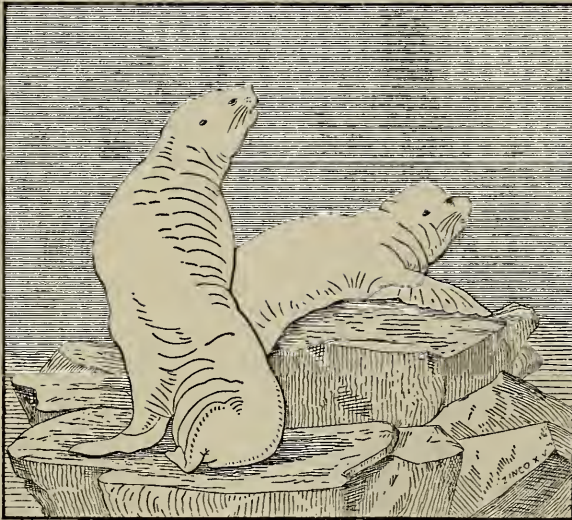
Also, from the same proprietors, No. 4: "Spring of 1875. Wholesale Catalogue of Fruit-trees, Small Fruits, Ornamental Trees, Climbing Shrubs, Hedge Plants, Tree Pæonies, Phloxes, Dahlias, Hardy Border Plants, Roses, Bulbous Roots, etc., etc."

From Peter Henderson & Co.: "Seed Catalogue for 1875," with splendid colored engravings of a group of Dianthus or Pinks, and a colored engraving of Henderson's Summer Cabbage. This



C. M. Scammon, Del.

APPEARANCE OF A MALE SEA-LION WHEN ROARING.



FROM LILLIOTT

FEMALE SEA-LIONS OF ST. PAUL'S ISLAND.

SEA-LIONS, OR SEALS, AT WOODWARD'S GARDENS.

[See page 63.]

handsome catalogue contains many engravings of the choicest flowers and vegetables.

Also, Peter Henderson's No. 27: "Spring Catalogue of New, Rare, and Beautiful Plants for 1875." This fine nursery was established in 1848. The catalogue contains a most beautiful colored engraving of the rarest and choicest Verbenas, with splendid wood-cuts of many of our most highly prized flowers.

From J. M. Thorburn & Co.: "Annual Descriptive Catalogue for 1875, of Flower Seeds," with practical directions for their culture and treatment; also, a choice list of beautiful French Hybrid Gladiolus, and other spring bulbous roots.

Also, from the same nursery and establishment, for 1875: "Annual Descriptive Catalogue of Vegetable and Agricultural Seeds, Garden, Field, Fruit and other Seeds," embracing every standard and improved variety.

From J. B. Root, Rockford, Ill.: a neat "Garden Manual and Seed Catalogue for 1875," containing directions for many operations in the flower and vegetable garden, such as hot-beds, soil, tools, Sweet Potato culture, etc.

From A. Bryant, Jun.: "Catalogue of his Nurseries, at Princeton, Ill., for 1874-5."

The Monthly Report of the Department of Agriculture, for November and December, 1874, filled with valuable statistics and correspondence relating to the crops from all parts of the United States, Entomological Record, Chemical Memoranda, Botanical Notes, Microscopic Observation, etc.

THE new conservatory in Central Park, New York, is to be 230 feet long and 50 feet wide.

VICTORIA REGIA.—*E. S.*, San Francisco, Cal., says: "The *Victoria regia* has been grown successfully during the past fifteen years at the Insane Asylum, Nashville, Tennessee. Mr. Blair, late gardener at the above institution, informs me that the plants were doing finely when he saw them in September last; but whether seed has, or will ripen this year, can only be ascertained by applying either to the superintendent or the present gardener."

The above notice in the *Gardener's Monthly* reminds us that Mr. Miller, of Miller & Sievers' nursery of this city, informs us that he intends if possible to exhibit the *Victoria regia* Lily at our coming Mechanics' Institute Exhibition.—EDITOR.

THE CAMELLIA BLOOMING OUT-DOORS IN THIS CITY.—Mr. J. Henry Applegate, Jr., has handed to us a beautiful and perfect white Camellia, from a plant which has bloomed and is still blooming finely in the open air at his residence in this city. This plant has been exposed all winter to the north winds, having been but slightly sheltered.

NEW AND RARE PLANTS.

Adiantum Farleyense.—We had the pleasure of seeing in the greenhouse of Messrs. Miller & Sievers, at their floral establishment, on Chestnut Street, a variety of *Adiantum*, the Maiden-hair Fern (*Adiantum Farleyense*), a very exquisite and rare species. This Fern is exceedingly graceful and lovely—a native of Jamaica. Its leaves are large and perfectly and beautifully fringed, and their color vividly green. The Maiden-hair Ferns may be grown without Fern or Wardian case, in one's parlor.

CALIFORNIA RAISINS.

Samples of raisins made at Los Angeles, from the White Muscat and the Los Angeles Grape, have been received here. The raisins of the former variety are large, handsome, and of excellent flavor; those of the latter are small, but good in flavor and well adapted to cooking purposes. Both qualities find a ready sale for the markets of Arizona, Cerro Gordo, and Panamint. One purchaser for Arizona took three tons of the smaller kind, at fifteen cents per pound. The Los Angeles Grape is little inferior in size to the Muscat; but containing less pulp, it loses more in drying. The Muscat is preferred for raisins to any other variety now grown in the State; nor is there any danger that it will ever be superseded. Inquiries are made for Huasco cuttings, and if they could be got, many thousand of them, would be set out immediately; but it is uncertain when they can be obtained, and their value for cultivation in California is yet to be demonstrated. We do not even know whether the Huasco Grape would be a favorite for table use or wine; but no such doubt attaches to the White Muscat, of which a large number will be set out this winter in the southern part of the State, and much grafting will be done with it on the Mission stock. The establishment of the Alden drying-house in Los Angeles has convinced the vineyardists there that raisins are to take a prominent place among the productions of their region, and that the time has come for undertaking the business with a profit.

The experience of Yolo in raisins is encouraging. G. G. Briggs, who lost 400 tons of Grapes when nearly dry, by the rain, has set out 160 acres of Muscat, ten feet apart each way, in addi-

tion to 40 acres which he had before. His vines yielded 60 pounds each on an average, and some of them 150 pounds. A letter in the *Rural Press* quotes as follows from some remarks made by B. B. Blowers, who makes raisins from 26 acres of vines near Woodland:

"I irrigate my vineyard by covering the ground with water when the Muscats are about the size of small Peas. If irrigated earlier they drop their fruit; if later the ground remains too wet at time of ripening, and causes mildew. Two years ago I did not irrigate all the vineyard. On some portions that I did not irrigate I raised 20 pounds of first crop and 50 pounds of second crop per vine. But where I irrigated the yield was still larger; so much so that I determined always to irrigate in future. I can raise on larger vines 50 pounds average at the two crops; this will make 17 pounds of raisins, which, at present prices, will sell for \$2—this much for raisins from each vine. I set 500 vines per acre, which gives \$1,000 per acre for Muscat raisins. . . . It costs one day's labor for every 250 pounds of fresh Grapes that we pack in boxes for the San Francisco market; but when picking for raisins we do much more than this. Each hand will pick and lay out for drying 800 pounds per day."

The Muscat vine is, we believe, alone in producing a second crop in this State, but in most counties the second crop Grapes do not ripen, and they are sometimes plucked off.—*Alla*.

An English writer gives a plan for protecting all kinds of fruit from birds. It is simply crossing threads from twig to twig in various directions, so that the birds will strike against them, when seeking the fruit. He says it never fails to scare them away.

Editorial Gleanings.

ALMOND CULTURE IN SANTA BARBARA.—Mr. Olmsted, of Carpenteria, has finished picking his crop of Almonds. He will have from his orchard this season over five tons of the Languedoc or Soft-shell Almonds. Mr. Olmsted's orchard is only four years old, and, of course, is not yet in full bearing. His trees bore a few nuts when two years old. The third year the average yield to the tree was about five pounds. Two rows in the orchard, covering ground equivalent to two acres, that received great care in planting, and special culture, produced 2,000 pounds of dried Almonds. This yield, at the wholesale San Francisco market price for the Soft-shell Almond, will give Mr. Olmsted about \$230 per acre, after paying all expenses of the year's culture, gathering, sacking, and marketing. One reason of Mr. Olmsted's success in the cultivation of the Almond is the fact that he keeps the ground clear, cultivating nothing between the trees, nor allowing weeds to grow up to rob them. Thorough cultivation is required for the Almond, and the trees should be at least twenty feet apart each way.—*Santa Barbara Index*.

CAMPHOR IN FORMOSA.—As the gigantic Laurels from which the camphor is obtained are found only on the mountains in the possession of the aborigines, the acquisition of a constant supply is somewhat difficult. Only from those tribes which are on friendly terms with the Chinese can leave be obtained to cut down the trees. With such, a present given to the chief gains, as a rule, the required permission. The Chinese woodman then makes a choice of the trees which appear to be well

supplied with sap, and, having felled them, he keeps the best parts for timber, and reserves the remainder for the iron boiling-pots, by means of which is evolved the sublimated vapor which yields the camphor. In the neighborhood of Tamsuy alone 800,000 pounds of this valuable commodity are produced annually. Pétroleum also adds to the riches of the island, which, both from its natural and artificial products, is well worthy a struggle on the part of the Japanese to obtain, and on the part of China to defend.—*Cornhill Magazine*.

GROWTH FORCE IN PLANTS. A correspondent of the *Country Gentleman* has the following interesting note on growth force in plants:

“Those who have never given the matter much attention, will be surprised at the force which growing plants exert. At a recent meeting at the Academy of Natural Sciences in Philadelphia, Mr. Thomas Meehan exhibited a root of the common Pæony with a stolon of common couch-grass (*Triticum repens*) growing through it from one side to the other. He also stated that he had found Potatoes with the stolons of grass growing through them in the same manner. A short time ago, while inspecting a fine asphaltic drive, I noticed that within a diameter of four or five feet there were several spots where repairs had recently been made, and on inquiry as to the cause, was informed that after the drive became hard enough to use, these spots were observed to rise up, and continued to do so until the raised part burst open. On making repairs it was found that the trouble was caused by a few roots of the common plantain, which had not been removed when the asphalt was laid down. As the pavement was hard, and several

inches thick, the steady force of growth must have been very great. Near by, a large slate slab, four feet by six, was observed to rise steadily at one end without any corresponding depression at the other. Examination showed a root of plantain growing under the raised end, and supporting the whole weight of the stone."

THE SUNFLOWER AS A PREVENTIVE OF FEVERS. — We continue to see favorable mention made of the virtues of Sunflowers as preventives of bilious fever, chills and fever, etc. A correspondent of the *Soil of the South*, writing from a place in Alabama which he says was peculiarly subject to fevers, gives the results of his experience in the premises, and in not a single instance where he planted Sunflowers around his negro cabins, did their inmates suffer from fevers, while his wife, two children, and two house-servants, all had fevers, he not having planted any of the Sunflowers around his own dwelling, which, in his opinion, accounted for the difference in the results. We trust that next spring New Orleans may be surrounded by a cordon of Sunflowers, that they may be scattered through every garden and cover every vacant lot in the city. Who knows but they may prevent yellow fever also? The correspondent of the *Soil of the South* says:

"My opinion is, that the Sunflower in its rank growth absorbs the very elements in the atmosphere that produce fever, or chills and fever, and what is the life of the Sunflower is highly obnoxious to the health of the human family; nor do I believe that a man could ever have a chill who would sleep in a bed of rank Sunflowers. This, too, seems to be no new theory, as Lieut. Maury states that his gardener—a Frenchman—informed him that their

sanitary influence had been long known in France."

BEES AND HONEY IN LOS ANGELES.—A. J. Davidson, a successful apiarist of this county, writes as follows: "The finest grade of honey is gathered from elevated lands where the vegetation seems peculiarly adapted to this industry. The brush lands are unavailable for the pasturage of sheep, and those animals are a great enemy in the destruction of flowers yielding honey. Hives of various sizes are in use, and from the fact that many persons regard their hives as most men do their wives—*i. e.*, that each for himself has the best—we withhold our opinion. The yield of honey in 1874 for this county, taken from reports only relatively correct, is as follows, namely: 178,000 pounds strained honey, 92,000 pounds extracted honey, 34,000 pounds comb honey. The average production of different apiaries ranges from 50 to 240 pounds per swarm, the estimate being made from the parent stock of last spring. Comparatively few who are engaged in this industry have tried to improve their breed, either by the introduction of the Italian or breeding from the most productive common stock. The main aim of most has been to accumulate in numbers without regard to excellence. The advantage we possess in not being compelled to "winter bees," and the peculiar honey-yielding plants which abound in the vicinity of the mountains, have caused this to become a leading industry of this county."

CULTIVATING TRUFFLES IN FRANCE.—Large tracts of land in the south of France, not hitherto cultivated, are being planted with the kind of Oak-trees beneath which truffles are generally

found, and it is expected that each acre of this land, lately sold as low as \$25, will yield a crop of truffles worth \$100 per year. The experiment has already been tried in the department of the Vaucluse, and in the course of the last twenty years, 150,000 acres which were absolutely unproductive have been planted, and are yielding a rich return. The cost of plantation, which is borne by the commune, does not exceed twenty francs per acre on hilly ground, and though rather greater in the lowlands, the crops are proportionately heavier. Acorns only are planted on the hilly ground, but saplings of five or six years' growth, placed in rows about forty feet apart, are found to answer best in the lowlands. The ground between each row of trees is planted with vines, which, after five or six years, repay the cost of the plantation and its culture.

TRAVELING ON FOOT.—Nothing to me is more pleasing than traveling on foot. We are free and joyous. No breaking down of wheels, no contingencies attendant on carriages. We set out; stop when it suits us; breakfast at a farm or under a tree; walk on, and dream while walking, for traveling cradles reverie, reverie veils fatigue, and the beauty of the scenery hides the length of the road. We are not traveling—we wander. Then we stop under the shade of a tree, by the side of a little rivulet, whose rippling waters harmonize with the songs of the birds that load the branches over our heads. I saw with compassion a diligence pass before me, enveloped in dust, and containing tired, screwed-up, and fatigued passengers. Strange that those poor creatures, who are often persons of mind, should willingly consent to be shut up in a place where the harmony of the

country sounds only in noise, the sun appears to them in clouds, and the roads in whirlwinds of dust. They are not aware of the flowers that are found in thickets, of the pearls that are picked up among pebbles, of the Houris that the fertile imagination discovers in landscapes—*musa pedestris*. Everything comes to the foot-passenger. Adventures are ever passing before his eyes.—*Victor Hugo*.

ANOTHER NEW FRUIT-DRYER.—We have just been shown by J. B. Howed the model of a new-fashioned dry-house for drying fruit, designed by J. Lewelling, of St. Helena, and on which a *caveat* has already been filed. The arrangement consists of a furnace over which are moving trays of wire-screen for drying fruits in various positions until thoroughly prepared. The heat is generated in a furnace; passing thence through a pipe into a large drum, and thence again through two other pipes to the chimney. The arrangement of the fruit is such that it receives the heat of the sun, as well as the fire, the trays being covered with glass. The trays are to be three feet square each, and are thirty-six in number, eighteen on a side, occupying a sliding space of sixty feet in length. Mr. L. has already a working model in operation, from which he dried much fruit this past season, and found it very successful—so much so that he was encouraged to have two more furnaces put up after the first one.—*Napa Register*.

THE SNOWBALL.—This old-fashioned flower is rarely seen in modern grounds, though in old ones it is usually among the most prized treasures, as it deserves to be. There are few objects more

striking than a large bush of Snowballs in flower. It may be that the scarcity is owing to the difficulty often found in striking cuttings. Sometimes they grow, and sometimes not, just as they seem to take a notion to. We old folks used to increase them by taking them apart. In old plants they can be often so divided as to make several dozens. A certain and sure way, however, to raise Snowballs is to lay down some of the branches. If these are given a gentle twist so as to partly split the wood at the place where the branch is put under the ground, roots will come out of the split part, and in a year the rooted portion can be taken off as an independent plant.

The Snowball can not be raised from seeds, because it never produces any. It is in fact a male form of the Guelder-rose *Viburnum*. The female form has very insignificant flowers. In this the male Guelder-rose or Snowball follows the same law that birds follow, in which the male has generally the most showy and the most striking colors.

Of late years a new Snowball has been introduced from Japan, known in catalogues as the Japan Snowball—*Viburnum plicatum*—but we believe it is still scarce. This also is a male form of some Japan thing, but the balls are larger and of a purer white than the common Snowballs are. The leaves are also said to be beautifully plaited, or plicate, whence its scientific name. It will probably increase by laying down, as the common Snowball.—*Maryland Farmer*.

TOMATOES were first used in this country as an edible in the year 1819, by the late Hon. Bailey Bartlett, of Haverhill, Massachusetts; but they did not come into general use until more than twenty years subsequent to that date.

CO-RELATIONS OF BEES AND FLOWERS.—The bees, Mr. Darwin says, have solved a difficult problem. They have made their cells of a proper shape to hold the greatest possible amount of honey, with the least possible consumption of precious wax in their construction. No human workman is skillful enough to do what a crowd of bees can do—working in a dark hive—make cells of wax of the true form.

The number of bumble-bees in the country will depend upon the number of cats. How can that be? Because the number of bees is dependent upon the number of field-mice, which eat the bees. Hence, the more cats the fewer mice, and the fewer mice the more bees.

If the whole genus of bumble-bees became extinct, or very rare, the Heart's-ease and Red Clover would become rare or wholly disappear. How is that? Because bees promote the growth of those flowers. The visits of bees are necessary to the fertilization of some kinds of Clover, and almost indispensable to the Heart's-ease. Bumble-bees alone visit the Red Clover, as other bees can not reach the nectar.

In a word, no bees, no seed; no seed, no increase of the flower. The more visits from the bees, the more seeds from the flowers; the more seeds from the flowers, the more flowers from the seeds.

Nearly all our orchidaceous plants absolutely require the visits of these insects to remove their pollen-masses, and thus to fertilize them.

Twenty heads of unprotected Dutch Clover yielded 2,990 seeds; the same number protected from bees produced not one seed. One hundred heads of unprotected Red Clover yielded 2,700 seeds; the same number protected from bees, not a seed.—*Ohio Farmer*.

THE DATE-PALM TREE has not yet come into favor in California, though several hundred are growing in various parts of the State, from San Diego to Cache Creek Cañon. It should and doubtless will be planted more and more every year. As an ornament no other plant is equal to it in California; it is tall and exceptional in form, and gives a sub-tropical look to the scenery. No tree in Los Angeles impresses the tourist from a cold clime more than the Palm. Not half-a-dozen have yet come into bearing, but if they were barren a few should still be set out in every town. But they bear and will bear. In Syria and Mesopotamia, which have the climate of the Sacramento and San Joaquin valleys, the Date is cultivated extensively and with much profit. Egypt has 5,000 trees, and after they are thirty years old the annual yield of each is estimated at 300 pounds. Two trees are sufficient to feed one person, and an acre will hold two hundred. The value of the trees is so firm that the tax on them is a considerable item in the Egyptian revenue. The young sprouts are cooked and served like Asparagus, and might be a fine source of profit here until the tree should come into bearing.

THE ABSORPTION OF AMMONIA BY PLANTS.

—It has been generally believed that the ammonia present in the atmosphere (proceeding from animal and vegetable decomposition, etc.) might be directly absorbed by the leaves of plants, and might thus furnish them with nitrogenous aliment. M. Schoesing, in a note to the French Academy of Science, claims to have demonstrated, experimentally for the first time, that this is actually the case. His experiment consisted in cultivating two plants of the same species under conditions exactly

similar, except that one of them was allowed to develop its foliage in an atmosphere pervaded with ammoniacal vapors, and the other in an atmosphere free from such vapors. Analyses subsequently proved that every part of the former plant was "richer" than the corresponding part of the latter—the "enrichment" of the leaves having extended to the stem and root. The significance of the experiment is apparently not the proof that plants do obtain nitrogen and ammonia; but the proof that they absorb it directly through their leaves. But they may, and probably do, also absorb it through their roots, when it is washed from the atmosphere by descending rains and presented to the plants in the soil as *aqua ammoniacæ*. The experiment above does not disprove this, and a similar direct experiment on the roots of growing plants would undoubtedly demonstrate it.

DON'T DESTROY YOUR GRAPE-VINES.—

We learn that many persons in different portions of the State who have small vineyards, and who do not wish to make their Grapes into wine or brandy, for the reason that wine and brandy can not be made to pay on a small scale, are talking of digging up their vines. Such persons generally have the Mission or native California Grape, and perhaps no other in cultivation, and we are fully aware that the past experience of such is anything but encouraging for the future, without some change that will promise and bring better remuneration for the use of their land, and the labor necessary to cultivate the vineyard, pick and market the Grapes. We also know that at this time a very little additional outlay will bring this desired change. Let these native vines be grafted with the White Muscat of Alex-

andria or White Malaga Grapes, and the second year after grafting the crop will very nearly equal in amount the present crop of native Grapes. Instead of having on hand then a Grape valueless to you for wine-making purposes on account of your situation, and good for no other paying purpose, you will have a crop valuable for raisins.

Then the objection that you have but a limited quantity will not apply, for you can make a small quantity of raisins just as cheaply and with just as much certainty that they will be of good quality as though you had the largest vineyard in the State; you can make them, too, when you would be doing but little else, when your labor and time can not be better or more profitably employed. No farmer should be so short-sighted at this time, when we all know the great curse and drawback to California agriculture is want of variety in production.

Again, raisins have been made in many localities by the Alden process, and we believe in every instance those making them are well satisfied with the results, both financially and otherwise; and many of them are preparing to increase their vineyards instead of decreasing them. Alden machines will be erected in nearly every locality in the State within a few years, and it would be a pity, just as circumstances are so promising to render your vines valuable, to root them out, and thus throw away all the labor and expense of cultivating them up to the present time, and the good prospects for profits in the future.—*Sacramento Record*.

THE EARLY NORMANDY PLUM.—Says the *American Garden*: A new Plum bearing this name has been originated in France. The early season at which it ripens may render it worth cultivating in this coun-

try. It is thus described: Tree a very vigorous grower, with long branches somewhat divergent. Fruit large or very large—as large as a Green Gage—divided on one side by a very slight furrow. Skin fine, transparent; separating readily from the fruit when ripe; of a clear purple color on the sunny side, and light flesh-colored on the shady side; covered with a light, bluish bloom. Flesh fine and melting; of a greenish color; somewhat firm; filled with a very abundant, sugary, refreshing juice. It ripens from the middle to the end of July, and this, together with its size, handsome appearance, and good quality, render it valuable. We have no large Plum of the same character which ripens so early.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING JANUARY 31ST, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.12 in.
do 12 M.....	30.11
do 3 P. M.....	30.11
do 6 P. M.....	30.10
Highest point on the 2d, at 9 A. M.....	30.34
Lowest point on the 25th, at 6 P. M.....	29.74

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	45°
do 12 M.....	50°
do 3 P. M.....	51°
do 6 P. M.....	47°
Highest point on the 24th, at 3 P. M.....	60°
Lowest point on the 15th and 16th, at 9 A. M.....	37°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	40°
Highest point at sunrise on the 19th.....	56°
Lowest point at sunrise on the 6th.....	32°

WINDS.

North and north-east on 8 days; east and south-east on 13 days; south-west on 8 days; west on 2 days.

WEATHER.

Clear on 9 days; cloudy on 18 days; variable on 4 days; rain on 11 days.

RAIN GAUGE.

11th.....	0.04
13th.....	0.18
14th.....	1.01
16th.....	0.19
18th.....	2.76
19th.....	0.37
20th.....	0.02
22d.....	0.82
23d.....	1.47
24th.....	0.07
31st.....	0.04

Total..... 6.97
Total Rain of the season to date..... 15.98



OLD DATE-PALM TREE (*Phœnix dactylifera*).



GIANT FIG TREES (*Ficus carica giganteus*).

TREES OF SEMI-TROPICAL CALIFORNIA.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, MARCH, 1875.

No. 3.

SEED-PLANTING.

BY F. A. MILLER.

One of the most important items in Horticulture is "seeds." Old varieties are perpetuated by seeds, and new varieties are produced. Whoever takes an interest in the cultivation of the soil will resort to the planting of seeds. Though the experiments of raising plants from seed are highly gratifying in some instances, the disappointments are by no means few, I regret to say.

Seed-raising has become popular; thousands risk their money in purchasing seeds every season, and fortunes are built up by dealers, who are always pleased to serve their customers with the "right article." While some succeed in making their seeds grow, others fail entirely; and in the latter case it is usual to put all the blame on the dealer, who furnished anything but the right article. In many cases, no doubt, seedsmen deserve blame, as there are some who care little about the quality of seed they sell, so long as they make the money; but decidedly the most cases of failures in making seeds grow, are due to ignorance and bad treatment. There are some very reliable seedsmen

in the United States, who would not knowingly sell bad seeds; these are the men to purchase seeds from.

The dangers which one encounters in selecting seeds are, first, in selecting varieties which are not at all adapted to this coast; and, second, in choosing kinds which are positively not worth cultivating. To point out the varieties which are either adapted to our climate, or worthy of cultivation, I will not undertake here, but make it a special subject at some future day.

Seeds of annual and herbaceous plants, with a very few exceptions, germinate freely under ordinary treatment, but mistakes are often made in planting these seeds too shallow or too deep. To lay down strict rules as to how much these seeds should be covered is next to impossible; but, as a general rule, coarse-grained seeds should be planted deeper than very fine seeds. For example, Sweet Peas had better be covered from one to one and a half inch, while Portulacca should not be covered more than one-eighth of an inch; in fact it would be much better to sow the latter upon the surface without covering at all, as a timely rain or watering will carry the seeds sufficiently deep in

the soil to vegetate. But here arises a difficulty: our atmosphere is dry, our winds are sharp, our sky is clear, and these circumstances combined dry up the surface of the soil so quickly, that young tender plants, merely existing upon the surface soil, are apt to dry up in a very few hours. Again: where irrigation is resorted to, seeds sown upon the surface are apt to be washed away entirely, or the young tender plants will be broken or washed away. All this makes shallow seed-planting very uncertain. The safest plan here, undoubtedly, is for us to sow seeds early in pots or boxes, placed in a warm situation and covered with a pane of glass, slightly painted or whitewashed. Seeds will germinate much better in partial shade. After sowing, water thoroughly with a fine sprinkler; perhaps no more irrigation will be required until the seeds are up. As soon as the young plants make their appearance, they will require airing, by raising the glass cover on one side of the pot or box, say one or two inches. After two weeks more the glass may be taken off altogether in order to harden the plants. When the young plants have made from four to six leaves, they may be carefully taken up and planted in well-prepared ground, wherever they are required. After transplanting, give them a gentle watering, sufficient to moisten the ground well down to the bottom of the roots. During bright warm days they will require shade, say from 9 A. M. until 3 P. M., for about three or four days, after which time the plants may safely be left to themselves. Of course, it is expected that the plants should be kept clear from weeds. An occasional hoeing if the ground becomes hard, and in case of dry weather a watering twice a week, will be all that is required. Such seed as Mignonette,

Sweet Alyssum, Wallflower, and the like, are better planted in the open ground, as they germinate freely in this way.

The sowing of seeds in pots or boxes with glass covers is more imperative in San Francisco and its immediate vicinity than in other parts of the State, when we take into consideration that the climate is never warm enough for the germination of seeds in the open ground, while on the other hand, the climate of Stockton, Sacramento, and other inland districts is so hot, that seeds and young plants must be shaded, to keep them from perishing.

The germination of all kinds of seeds may be facilitated very much by steeping them in pure lime-water, say for eighteen to twenty-four hours. This is done simply by dissolving a little lime in water, allowing the solution to settle, pouring off the clear solution, and steeping the seeds in the latter, as aforesaid. Most of the seeds of annuals and herbaceous plants will vegetate in from five to fifteen days, under this treatment, and there will be no anxiety occasioned by waiting for their germination for weeks and months.

[To be Continued.]

FORSYTHIAS.—Plants producing yellow flowers are not so generally admired as others, although it must be admitted that the golden is nature's favorite color. Still on account of the earliness of the Forsythias, or "Golden Bells" as they are sometimes called, a plant or two should be admitted into the garden. The *F. suspensa* is probably the best for planting among the smaller kinds of shrubs, as the plant is a slender grower, of a half-trailing habit. The flowers are among the first to appear in spring.

RATHER.

BY RUNE BLUFF.

A little Dandelion
Was sitting in the grass,
Down by a narrow pathway where
I very seldom pass.
It tried to swing its golden locks
Upon the wooing breeze;
It smiled right up into my face,
As if 'twere bound to please.

It was not beautiful nor sweet;
It had no gift of grace,
Nor any charm was there to see
In the common little face,
Save that 'twas modest in its way,
Blooming half hidden there—
Trying its best to smile and shine,
And make the earth more fair.

And yet I could not pass it by,
It was so plain and small.
But as I looked it seemed as if
A star did sometime fall,
And lie there in the leaves and grass—
A tiny, golden thing—
And pass itself off as a flower,
One balmy day in spring.

I could not careless pass it by
Without an answering look,
But, bending down, the simple flower
From out its place I took.
Gathered in my caressing hand
I knew 'twould rather die,
Than still unnoticed there to bloom,
Between the earth and sky.

—Rural New Yorker.

INFLUENCES OF VEGETATION.

Vegetable matter, whether in the fresh or dried state, exerts various effects in the propagation, absorption, or destruction of malaria. According to Dr. Hammond, he contracted intermittent fever from inspecting musty hay, and symptoms of pyrexia from examining old books. Dr. Salisbury considers that measles and some other affections are readily conveyed by means of straw, and that epidemics may thus be propagated among troops in camp. Plants in a state of decay or decomposition give rise similarly to malaria, or at any rate produce in man the diseases usually attributed to such a cause. Old trees undergoing the process of dry rot, more especially *Cruciferae*, and those generally of a succulent nature, have this effect. Dense vegetation, as low jungle, especially containing trailing plants and of a nature to interfere with free perfation of the locality, is conducive to the concentration of malaria. C. A. Gordon, M. D. C. B., in an interesting paper on the "Hygiene of Malaria," published in the *Medical Press and Circular*, enters at length upon the subject, and furnishes the data from which the present article is compiled.

Under some circumstances trees and growing plants are valuable as protectives against malaria. The excellence of a belt of trees between a barrack and a pestiferous marsh is fully acknowledged, and the circumstance of planting a marsh with evergreen trees has, in many instances, converted a malarious into a healthy locality. On the other hand, as in the case of St. Stephano and Campo Salina in the Pontine Marshes, places have become unhealthy by the forest being cut down. The precise process by which these trees and some of the plants exert their de-

ALTERNANTHERA.—Of the various forms of the Alternanthera, now in cultivation, *The Gardener's Chronicle* thinks the palm must be given to *A. amabilis latifolia*, or *amabilis bicolor*, as a bold-growing, showy variety. Free in growth, and handsome in color, standing alike in rain and sunshine, it is also sufficiently hardy in character to stand exposure in positions where others would fail. For massing or working out bold ribbon lines, or central designs, it can not be excelled.

structive effect upon the poison is as yet unascertained.

The Romans, whenever practicable, established their camps under the shelter of woods, and in India it has from time immemorial been the custom of the natives of malarious districts to form villages in the denser parts of the jungles, where, according to recent observations, they are relatively exempt, not only from intermittent fever, but from cholera. In America, the Dismal Swamp, where ague is never met with among the inhabitants, is covered with trees of large and lofty stature.

With regard to water as a vehicle for ague-producing malaria, it may be said that not only that which is stagnant, but in some instances that of rivulets impregnated with vegetable matter, fresh or decaying, may convey the poison. In some instances it has been found that although health may not suffer in residents in such localities so long as they refrain from making use of the water, yet they become affected when they neglect this precaution.

If, however, there are plants the presence of which in water renders it deleterious, there are many others which act as purifiers, and render that which otherwise would be deleterious, wholesome. Among such are *Hydrocharis*, or frog-bit, *Stratiotes*, or water-soldier, *Myriophyllum*, *Vallisneria*, and *Anacharis alsinistrum*, which, since 1834, when it is believed to have been introduced from North America, has flourished abundantly in marshes and canals in England. Among other plants which have a similar action are *Sagittaria*, or arrow-head, *Alisma plantago*, or water-plantain, *Butomus umbellatus*, or flowering rush, *Lemna*, or duckweed, *Pistia*, or gigantic duckweed, *Montia*, *Potamogeton*, or brookweed, *Callitriche*, or starwort, *Hippuris*, or

marestail, *Equisetum*, or horsetail, besides various rushes, carices, grasses, flags, and cresses; while *Ænanthe*, although itself poisonous, purifies water in which it grows. Notwithstanding the undoubted acrid properties of the natural order *Ranunculaceæ* generally, there are at least four genera whose presence in water is beneficial—namely, the *R. aquatilis*, *Nelumbium*, *Victoria*, and *Nymphææ*, as are also the members of the natural orders *Ceratophylleæ* and *Podostemaceæ*, and some of the *Algæ* among the cryptogamic plants. Some of these plants being provided with leaves which float upon the surface of the water, directly decompose the otherwise noxious vapors under the influence of the solar rays, and in their stead produce respirable air; others, more submerged, themselves give out a supply of oxygen, thus purifying the water and rendering it fit for the support of life.

In past ages there appear to have been instances of a sort of instinctive resort to certain plants as disinfectants. Herodian relates that during a plague in Italy, in the second century, strangers crowding to Rome were directed by the physicians to retreat to Laurentum (now San Lorenzo), a place so called from the abundance of *Laurus nobilis*, or Sweet Bay-tree, which then grew there, and by inhaling the odor of which they would in a certain measure be guarded from infection. And long before the time alluded to, the disciples of Empedocles had been accustomed to plant aromatic and balsamic herbs in the neighborhood of their dwellings, in the confident belief that by so doing they were providing means of defense against fevers, etc. To this day we have the name of "Feverfew" as the appellation of one of the strongest-scented *Compositæ*, with traditions of its abounding febrifugal powers.

Besides all these, some resin-yielding and aromatic blants have the reputation of destroying malaria. There is reason to believe that several species of the natural order *Myrtaceæ* possess this property besides the *Eucalyptus globulus*. Of late years this plant has obtained a high reputation for its assigned power, and some writers have recommended its introduction with a similar object on the Gold Coast. Various examples of its success in Algeria are recorded. At Pandook, on the banks of the river Hamyze, where fever was extremely prevalent, in 1867, several thousand plants of the *Eucalyptus* were introduced, with the immediate result of rendering the locality healthy. A similar result was obtained at Ben Machydon and Gue de Constantine, in the island of Corsica; in Cuba; in the Australian colonies; at the Cape of Good Hope; and other places. Probably other trees which yield aromatic gum resins would have a similar effect, and it is not known that malarious diseases prevail in places where trees of the natural order *Coniferæ* grow abundantly.

Various other plants have obtained a reputation as being capable of destroying malaria, or at any rate rendering that influence innocuous. Thistles had rendered some parts of the Campagna near Rome healthy, and on the plants being cut down, those districts became again malarious. Sunflowers (*Helianthus*) appear to have been first planted successfully for a similar purpose in America. Baron von Alsten, whose property was situated on the banks of the Scheldt, and liable to be flooded by that river, planted several patches near his house, and with the result that for ten years his family continued exempt from fever, while in other places, where no similar precaution was taken, the

disease continued to prevail. The plant has of late years been sown in the Mauritius for a similar purpose, and in further recommendation of its good qualities, the observation has been made that it yields 40 per cent. of good oil; that the leaves from it are excellent fodder, and the stems, being rich in saltpetre, make good fuel.

Marshes may also be rendered healthy by the presence of certain plants. Among those that conduce to this happy result is the *Pistia Stratiotes*. In India, the West Indies, and Africa, the power exerted by this plant in absorbing the deleterious gases of muddy marshes is well known, and probably it is on this account that in the latter country the plant is held sacred. The *Pistia* is believed to possess this power in a greater degree than any other plant, being capable in a few days of rendering stagnant water sufficiently pure for fish to live in; although it by no means follows that the water is thus rendered suitable for use by man. The contrary is indeed the case. In Jamaica, water in which this plant grows acquires so acrid a character as to give rise to intestinal fluxes in those who use it.

The Toolsee plant, or *Thymus capitatus*, is in India held to exert the power of largely increasing ozone during sunlight, and this to such a degree that the plant has become sacred to Vishnu (the preserving principle). Other plants have more or less the same character, as the Cherry Laurel (*Cerasus lauro-cerasus*) (although both its flowers and fruit contain, as is well known, a poisonous principle). So also with Cloves, Lavender, Mint, Lemon, Heliotrope, Hyacinth, and Narcissus, although the odor from the latter is, under certain circumstances, capable of producing unpleasant effects. Certain prepared perfumes, similarly exposed

to the sunshine, add further to the atmospheric stock of ozone—the well-known eau de Cologne for instance, oil of Bergamot, extract of millefleurs, essence of Lavender, and some of the aromatic tinctures. The oxidation of certain essential oils obtained from plants and flowers, such as the oils of Nutmeg, Aniseed, Thyme, and Peppermint, is likewise indicated as a source of ozone, though the supply of this aerial condiment is in the case of these less considerable. Perhaps, indeed, the influences of such natural destroyers of malaria are less studied and willingly recognized at the present day than they were in former times.

Some trees and tree-like plants have, with greater or less reason, the reputation of themselves evolving malaria, and consequently the natives of the countries where they grow avoid sleeping or resting under them at night. Those that give off their branches at an inconsiderable distance from the ground, or the foliage of which is dense, have this reputation in the highest degree, and among them the Tamarind and Neem trees (*Melia azadarach*). A similar influence is said to arise from the Papaw tree (*Carica papaya*), and Dr. Livingstone states that in East Africa, near the Zambesi River, tracts are covered with the plant *Pæderia fetida*, a member of the Guettarda group of the *Rubiaceæ*.

Many people suffer inconvenience in various ways from odors arising from certain plants, although the effects are not in the nature of disease of recognized malarial origin. In these cases the matter evolved, so far from being an invisible aura, is a substantial exhalation. Thus, besides the unknown effects of ipecacuanha in inducing sickness in certain persons even when brought no nearer to them than an ad-

joining room, and flowering plants in producing "hay-asthma," nausea, sickness, and even death has been attributed to the odors of some, as the Narcissus and the Cheiranthus or Wallflower, not to mention the fraction of truth there no doubt is in the story of the Upas-tree (*Antiarus toxicaria*). The Manchinel tree (*Hippomana mancinella*, *N. O. Euphorbiaceæ*) of the West Indies, and certain American and Chinese species of Rhus (*N. O. Anacardiaceæ*), not only produce severe irritant effects upon the skin, but affect very severely such persons as are predisposed to suffer from malaria. The flowers of the *Daphne Mezereum* also evolve odors which are more or less injurious to particular persons, and a similar property is attributed to the Oleander (*Nerium Oleander*). The Mangrove, or *Rhizophora*, has ever had an unenviable notoriety, on account of the malaria-producing properties assigned to it. As a rule, probably without exception, localities where this plant flourishes, being for the most part marshes and low-lying tracts, liable to inundation, are notoriously unhealthy, but in all probability this reputation arises altogether from paludal causes.

TUBEROSE.—The Pearl variety is much superior to the common double sort; the flower-stem is much shorter, and the plant is altogether of a more vigorous growth, both out of doors and also when grown in heat during the winter. The variegated-leaved variety we consider of no value—the plants being grown exclusively for cut-flowers, the leaves are made no use of, and if they were, it is no improvement to have a white flowering plant with white-striped leaves, and white-leaved plants are said to be of a more delicate constitution than those with green leaves.

ALDEN PROCESS OF DRYING FRUITS.

The Alden process of preserving fruits and vegetables has come to be recognized as one of the important industries of this State, and the products of the factories are increasing in favor each year. The circular of the Alden Fruit Preserving Company for 1875 shows that the business is in a healthy condition, and not many years will elapse before this interest will be one of the most promising connected with the agriculture of this State. During the past four years more than 200 Alden factories have been established in the United States, all of which are in full operation during the proper season, and this method of the preservation of fruits is the only one that has risen to sufficient dignity and importance to command a distinct recognition and remunerative prices in the markets of the world. The company is prepared to show that all the valuable qualities of a ton of Apples can be delivered in Liverpool in an imperishable condition at a gross cost of not more than \$20 per ton, while fresh Apples sent from the Atlantic sea-board to the same destination can not be laid down at less than \$52 per ton, without figuring the loss by decay, etc. Already the fruits prepared by the Alden process have far outstripped the sun-dried fruits, the only real competition being with canned goods, while the cost of the cans, the heavy freights, and the leakage of canned goods give the Alden products a great advantage in shipping to distant markets. Littlefield, Webb & Co., agents for the Alden Company, whose report is embodied in the circular, state that the best markets for this class of California products have been in the Territories and mines, though considerable business has been done in this

State and in filling orders for the eastern and southern markets, while, to a limited extent, they have been used for vessels going on long sea-voyages, and are slowly being introduced in foreign countries. One of the greatest drawbacks to sun-drying ever being largely practiced in this State is this: All sun-dried fruits are covered with the minute eggs of insects. In colder countries these eggs lie dormant all winter, and the fruit is generally consumed before they hatch out. In California the eggs deposited during summer hatch out in autumn and destroy the fruit. In the Alden evaporating process there is no opportunity for insects laying their eggs, and the fruit is not only cleaner but is sound, and will keep so under any changes of temperature.

THE GOLDEN ARBORVITÆ is destined to become most popular. It keeps its bright golden tint throughout the year, gives a lawn a very bright appearance, is admirably adapted to small house fronts and cemetery lots, and is equally valuable for potting purposes and window decoration. For edging, it is superior to Box; and for low hedges, not desired to be impervious, it would be very beautiful.

THE orchards of California will have thousands of tons of their delicious fruits to feast the people of New York, Boston, Philadelphia, and Baltimore, and the present year they will be regaled with our Oranges, Lemons, Limes, Figs, Raisins, orchard fruits, and nuts, superior to any ever before seen. What need we say more for a State that is destined to lead the Union in wealth and influence?

TEACHINGS OF FLOWERS.

BY AN AMATEUR.

Flowers admonish us of the instability of earthly grandeur and beauty, by their fragility and shortness of duration; saying in the language of the Psalmist: "As for man, his days are as grass; as a flower of the field, so he flourisheth; for the wind passeth over it and it is gone, and the place thereof shall know it no more." They teach us the utter foolishness of that pride which delights almost entirely, as some do, in personal adornments and gaudy trappings; for be our dress ever so rich, the simplest flowers of the field, that neither toil nor spin, are arrayed much more sumptuously:

"Along the sunny bank or watery mead
Ten thousand stalks their various blossoms
spread:
Peaceful and lowly in their native soil,
They neither know to spin, nor care to toil,
Yet, with confessed magnificence, deride
Our vile attire and impotence of pride."

It is thus they admonish the prosperous, the proud, the uplifted in spirit; but to the poor, the lowly, and the fallen, they are as sympathizing friends, whispering words of comfort and hope, sharing their sorrows, and thus rendering the burden easier to bear. And by making them participators in our grief, we lose that painful sense of loneliness and desolation which ever accompanies the blighting of our earthly prospects, and consequent desertion of friends, (falsely so called); our minds are insensibly drawn to the contemplation of His infinite goodness and mercy, who ordains all things for the best, and suffers not a sparrow to fall to the ground, not a hair of our heads to perish unnoticed.

We reflect on the many blessings He has poured upon us, all undeserving as

we are, and taught by the example of the flowers, whose tiny hands are ever clasped in adoration, whose breath is ever exhaled as an offering of praise at the footstool of their Maker, we become resigned, nay, even cheerful; and prompted by feelings of gratitude, our thoughts involuntarily shape themselves into words similar to the following, perhaps:

"O flowers that breathe of beauty's reign
In many a tint o'er lawn and lea,
And give the cold heart once again
A dream of happier infancy;
And even on the grave can be
A spell to weed affection's pain—
Children of Eden, who could see,
Nor own His bounty in your reign."

Yes! *silent* monitors though they be, they are not *voiceless*, but gifted with an eloquence divine that appeals alike to the heart and understanding; and would we but hearken to their preaching, our bosoms would become as well-springs of mutual piety, peace and good-fellowship would prevail upon earth, and men would be no more shedders of each other's blood, and perpetrators of the blackest crimes. But alas!

"Many in this dim world of cares,
Have sat with angels unawares;"

and few, very few, are they who can behold the bright countenances of heaven's messengers, and listen to their discourse with an understanding spirit, for ambition, and avarice, and pride have obscured our powers of vision, and choked up the avenues to that treasure-house wherein lie hid our finer sensibilities and aspirations after the only intrinsic good.

"The world is too much with us; late and soon,
Getting and spending we lay waste our powers,
Little we see in nature that is ours;
We have given our hearts away, a sordid boon."

But let us tear the film from before our eyes. Let us endeavor to eradicate

from our bosoms envy, hatred, and all evil passions. Let us practice meekness and charity, and, as far as in us lies, obey those holy impulses and divine incitements which the Maker has implanted in every human bosom, and thus furnished us with the means of working out our moral improvements, if we do not ungratefully reject what is intended for our benefit.

“There is a lesson in each flower,
A story in each stream and bower;
In every herb on which we tread
Are written words which, rightly read,
Will lead you from earth's fragrant sod
To hope, and holiness, and God.”

Let us then peruse those lessons; let us “read, mark, learn, and inwardly digest” those written words. So shall we profit by them, and lay up in our hearts treasures whose value is far above the silver and gold of the mines even of the great Comstock, or Golconda's jewels; treasures which neither moth nor rust may corrupt, nor thieves break in and steal.

“Flowers, the sole luxury that nature knew,
In Eden's pure and spotless garden grew.
Gay without toil, and lovely without art,
They spring to cheer the sense and glad the human heart.”

“God made the flowers to beautify
The earth, and cheer man's careful mood,
And he is happiest who hath power
To gather wisdom from a flower,
And wake his heart in every hour
To pleasant gratitude.”

“To me ye seem
Like creatures of a dream—
Aerial phantoms of delight;
I can but deem ye much
Too pure for mortal touch,
Ye are so very fair, so passing bright.”

“Sweet nurslings of the vernal skies
Bathed in soft airs and fed with dew,
What more than magic in you lies
To fill the heart's fond view!
Relics are ye of Eden's bowers,
As soft, as fragrant and as fair

As those that crown'd the sunshine hours
Of happy wanderers there!”

“Floral apostles! that in dewy splendor
Weep without woe, and blush without a crime,
O! may I deeply learn, and ne'er surrender
Your love sublime.”

“O, put away thy pride,
Or be ashamed of power
That can not turn aside
The breeze that waves a flower.”

THE FRENCH VINE-MOTH.

A correspondent of the London *Daily Telegraph* writes:

“Meantime the *phylloxera vastatrix*, or French vine-moth, would seem to work a distinctly appreciable and even serious amount of mischief. It was toward the end of the sixteenth century that this little pest first showed itself at Argenteuil, in the immediate neighborhood of Paris. The mature insect is a tiny yellowish moth, shot with gold, which passes its little life on ten days flickering to and fro from vine to vine. It deposits its eggs on the lower surface of the leaves, and before long there emerges from each egg a small emerald caterpillar that at once hides itself in the crannies of the vine-stocks or the props which support them. Here it weaves a minute silken cocoon of ash-en gray, in which it lies snugly covered up till the winds and showers of April have passed over into the blue and green of May. Then, issuing forth, it covers the young leaves with a hideous web of clammy threads that entangles the tender shoots in one foul mass of unwholesome blight, while, at the same time, it fixes with its powerfully armed jaws upon the delicate blossom, and leaves it seared as with a hot iron. Day by day the noisome creature eats and grows, and grows and eats, till, from a minute grub, not the thirty-second of

an inch in length, it has become an ugly worm, the length of a man's finger-joint. Then, clinging tightly to the tendrils, it metamorphoses itself into a dull-brown chrysalis, from which, in process of time, the moth breaks its way, again to scatter eggs broadcast over next year's vines. For the past 300 years, the vineyards of France, which are the main-stay of her national wealth, have never been entirely free from this terrible pest.

It seems that this year the plague is even more than usually virulent, and that the vine crop, which under the genial influence of the comet, ought to have far exceeded the usual average both in quantity and in quality, is past all hope. So serious indeed is the prospect, that the government of Marshal MacMahon has offered a prize of 300,000 francs—or about \$60,000—for the discovery of an efficacious and economical way of either destroying the insect or preventing its ravages.

EFFECT OF CARBONIC ACID AND OXYGEN ON THE GROWTH OF PLANTS.

The effect of carbonic acid upon the germination of seeds and upon the development of chlorophyll in young plants has been made the subject of investigation by Boehm. Seeds of Sunflower, Garden-cress, Flax, Poppy, Oat, Barley, Rye, Knot-grass and Maize were allowed to germinate and grow in flasks containing mixtures of atmospheric air and carbonic acid, the amount of the latter varying from two to fifty per cent. in the different flasks. The latter were exposed to diffused daylight, at a temperature of 15° to 22° centigrade. The injurious effects of carbonic acid on germination, observed by Saussure, were here confirmed. As regards the effect upon the develop-

ment of chlorophyll in the young plants, the author concludes as follows:

“The experiments described suffice, as I believe, to show the remarkably injurious effect of carbonic acid gas on the verdure and growth of the plants. The presence of only two per cent. of carbonic acid in the air becomes noticeable, especially by its effect on the formation of chlorophyll. * * * In an atmosphere which, with an amount of oxygen equal to that in the air, contains one-half carbonic acid, not only was there no growth, but the plants after a short time perished.”

This effect of carbonic acid upon the plantlet while living at the expense of the reserve nutriment in the seed, the author regards as very remarkable, in view of the fact that green leaves in such a medium decompose the carbonic acid with considerable energy. He remarks:

“Since the green plants are, in virtue of their capacity for decomposing carbonic acid, in condition to build up their substance from inorganic material, they create for themselves at the same time the condition of growth at the expense of material already assimilated.”

These observations have, in the opinion of the author, an important bearing upon the theory that before and during the period of carboniferous deposits on the surface of the earth, the atmosphere contained very much more carbonic acid than at present. He says:

“In view of the fact that plants visibly sicken in an atmosphere which contains but a small percentage of carbonic acid, we must conclude that in an atmosphere not much richer in carbonic acid than that now existing, a part, at least, of the present vegetation of the earth would perish. But from this, one of two things must follow. Either

the composition of the terrestrial atmosphere must always have remained the same, as must necessarily be inferred from its boundlessness; or as it seems to me more probable, plants must have existed in former geologic periods capable of enduring larger amounts of carbonic acid in the atmosphere."

Boehm has also studied the effects of pure oxygen upon the germination of seeds. Seeds moistened and placed in pure oxygen, at ordinary atmospheric pressure, failed to pass beyond the first stages of germination. When, however, the oxygen was diluted with four-fifths of its volume of hydrogen, and likewise when its tension was decreased by the air-pump to about one-fifth of the ordinary atmospheric pressure, the seeds germinated as well as in ordinary air. These observations are quite in accord with others lately made by Bert upon the influence of variations in atmospheric pressure upon the vital phenomena of plants. The experiments of Bert showed that the germination of seeds in ordinary air was hindered when the pressure was increased to five atmospheres, and that it failed entirely in an atmosphere of pure oxygen at ordinary pressure (a nineteenth to a seventeenth of one atmosphere). Too large a quantity, or too high a tension of oxygen in the atmosphere seems to be unfavorable to germination of seeds.

THE KALMIA—our native *Laurel*—is often admired when seen in masses in our forests; but few know its beauty when grouped upon the lawn. Its foliage alone would suffice to charm, and nothing can surpass the beauty of its clusters in early June, when each flower is a picture whether in bud or in bloom, for the delicate rose tint of its opening or the pale blush of its maturity.

TRAINING PLANTS AS STANDARDS.

BY WILLIAM SUTHERLAND.

The training of plants suitable to the decoration of lawns, walks, etc., particularly for city gardens, has of late years attracted a great deal of attention. What is wanted is such plants as are susceptible of being trained as standards (for that seems to be the favorite shape) that will flower freely during the summer and are easily lifted in the fall. There are a number of plants possessing these qualities. First in the list comes the *Lantana*, which, for profusion of blossom and variety in color, is one of the most gorgeous plants we have in the garden, and if a little pains is taken to train them at first, they soon amply repay for all the labor spent on them.

The first *Lantanas* I ever saw trained as standards were at Isaac Buchanan's, in Astoria, L. I., about eight or nine years ago. He had some specimens with three or four feet clear stems probably two inches in diameter, with heads three to four feet through, planted out each side of his main walk. They were one blaze of flowers, forming one of the most attractive features of his garden.

As the *Lantana* is not at all fastidious as to soil or situation, it will do at almost any place, if there is plenty of sun; but if large flowers are wished for, the soil can not be too rich, blossoming as it does all through the summer. If it has been planted out, its branches should be well shortened back a few days before lifting.

My plan for forming standards has been to choose only the strongest cuttings when potted off, and train them up to a single stem, carefully pinching back all the side shoots, and when four or five feet in height allowing them to

branch out, and so form symmetrical dwarf trees.

All the strong-growing *Lantanas* readily form good stems, and the weaker varieties, such as *Sellowii*, etc., can be grafted or inarched on some of the stronger kinds.

Heliotropes can be trained in the same manner, and either plunged or planted out. By cutting them well back in spring and watering them in dry weather, they flower freely all summer, and by lifting and potting them early in fall and cutting the branches well back, flower freely all winter.

Cupheas grown in this manner form splendid specimens, doing very nicely on their own stems; but grafting *Cuphea platycentra* or any of the small-growing kinds on *Cuphea eminens* forms specimens very quickly.

Abutilons trained as standards, if the strong branches are kept pinched back all the summer, flower freely all winter. The small growing varieties of *Mesopotamicum* or *vexillarium* make splendid specimens trained in this manner on their own stems, or grafted — *vexillarium* grafted on *Malakoff* and *vexillarium variegata* grafted on *Thompsonii*. I had a specimen of *Abutilon vexillarium* thus in an eight-inch pot with a stem four feet in height, its branches drooping down to the rim of the pot, forming a neat little weeping tree, on which I counted 450 blossoms out at once. It continued to bloom almost without intermission. Mr. John Sherwood, the well-known florist, informed me that he had excluded this plant from his collection, as, on account of its habit, its flowers did not show to advantage, but when he saw my specimen he thought this plan was the only way to grow it.

Erythras, *Hibiscus*, *Fuchsia*, *Salvias*, *Aloysias*, *Lemon*, *Orange*, *Olean-*

der, *Myrtle*, *Ficuses*, *Azaleas*, etc., in fact almost any of the hard-wooded plants, can be trained in this manner, and either grown in pots or planted out in summer, soon form splendid decorative plants, either for the garden or conservatory.—*Gardener's Monthly*.

THE PROFITS OF FRUIT-GROWING.

A great portion of the land in Napa Valley is well adapted to the growing of the finest fruits, such as *Prunes*, *Plums*, and *raisin Grapes*. Now that these fruits can be preserved by artificial means cheaply, and in a manner far superior to the sun-dried article, it might be well for our farmers and others interested to look into this matter, and see if it is not well to plant a portion of their lands with these profitable fruits. They can not be successfully raised east of the Rocky Mountains, where there is and always will be an unlimited demand; and, to show the profit of the culture of such commercial fruits in connection with the artificial process of preservation, we respectfully submit the following estimate, clipped from a pamphlet published by the Alden Fruit Preserving Company of California: "Take the *Prune* for example. At fourteen feet apart, 222 may be planted to the acre. The writer has seen trees, of the *Petite Prune d'Agen* (an excellent variety) five years old from the bud, bear 200 pounds to the tree. These *Prunes* can be made into an article far superior to any imported *Prunes*, at a cost not exceeding three cents per pound. This would give 15,200 pounds to the acre, of preserved *Prunes*, which, at twenty cents per pound, would give \$3,040 per acre, or about \$14 per tree. Deduct from this the cost of curing, three cents per pound, or \$456 for the product of one

acre, less the cost of raising. Those who consider these estimates too high may reduce them one-half, and still it will leave a handsome return for the labor and capital invested."—*St. Helena Star*.

OSAGE ORANGE.

The agricultural editor of the Sacramento *Record* advises farmers to plant Osage Orange for hedges on land moist enough to support that plant; and adds that he speaks from experience, having a hedge which is four years old, and has not cost more than half as much as board fence, and will not cost so much hereafter as the repairs of a board fence would. These statements are, we presume, true; but that they justify his advice we doubt; and it is to be hoped that the *Record* will, in a future article, give a detailed explanation of the soil, growth, and expenditures, so as to enable us to form our own judgment from the facts. The fences of California have cost about \$30,000,000, and the annual expense of interest and repairs is estimated at \$5,000,000; so that the question is one of much importance. The Osage Orange hedge is not new in California. It has been cultivated for twenty years; and we have yet to find a man who has used it for inclosing a large farm. Some of the plants die in the first start; others are killed by the squirrels and gophers; the new plants set out to fill vacancies are stunted by the older ones; the hedge is of no value for several years; it may die out in dry years, and so on, through a number of objections, including one that the training and trimming are considered far more expensive than the repairing of a board fence. This objection against the Osage Orange may be erroneous, but it is not to be upset on the authority of a

single person who does not undertake to show the errors, if any, on which the general opinion is based. The *Record* adds:

"It is true there are portions of our State where the Osage Orange would need irrigation to render it available or valuable for fencing, but we are assured that for all such localities we have a native shrub growing on all our foot-hills that may be substituted for the Osage Orange. This shrub is the native Box or chaparral. This shrub has been experimented with on the rolling lands of Placer County by a gentleman of great experience, and very careful and correct habits of observation, and he pronounces it a complete success as a hedge-plant on all the foot-hill and dry agricultural or wheat lands of the State. He has a hedge now, four years old from the seed which were planted where the hedge now stands, which he says will turn any stock, from a rabbit to a Spanish bull or California mustang."

This advice is worthy of consideration. The native Box seems to be designated by nature as a hedge-plant for our foot-hills, where fencing is more expensive than in the valleys.—*Alta*.

FRUIT-TREES IN BLOOM.—The rapid development of the season is now seen in all warm and sheltered districts in this region. In Solano, Suisun, Napa and Sonoma, since the rains, the grains and grasses have grown as rapidly as "Jonah's gourd," and in these regions the Almond and Plum trees are bursting into bloom. Most fortunate has it been for our fruit crop, that we have had cold weather and no rains till recently. Now we trust we may escape later frosts, and thus our fruit may be saved from a check. Thus far everything bids fair for an immense crop of fruit of all kinds.

ISLANDS OF JAPAN.—PLANTING TREES.

The bluffs, hills, and mountains in every part of the Japanese empire are covered with forests of Pine, Cedar, Fir, Cypress, Beech, Birch, Maple, Oak, Bamboo, Palm, and in fact almost every variety of tree or shrub known in the temperate and tropical climates, which meet and blend so perfectly there that their influence upon the climate and rain-fall must not be overlooked. In this connection it may be proper to say that these uncivilized people, as they are called, have adopted a policy the very converse of that followed in America and Europe in relation to these protecting coverings of nature. The Japanese government has preserved the forests, and in fact insured their increase. No license to cut down a tree is granted, except upon condition that three more shall be planted and grown in its stead. If we can not do this in America or in this State especially, let us at any rate take the next step best in the matter—that is, for the legislature to offer an adequate premium to our farmers for planting out and cultivating a certain number of acres in the finest and most valuable timber trees; and none, perhaps, would answer better for shelter and wood and all purposes than the Blue Gum or its congeners. It is a great pity that something can not be done immediately to cover so many bare tracts that we have, with incipient forests and rows of useful ornamental trees. One feature in tree-planting needing legislative encouragement, which we trust will receive proper attention at an early day, is the planting of trees along the highways. Nothing would add so much to the beauty of our many barren landscapes, as avenues of lofty trees and hedges-rows. The grateful shade the trees

would afford would be appreciated by every traveler, and growing as they would on land that otherwise would waste or grow up in weeds, the return from the only expense, planting, would be certainly most satisfactory.

THE CATALPA AS A TIMBER TREE.

There appears to be no doubt, from all the evidence, that the timber of the Catalpa is of the most durable kind. Some which has been in use for many years in Delaware and other places, has proved the equal of Chestnut when used as posts, and in other particulars it has been found of great value. It is remarkable that in the great talk of a few past years on valuable timber trees, the Catalpa should have had very little said about it, and yet it is almost equal to a Cottonwood in rapidity of growth, and will grow and do well in almost any soil.

In books on trees it is often said that the Buttonwood is the largest-growing tree east of the Mississippi River. Perhaps this is true when we regard the length of the bole as well as the size of the trunk; but in absolute growth, we think it is quite likely the Catalpa would often equal it. In the drives around Germantown one may often pass specimens with trunks probably fifteen or eighteen feet in circumference. There is one on the Johnson estate, and another on the old battle-ground at Chew's, which appear in passing to be between the two figures named. Perhaps it has not received the attention its good timber and rapid growth deserve, because when young it loses the upper portion of its leaders in the winter season, and thus does not make a straight bole. The trees we see naturally all seem to have a tendency to

branch low on this account. But a friend who has had experience in timber-growing tells us this is easily remedied by cutting back the first or sometimes the second year's growth. A young plant from seed sown in April will often make a growth of four feet the first season. If so left, the leading bud dies, and it branches at this point; but if it is cut back to the ground, it will next year throw up a straight stem eight or ten feet high, and very little dies away—not enough, in fact, to interfere with the straight growth of the main trunk; and in this way a valuable timber tree is assured.

This hint is valuable as applicable to many other trees, for most are apt to branch and become crooked when growing the first year or two from seed; but cut back in this way, they push up the next season straight and strong for several feet.

In regard to the growth of the Catalpa, we examined a young one recently cut down, in which the annual rings of wood were some of them between a quarter to half an inch thick—a rate of growth few things could excel.

In some respects the Catalpa is superior to Locust, for that wood is too hard to contract after the iron nail, heated by the sun, contracts in the fall, and thus permits the nail to become loose; but to this we can nail as securely as to the Chestnut post—which indeed this wood much resembles.—*German town Telegraph.*

GRAPES FOR RAISINS.—Last season General Bidwell, on his estate of 22,000 acres, planted 110,000 Grapevines of the White Muscat of Alexandria, the great raisin Grape of California. He commenced making raisins of this Grape last fall, and those he has on hand now are certainly as fine as any Malaga raisins can be. He is also cultivating the Almond largely.

TO DESTROY THE GROUND MOLE— “IN A HORN.”

It may be said that the most effectual way to destroy the ground mole is to kill him stone-dead. But in order to do this, he must first be got hold of, which feat may be accomplished in divers ways. Perhaps the most amusing is to “horn” him.

Procure a wagon-load, or such a matter, of horns from the tannery; select the localities most infested, and, carefully removing the earth from over the tunnel, place the big end of a horn longitudinally in the bottom of the tunnel, so that if he come from the direction opposite the mouth of the horn, he will enter it.

A short distance from this, place another, in the same track, with the little end pointing toward the little end of the one first placed, so as to catch him, be he coming east or west. Continue the work in this way till you have as many placed as you can attend to; then keep a vigilant eye on the little ends of the horns, and when you observe the little end of one faintly wriggling, remove it dextrously, and you have a mole. Dispatch him and replace the horn, for his boon companion will soon be along.

When you try this, you will find that a mole has no idea of “going round the horn,” but will fearlessly enter the big end, and make a desperate effort to “come out at the little end of the horn.”

A hundred horns judiciously placed in a ten-acre field, where moles are plenty, will take in, perhaps, fifty a day. This occupation is very attractive to the average small boy, and it is about the only way he can be made available in the country. If you are in the habit of using the prevalent exclamation, “In a horn!” here is the place to put it in.—*Cincinnati Times.*

PLANTS FOR HEDGING.

No. 1.—Is *Esteditschia Monosperma*, a variety of the Honey Locust. It is a native of South Carolina to Florida; found mostly in the swamps, and not common. It grows quite as well in dry soils, notwithstanding the fact that its native situation is wet. It is not as strong a grower as the Honey Locust, consequently better adapted for hedges. If kept closely clipped for the first two years, it seems almost impossible for cattle to effect an entrance through it. It is not suited to small places. Ranchers and large farmers will find it a great acquisition. It will grow in the salt water or in places washed by the spray of the ocean, where no other tree will grow.

No. 2.—*Escallonia alba*, makes a very nice hedge in a small place; is a good, close grower, and of nice habit. There are other varieties of the *Escallonia*, such as *Rubra*, *Macrantha*, etc.; but these are better adapted for training on walls, trellises, etc.

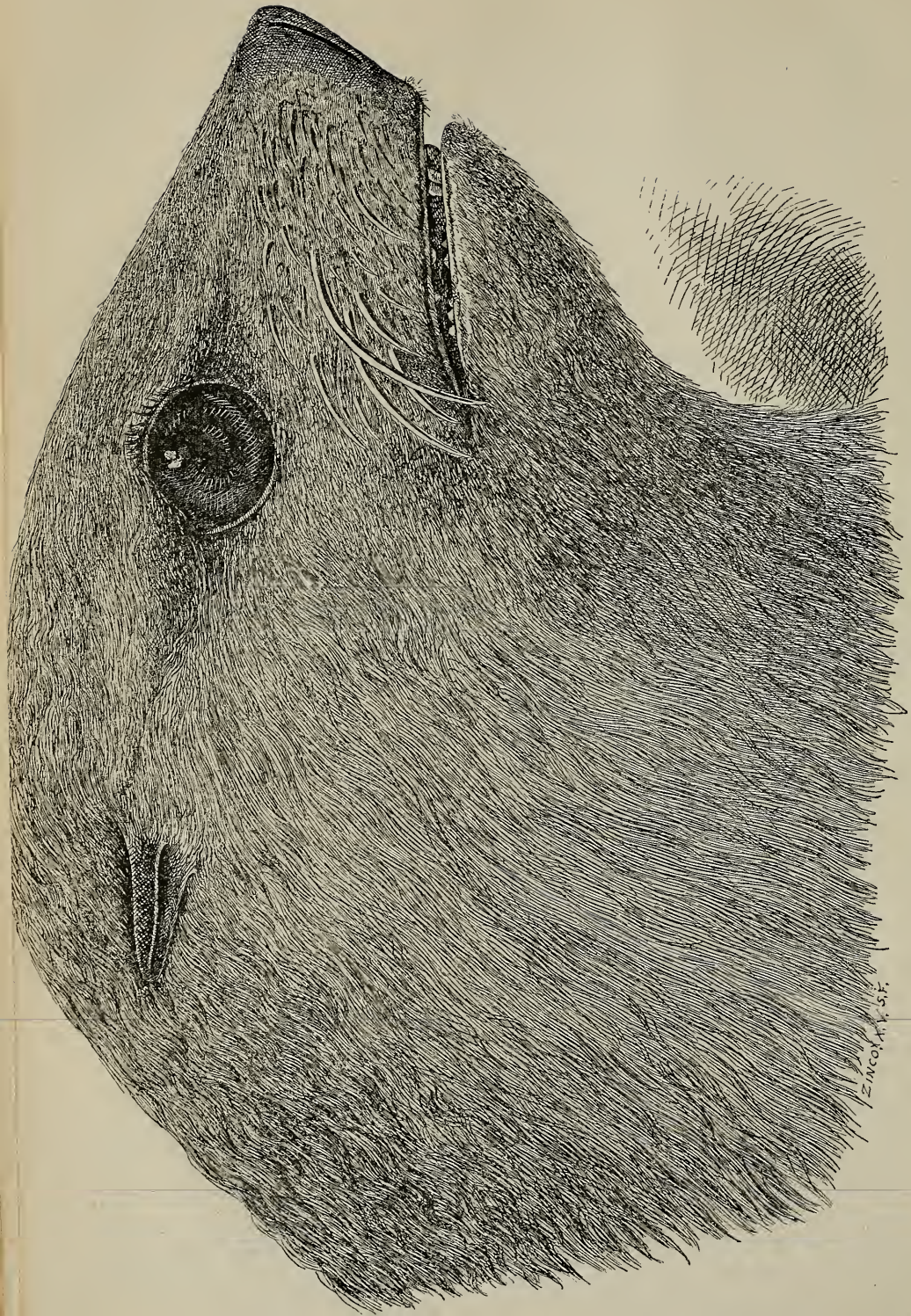
No. 3—Is the Mesquit-Tree; a native of Texas, Mexico, and Arizona. This tree is an evergreen, and resembles the Peach in appearance. It is grown for feed as well as for hedges, producing a pod similar to the common garden Bean. The pods are much used by Indians for food, while horses and cattle fatten on them readily.

No. 4.—Is *Cercis Canadensis*, commonly called the Judas-tree, from the fact that Gerard, the author, asserts that it was on the *Cercis* that Judas hung himself. It grows to a medium-sized tree, say fifteen to twenty feet, under proper cultivation. As a hedge-plant it is not much known, and its only main recommendation, in our opinion, would be its oddity—flowering in early spring in great profusion

before the sign of a leaf can be observed on any portion of its body and limbs, and continuing in flower until hidden by the leaves. The color of the flowers is of the richest purple, and in a nicely kept hedge would resemble a purple band. In artistic landscapes a hedge of it would be very appropriate.—*Pacific Rural*.

RAISIN CULTURE.

Among other industries we have often impressed upon our foot-hill farmers the importance of making raisins. Wine-making, to be successful, requires some capital, but anyone possessed of a few acres of ground can grow and cure raisins as an incident to their other business, or can go into the business, if desirable, with but a limited amount of money. Several of our foot-hill farmers have been engaged in making raisins on a small scale for several years, and they all agree that it is both a pleasant and profitable pursuit. The early rains last fall destroyed the bulk of the raisins then in process of drying, but such rains are an unusual occurrence. From different ones who have had some experience, we glean the following facts in reference to the business: The Muscat of Alexandria is the best Grape for raisins, and those grown in the foot-hills, with little or no irrigation, are the best. Any of the foot-hill lands will produce the Grape, and the only irrigation required is while the vine is gaining a start. Lands suitable for vines can be bought for \$2.50 to \$5 an acre. It will cost from \$15 to \$25 per acre to clear and fence, but land already under cultivation can be bought for about that sum. The vines are usually propagated from cuttings, by the vineyardist, and, at one year old, when



No. 2. — HEAD OF FEMALE FUR - SEAL, TWO - THIRDS NATURAL SIZE.

ZINCOGRAPHY
S.F.

ready to transplant, will cost about three cents each. If bought at that age, however, they will generally cost five cents. They should be set six feet apart each way, giving about 1,200 vines to the acre. The cultivation is the same given to Corn and Potatoes, and the better and more thorough it is the larger the crop. The Muscat begins bearing very early, and after its fourth year, if properly attended to, may be counted on for about fifteen pounds to the vine, or about eight tons to the acre. In drying, the Grapes lose three-fifths of their weight, one hundred pounds of fresh Grapes making forty pounds of raisins. H. B. Allen, living six miles east of Rockland, in the foot-hills of this county, has been engaged in a small way for several years in making raisins from the Muscat. Being engaged in gardening and fruit-growing, he sells his product to his neighbors, and readily gets 16 $\frac{2}{3}$ cents per pound at wholesale. At that rate the product of an acre would bring at least \$750. The labor of gathering and drying is not great. The Grapes should be allowed to get fully ripe, and when gathered, all defective ones should be removed. Drying in the sun is a tedious operation, requiring considerable attention, but involving the outlay of no capital. There is of course some risk of damage by rain, but generally the whole crop can be disposed of before the fall rains set in. The Alden Dryer makes raisins of excellent quality, drying the Grape with great rapidity and in the very best manner. As the Alden machine with the necessary buildings costs some \$3,000, a considerable business must be done to justify its use, though a number of growers can combine in its erection and divide the expense. There is no reason why the foot-hills of Placer County could not supply the whole coast with all the

raisins it can consume, besides shipping car-loads to the Eastern States. They are easily produced, and the market for them is practically unlimited.—*Placer Argus.*

SKELETON LEAVES.—Leaves to be skeletonized should be gathered only during dry weather, and they should also be perfectly matured, July and August being the best months to gather them. Among the choicest varieties are Pine, Poplar, Beech, and Ivy leaves. Dissolve four ounces of washing soda in one quart of boiling water; add two ounces of quick lime and boil fifteen minutes; allow this to cool; then pour off the clear liquor into a clean saucepan, and when at a boiling point place the leaves in carefully and boil one hour; boiling water should be added occasionally to supply that lost by evaporation. If after boiling one hour the cellular tissue does not rub off between the thumb and finger, boil them till it will, always placing the leaves in cold water to separate the fleshy matter from the skeleton. Bleach the skeletons by putting them in a solution of one quart of water, a large tablespoonful of chloride of lime, and a few drops of vinegar; let them remain in twenty minutes, and then remove and dry between sheets of white blotting-paper, beneath a gentle pressure.

CLEMATIS INTEGRIFOLIA, or the entire-leaved Clematis. A low-growing plant, with fine blue flowers bordered with white. The greater part of the species of Clematis are climbing plants, but there are a few with erect, self-sustaining stems, like the one named, which I consider the most showy, although the small white-flowering *C. erecta* is quite pretty.—*The Horticulturist.*

Editorial Portfolio.

A HINT

TO THE MANAGERS OF THE HORTICULTURAL DEPARTMENT OF THE EXHIBITION OF THE MECHANICS' INSTITUTE THIS YEAR.

With a view to encourage Horticulture among the people of this great and generally improving city, it would be well for the directors or committee of the floral department of the Fair to distribute as soon as possible, among applicants, both children and adults—especially ladies—a variety of flowers in five-inch pots. The person who at the coming exhibition in the summer shows his or hers in the best condition shall receive as a premium a certain number of bedding-plants. The second-best specimen calls for a less number, and the third for a lesser number in proportion. The bedding-plants to be suitable for out-door planting in the fall.

This plan has been frequently practiced in foreign cities and villages, with the best results. Will not other societies take a forward step in this direction and introduce and encourage Floriculture in this city and country?

The object of every horticultural society, in particular, should be to encourage and promote the cultivation, improvement, and exhibition of fruits, vegetables, and flowers. All of these interests have not been treated with that consideration by the Bay District Horticultural Society which they so richly deserve, and which their importance demands. With respect to flowers, the following question seems to be to the point for anybody having a home, to answer:

“Will it pay me to beautify my home with flowers and shrubbery? There are few persons who can not afford to invest a small sum in a few Rose-bushes or other ornamental plants to start with,

and in a short time they will be well repaid for their slight expenditure and trouble. Anything which adds to the beauty and cheerfulness of a home adds to its permanent value. There are many gems in the floral creation which, when once implanted in the soil, will continue to grow in beauty year after year, and remain joys forever to the fortunate possessor. All will admit that this department of nature is well worthy the study of man. ‘Flowers are not the trifles which many think them to be, or God would not have bestowed the care on them that he did.’”

THE VICAR OF WINKFIELD.

This Pear (also called the Wakefield) is a good deal cultivated in California, and it deserves to be so, as some of its qualities are quite valuable. It grows to a large size, the tree is hardy, of vigorous growth, and yields very large crops, and, for the table, when cooked, it is one of the very best baking Pears. This fruit can not be classed, to be sure, among those of the richest of flavor, but is still a tolerably desirable one for eating. It requires a medium rich dry soil to bring it forward to a good size, and to be fully ripe before picking. The tree should be well exposed to the sun. Taking it in all its characteristics, not many Pears have been so much condemned or so much praised—praised by those who have had patience with it, and condemned by those who have not known how to treat it, or whose soil is not favorable for its proper maturity; but this can hardly ever be the case in California, as we have no frosts severe enough to affect it. In the East some have declared it to be the best winter Pear they had, taking it all in all. But here our climate is so favorable for all

fruit at all seasons of the year, that we have many other very excellent winter Pears that come to perfection; whereas in the East, comparatively, they have but few that arrive at a completely delicious condition on account often of extreme cold, and great changes of weather.

The Vicar should be left hanging till quite late in the fall, and placed in good boxes, and kept for some length of time till it becomes of rather a yellowish tinge; and then with its generally fine blush toward the sun it is a handsome fruit. Our climate is very favorable for this rather uncertain and capricious variety.

THE SEALS AND WOODWARD'S GARDENS.

We believe within the last two or three years Mr. Woodward has had in his Gardens one or more specimens of the fur-seal, but he has none of this interesting species of the seal at present in his ponds.

These animals have a wide geographical range north and south. They are numerous, and are a source of great commercial wealth.

We shall have again to be indebted chiefly to Captain Scammon in his valuable work on *Marine Mammals*, for information regarding these curious creatures.

We present our readers, in our current number, with two more zincographic plates—one depicting a full-aged male fur-seal, of St. Paul's Island, and the other the head of a female fur-seal.

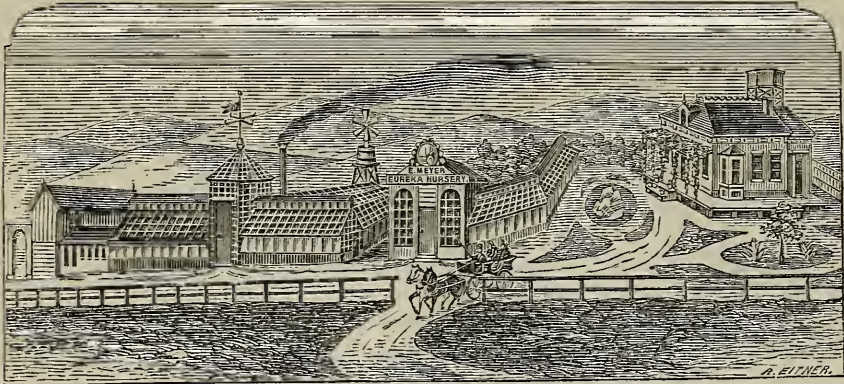
The color of the full-grown males is dark brown, and the white hairs on the younger ones give them a silvery lustre. When the season of seal-killing begins, they are very fat, and when it ends they are very lean. When in full flesh,

the adult females weigh about eighty-five pounds. The male (engraving No. 1) presents a surly expression, "ever present," as Captain Scammon says, "with those veterans who have fought for prestige upon the rookeries many successive seasons."

It is very uncommon for the female to have more than one pup. Besides, the fat of the fur-seal is an object with the native, being valuable for light and heat. The flesh, also, affords them a staple article of food. In former times they existed in such immense numbers, that, on the coast of Chile, one vessel, after loading with choice skins, was supposed to have left on the island 500,000 seals.

Their food consists of fish, and a variety of other marine productions, and small stones or pebbles are found in their maws. The females have great affection for their young. Many years ago they were killed with the ordinary seal-club, and large numbers formerly gathered on the coast of California. The Indians use spears attached to lines to kill them with. At the present time the number taken annually is about 150,000. The price of the skins in Europe average \$8 to \$9 each.

AMERICAN POMOLOGICAL SOCIETY.—We take much pleasure in notifying our fruit brethren of the Pacific Coast that this national institution holds its next biennial meeting at Chicago, Sept. 8th, 9th, and 10th. We trust that our orchardists will respond handsomely and energetically to this call, by sending a good delegation with the best specimens of California fruits to that important meeting of national pomologists. The president is that most worthy and enlightened amateur horticulturist and fruit culturist, Honorable Marshall P. Wilder.



EUREKA NURSERY, NEAR GOLDEN GATE PARK.

The above engraving shows the neat and handsome establishment and reconstructed greenhouses of E. MEYER, proprietor of the Eureka Nursery, near Golden Gate Park. Mr. Meyer is one of our foremost nurserymen and florists. See notice of his catalogue on another page.

PERSONAL.

Mr. F. A Miller, of the firm of Miller & Sievers, will in a few days depart for the East and Europe, for the purpose of visiting and examining all the leading nurseries and public gardens. The object of his visit is the introduction into California of all plants, ornamental as well as useful, which may come favorably to his notice and which may be adapted to this coast. He will visit the following cities: Chicago, St. Louis, Philadelphia, Washington, New York, and Rochester; and will then proceed to Hamburg, Bremen, Berlin, Erfurt, Dresden, Frankfort, Baden, Haarlem, Ghent, Paris, and London. If we are not mistaken, his journey will result in the introduction of many valuable acquisitions.

Another object of his visit is to establish permanent business relations with Eastern and European houses, in re-

gard to the exportation of plants, bulbs, and seeds indigenous to this coast and the Pacific islands.

HOW TO DESTROY AND GET RID OF SLUGS.

Mr. D. C. Arthur, of Oakland, a lover of flowers and Horticulture generally, informs us that his Hyacinths this spring have been troubled and some of them destroyed by slugs, which are among the most annoying of California garden pests. In order to rid himself of them completely, if possible, he took a lantern, between the hours of nine and twelve at night, and searched for them. He found bunches of these slugs feeding on the tops of his plants, as they were just coming up out of the ground, and so killed them all. These creatures can not easily be found in the day-time, but are night-feeders. Quick-lime is found to be somewhat efficacious against them, when sprinkled over the ground around plants.

VIBURNUM AWAFUREKI.—Of all the brilliantly colored autumnal plants we have ever seen, the plant above named is the finest. Some of its leaves are now of a bright rose color.

OUR FRONTISPIECE.

We embellish our work this month with two graceful, neat and well-drawn cuts, namely: an aged Date-palm (*Phoenix dactylifera*) and a row of giant Fig-trees (*Ficus carica giganteus*). The first named is found growing and flourishing in some sheltered locations of our State, (especially in southern tropical and semi-tropical California. The latter tree is found to do well and bear plentifully in all parts of the Pacific slope except toward the Sierra. We are not aware of the Date-palm having borne fruit here, and though it is cultivated as far to the north as 41° in Spain, as well as in the south of France, in Italy, at Athens, and at Smyrna, the fruit does not ripen there. Its true native home is the north of Africa, Egypt, Nubia, Syria, Arabia Felix, and Persia. Its range is limited toward the south in the old world by the region of equinoctial rains. A sandy and well-watered soil is that which best suits this tree, for which reason it is found always in the great African deserts, in the neighborhood of springs. It constitutes almost the sole means of support to nineteen-twentieths of the population of Fezzan during nine months of the year; forming the food of stock as well as of man, "the oases being bare of herbage." These Palms are planted in Egypt in rows along the canals. They seem to be almost limited to the sub-tropical zone throughout the world as to bearing fruit at any rate. A lady traveler, Josephine Clifford, visiting semi-tropical California, which is about between San Miguel Mission in the northern portion, and San Buenaventura in the southern, relates that she saw a Fig-tree at San Luis Obispo which measured three feet in diameter near the base, spread to seven feet

where the branches set in, grew forty feet straight up from the ground, and shaded with its leaves and branches a space of some fifty or sixty feet across. Nor did it stand alone. Beside it was one almost equally gigantic, then followed two or three smaller ones—the whole, no doubt, the remains of a Fig-avenue, or *allee*, like the *allees* of Olives which are often found in southern California.

The Date-palm, like many other trees and most of the other kinds of Palms, has male flowers on different plants from those which produce the fruit, and there is a necessity for some of the male trees to grow near the female to render them fruitful; or, at least, to impregnate the ovary of the seed, without which the pits, which are taken out of the fruit, will not grow. In other words, this variety of the Palm is a diœcious plant.

THE OVERLAND.—The March number of this first-class magazine is before us. We always look forward with expectant pleasure to its monthly issue, containing as it does so much of varied interest on many general practical subjects; being rich, also, in exciting tales, many of which are of essential and peculiar value as relating to the Pacific Coast. We can find but few papers similar to them in any other publication of the kind. The present number is as replete as ever with many useful and entertaining articles, which the public had better judge of and enjoy, by immediately becoming subscribers to the work. We need not here enumerate all the papers in the March number, but we can conscientiously urge the public at all events to examine its very attractive table of contents: "The Policy That Built up the West," "Thorpe, Cava-

lier," "Glimpse at a Central American Republic," "To the Lion of Saint Mark," "The Richard Murray Materialization," "Communism," "Chambers in Charlotte Street," "Discipline," "Modern Civilization a Teutonic Product," "That Valentine," "Tobacco and Sugar," "Pioneer Nig Saul," "Autobiography of a Philosopher," "The Friendships of Men and Women," "Pan Avenged," "Toby Rosenthal—How he Became a Painter."

CATALOGUES RECEIVED.

From R. J. Trumbull's Seed Warehouse, 427 Sansome Street: "Guide to the Vegetable and Flower Garden, etc. Catalogue of Flower, Vegetable, Agricultural and Tree Seeds, Flowering Bulbs, Flowering Plants, Fruit and Ornamental Trees and Shrubs; Establishment begun in 1852." This Catalogue and Guide is handsomely printed and embellished with neat engravings. It is one of the best gotten up on our coast. Mr. Trumbull is an extensive grower of the Blue Gum (*Eucalyptus globulus*, in the value of which tree he has great faith), and the *Eucalypti* family. He has given the public instructions how to raise and cultivate these valuable trees, to which we will give a place in the next number of the HORTICULTURIST.

From B. F. Wellington, 425 Washington Street, S. F.: "Catalogue of Vegetable, Flower, and Tree Seeds, Bulbs, etc., for 1875." This is a neat publication. It embraces not only the most noted and commonly known seeds adapted to California, but also all desirable native seeds of Europe, Australia, New Zealand, Mexico, South America, Sandwich Islands, etc. One of the greatest demands now on the part of

the agricultural public is for Alfalfa seed, of which Mr. Wellington has provided himself, to meet the market, with several tons. It is now the most profitable feed for all kinds of stock on this coast.

From J. P. Sweeny & Co.'s Seed Warehouse, Davis Street, San Francisco: "Trade List of Garden, Flower and Herb Seeds; also, a select list of Gladiolus and other Spring Bulbs." This firm has been engaged in this business for twenty years; they therefore can be fully depended upon.

From E. Meyer: "General Catalogue of New and Rare Ornamental and Flowering Plants, Bulbs, Seeds, etc." Eureka Nursery, near Golden Gate Park; Floral Depot 27 Geary Street, near Kearny, San Francisco. At Mr. Meyer's sales-room we noticed a splendid and varied collection of double and single Hyacinths in pots. They are well worth visiting.

From Briggs & Brother: As usual, a splendidly illustrated floral quarterly, "Work for 1875." It contains two beautifully drawn and colored plates of *Phlox Drummondii grandiflora splendens*, and *Phlox Drummondii grandiflora variegata*. These are some of the most useful and brilliant annuals in cultivation. They have a great range of bright colors and profusion of bloom, and the sorts are continually increasing. The flowers of these Phloxes are very large, of glowing and distinct colors, with large, clear, conspicuous white eyes. All varieties of flowers that can not be indorsed by this firm are carefully excluded.

From R. H. Allen & Co., Nos. 189 and 191 Water Street, New York: "Annual Descriptive Catalogue of Garden, Flower, and Field Seeds, and Grains, for 1875," with directions for location

and soil for a garden: frames and hot-beds, lawns, etc.; novelties and select vegetable and flower seeds; new varieties of Potatoes for 1875, and ornamental grasses, etc.

From F. K. Phoenix, Bloomington Nursery, McClean County, Ills.: "Plant Catalogue and Wholesale Price List." The nursery contains 600 acres.

NEW AND RARE PLANTS.

New Ferns.—Mr. John Muir, geologist, naturalist, and author of "Studies in the Sierra," informs us that he has lately discovered three new Ferns. He also met with the *Darlingtonia Californica*, or California carnivorous Pitcher-plant. It was not in bloom, being in winter when he saw it, but in the faded flowers he observed many dead grasshoppers, butterflies, moths, and other insects, which had been decoyed to their destruction by its honey sweets and its downward inclined hairy *chevaux de frise* as they may perhaps be termed. Mr. Muir has promised to give us a description of this insectivorous curiosity, if he can spare the time. If he does, we promise our readers that it will be probably somewhat poetical or imaginative, but, according to his wont, strictly truthful as to what he actually observed.

Weigela Hortensis Nivea.—There has been no novelty of late years that we deem likely to be of a more lasting popular character than this. The flowers are white—not the white of so many things, which is neither green, nor yellow, nor rose—nor a pale edition of some of them, but a real pure snowy white. The common *Weigela rosea* and *W. amabilis* are well known, as are also the various kinds between them, of which probably the best one is the va-

riety *Græwegeenii*, which has a very bright rosy tint and the flowers in immense profusion on long wand-like branches. The history of the present one is unknown to us. It is probably a cross between *W. amabilis* and *W. rosea*, or it may possibly be a mere seedling from *W. amabilis* alone. It has more of its character than of the other one, including its tendency to bloom in August and September as well as June. It is not so straggling in habit, but is a well-formed bush, as is the *W. rosea*. It came to American nurseries under the name of *W. Hortensis nivea*, or Snow-white Weigela of the gardens, which seems to indicate that its precise origin is unknown.

It has been found a capital plant for winter-forcing, where pure-white flowers are desirable. It moves very well in the fall, and blossoms as freely as if not transplanted, while a very moderate heat brings out the flowers. These are good points in a forcing-plant.—*The Gardener's Monthly*.

Hydrangea paniculata grandiflora.

—The queen of hardy Hydrangeas is the new Japan variety, known in nurserymen's catalogues as *H. paniculata grandiflora*. It grows rather tall if left to itself to come in among small shrubs. Still, as it is not a coarse-wood plant, a little shortening of the leading shoots will make it fit in very nicely with the lesser-growing kinds. The flowers are white, and produced in immense pyramidal panicles a foot or more in length. This is another autumn or late summer blooming plant, and one of the best shrubs of recent introduction.—*The Horticulturist*.

Campsidium filicifolium.—A free-growing slender woody climber, from the Feejee Islands, and referred doubtfully to Campsidium, from the analogy

of its foliage. It has opposite imparipinnate leaves, which are about five inches long, including a petiole of one inch, and consists of nine pairs of leaflets, which are small, ovate, deeply cut into two or three lobes on each side, the larger lobes being sometimes toothed. The leaves, from their size and form, are strongly suggestive of fronds of some small-growing pinnate Asplenium, *A. viride*, for example. The growth and general character of the plant is so elegant that, whether cultivated as a small pot-plant, trained on globular or other trellises, or planted as a climber, it has a most charming and engaging appearance. The flowers are as yet unknown.

Dracæna metallica.—This robust-habited stove-plant is the finest of all the dark-colored Dracænas, the leaves being as much as sixteen inches long, and of an oblong, acuminate form, with a marginate petiole four inches long. These, together with the sheathy leaf-stalks, are of a uniform, rich, coppery, purplish hue when young, becoming a dark purplish bronze when mature. The leaves are somewhat erect and arching. Taking into account their large size, and their full and rich coloring, together with the free habit of growth, *D. metallica* comes into the very foremost rank among decorative and exhibition plants. Imported from the Samoan Islands.

Gymnogramma decomposita.—A very handsome and well-marked stove-Fern, belonging to the group furnished with ceraceous pale yellow powder. The fronds are three feet long and fully half as much in width, of triangular outline, and curving or arching in a graceful manner; they are decomposed, the pinnae being unequally triangular-elongate, the pinnules triangular-lanceolate, the pinnulets oblong-lobate, the lobes

being deeply cut into from two to six small finger-like divisions, which gives the fronds a finely dissected appearance. The stipe is about one foot long, freely covered while young with the pale golden powder.

New Lilliputian Zonal Geranium named "*Aurantia striata*." This plant is distinguishable in any collection, and will at once take the eye of the critic on account of its unique and tidy habits of compactness, unparalleled density of panicles, and conspicuous symmetry of proportion.

NEW AND RARE FRUITS.

Souvenir du Congres Pear.—Messrs. Ellwanger & Barry, Mount Hope Nurseries, Rochester, N. Y., announce a new Pear—the *Souvenir du Congres*. It was exhibited by them for the first time in this country, at the great Pomological Exhibition at Boston, last fall. It attracted great attention for its large size, fine form, superior quality, and earliness. The tree is vigorous and productive. The fruit is larger than Bartlett or Clapp's Favorite. The skin is smooth, bright yellow, when the fruit is fully matured, and red toward the sun. The flesh, while it is very like the Bartlett, has a less defined musky flavor, and it is firm to the core. It commences to ripen in New York State about the first of August, before the Bartlett, and extends into September.

Following are some new Pears deemed worthy of cultivation by Hon. Marshall P. Wilder:

Harris.—Size above medium; form ovate pyriform, resembling in general appearance the Beurre Hardy; stem one inch or more in length, frequently inserted angularly and without much depression; color golden russet, at matur-



No. 1.—FULL-AGED MALE FUR-SEAL, ST. PAUL'S ISLAND.

ity; flesh yellowish white, fine grained, very tender, melting, and juicy; flavor rich, vinous, spirited, and aromatic, somewhat like the Beurre d'Aremberg; season October 1st to 15th; keeps sound at the core; quality *very good to best*; will probably prove a first-class fruit; tree healthy, hardy, and productive; foliage small.

Madame Henri Desporte.—Size above medium, broadly turbinate; eye partly closed, in a deep narrow basin; stem short and thick, set on one side of a lip; skin rather thick, almost entirely covered with cinnamon russet on a yellow ground; flesh white, very fine grained, free from grit, juicy and buttery, very sweet and rich, with a very slight astringency; season last of October and first of November; keeps well; quality *very good to best*; resembles Beurre Bosc in color, texture, and quality; tree a fine grower and productive. This variety is from seed by Andre Leroy, of Angers, France.

General de Bonchamp.—Size large; form oblong pyriform; color dull yellow, slightly traced with russet; flesh melting, juicy, buttery, and fine grained; flavor sweet, rich and aromatic; season November to December, ripening earlier than with Mr. Leroy in France; quality *very good to best*. A Pear of good promise.

VARIEGATED CARNATIONS. — *W. A. H., Dubuque*, writes to *The Gardener's Monthly*: Are there any variegated-leaved Carnations known to you? I have not seen any advertised, but have a well-marked plant, a sport from *C. Shiller*, having a creamy-white stripe in the centre of each leaf. I discovered it when only the tip of the first variegated leaf could be seen, and propagated it at once, and it is now a vigorous well-marked plant.

Correspondence.

Editor of California Horticulturist:

DEAR SIR,—Our hills are green and beautiful; the winter is nearly over. This is the second winter that I have cultivated California soil. Our hills have a peculiar climate. I think that they resemble Crimean hills. In Crimea on the northern side-hills the soil is very poor; the southern side resembles Messina in Italy.

The winter was very cold and kept back vegetation. At a ranch owned by a Portugese, Mr. Antonio Williams, half a mile from our place, I saw every kind of vegetables in his garden ready for the table on Christmas-day. His vegetable garden is on a southern side-hill.

We had through the whole winter, for our own table, Lettuce, Radishes, and Spinach. I put Early Rose Potatoes in the ground on the 2d of November; they are most ready to dig up. Green Peas are in blossom.

I hope the time will come when the climate and soil of our hills will be studied by intelligent farmers, and proper places will be cultivated in the winter season to supply San Francisco at that period with all kinds of vegetables.

AGAPIUS HONCHARENKO.

UKRAINA, CAL., February 15, 1875.

DICENTRA SPECTABILIS (Bleeding Heart). —If limited to but one plant this would certainly be our choice. It grows freely in almost any good soil, never failing to bloom early and for a long time. In habit it has no equal in graceful elegance, and its abundance of rosy crimson flowers make altogether a plant to be admired by the million. Although introduced almost or quite a quarter of a century since, still there are thou-

sands of gardens in which it has not found a home. It may be rapidly propagated by dividing the roots or by cuttings of its half-ripened flower stems in summer, placed in almost any shady spot in the garden.

SOME NOTES ON BUSH FRUIT, FRUIT CULTURE, AND REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

The subjects upon which I will commence to treat are Raspberries, Gooseberries, Black Currants, and Red and White Currants. Raspberries are, perhaps, more liable to suffer from lack of moisture and moderate irrigation than from any other cause. They like a soil, therefore, which contains a permanency of proper dampness, which in our climate they can not have completely, without some irrigation. They will, for the above reason, succeed in half-shaded situations, as in orchards of some kinds of fruits, but the fruit with too much shade never attains that high flavor so much esteemed in the Raspberry. The most improved variety we have seems to be the Fastolf. It possesses one valuable quality in particular—long bearing, at any rate as far as our comparatively dry climate will permit. We have a few other sorts; but the Fastolf continues in bearing long after the other kinds; appearing to partake, in some degree, of the double bearing. They will be better for a rather liberal manuring annually, and no digging over the roots should be permitted, but only the horse cultivator and hoe should be used to keep the ground loose and clear of weeds. This berry is of large size and high flavor.

Among all the smaller bush fruits the Gooseberry delights most in an open,

free, and generous soil; one rather dark in color, as much of our soils are, seems to suit it best. We have to depend most on the American native kinds, as the Houghton, small as it is when compared with the European; the latter requiring peculiar treatment with some lime and salt, and other manures, to keep off their great pest—the mildew—and even then we have merely partial success with them. Red and White Currants require, also, a friable and pretty fertile soil; but if too rich, they will produce too much watery wood. It is, however, difficult to make the soil too good for Gooseberries, with any reasonable amount of manurial matters. Many good gardeners, particularly for the English sorts, if they cultivate any, pack about half a barrowful around the stem of each bearing bush every winter. This washes down in nutrition to the roots, and helps to keep them damp in our dry and hot season. Little summer pruning is needed for the Gooseberry—just enough to keep the boughs from dangling too low, though that may be allowed to some extent, like the Grape, in our season of drouth. For this purpose the ordinary shears may be used, removing any portion of the points which might drag too much along the ground.

Black Currants love a moist soil, especially when they are in blossom, or swelling is apt to engender plant lice or aphides. For this reason some manure kept damp round their stems, in order to retain the moisture, as well as to encourage surface fibres, is beneficial. Soap-suds are good for this purpose. Here, too, the use of the spade must be protested against. Summer pruning is not needed with the Black Currant; unless it be a few of the lower shoots, bending with their weight, and dragging, like some foolish woman's

skirts, along the ground. If, however, any of the young points grow to an inconvenient height, they may be pinched or cut back any time during May or June, leaving a few of the lower leaves. Black Currants, it is true, are not much grown here, but they make a useful jam for coughs and sore throats. Red Currants are much coarser-growing than the White, and do not require so fertile a soil, nor so much manure if planted in rather poor land; indeed, when they make too coarse and too thick branches, manure is out of the question; whereas it is not easy to over-enrich the Whites. Both Red and White Currants delight in a free and open soil, and will endure drouth much better than the Black Currant. Summer pruning is with them of much service. This is performed when the body or "breast shoots" are about ten inches in length. They may be shortened to four inches, which is necessary to protect them from our intense sunlight; for if it shines much immediately on the bunches of fruit before the coloring period, they will lose size as well as juiciness. But the terminal points, also, are apt to lengthen inconveniently; these may be shortened when from eight inches to a foot in length.

These proceedings will throw much strength into the berries, which is most desirable. It is no use suffering young-growing spray to any indefinite extent; it is but adding more woody matter; whereas the prime object should be to throw as much into the fruit as possible. As for weak growth (and that is rare in our climate and soil), that merely points to the need of manure, if the land is not naturally rich, and may be amended by surface dressings, or by digging out a trench around them, and introducing manurial matters.

Among the chief recommendations to

be offered, it is here urged that there be no deep stirring the ground at any period nearer than three feet from the bole of the bush.

The White Currant requires less shortening than the Red, and seldom much summer pruning. It is astonishing what a weight of fruit both the White and Red Currant bush will produce, if of a good kind—as the Cherry Currant—and properly handled in our almost perfect climate.

Further, with regard to pruning in the rest season, it may be observed that a too sparing hand is the common fault. Gooseberries, especially, require more thinning than is commonly awarded to them. The interior shoots of the bush, in healthy trees, should be much pruned away, and the bearing confined chiefly to the extreme points. They are thus gathered with more ease; indeed, the bushes may be stripped in half the time of those choked up in the interior. The fruit, also, particularly the English kinds, is much finer, and the crop will be found to tell well in bulk. Those who grow European kinds of Gooseberries for exhibition purposes may use liquid manure occasionally, during the swelling process, as also just before the fruit begins to color.

I have occupied so much space concerning these small fruits, that I am disabled from enlarging more, at this time, on other points of fruit culture of any kind, and will, therefore, proceed to deal with the usual reports of the markets.

Near the middle of last month (February) vegetables showed very little improvement in any way. Artichokes were to be had for \$1.00 to \$1.25 per dozen, and Asparagus for 62½c. to 75c. per dozen. Small quantities of Rhubarb were offering at 37½c. per lb. New Potatoes were no better in quality.

Those offering were a mixture of "volunteer" and genuine. The Potato blight had already commenced to show itself on the crop. One-half of the New Potatoes for sale in the retail markets were more or less affected by it. The price of New Potatoes was a little easier on the 12th ult., ranging from 6c. to 8c. per lb.; Cabbage Sprouts were also a trifle cheaper, selling at 8c. to 10c.; early Green Peas were retailing at the same date at 15c. The pods were slightly discolored by frost, but the contents were uninjured. Horseradish was quoted at 20c. per lb.; Salsify at 75c. per dozen bunches; Field Lettuce, 25c. per lb.; Dried Okra, 50c.; Dried Chili Peppers, 50c.

Fruits were retailing for the same price as the week previous. Oranges were very plentiful, but the native fruit is exceedingly small, as a general thing, this season. This is owing to the abundant crop borne by the trees, which have not been subjected to any thinning out so as to give the stronger fruit an opportunity to fully develop. We give the price of dried nuts and fruits as follows: Sun-dried California Raisins, 20c. per lb.; California (dried) Plums, 15c.; German Prunes, 15c. to 25c.; Dates, 25c.; Preserved Bananas, 25c.; California Almonds, soft shell, 25c.; Imported do., 35c.; Walnuts, 20c. to 25c.; Butternuts, 25c.; Chestnuts, 25c.; Coconuts, 15c. each.

California Oranges and Lemons were plentiful, and met with ready sale. First-class Apples and Pears were scarce, and brought high prices. The steamer from Oregon, due on the 14th, was expected to bring a large shipment of Apples, which, coming into competition with medium grades, might cause a decline, but could not have much effect upon the prices of the best California fruit. The market was sparingly

supplied with Mexican Limes, and those from Los Angeles sold at fair prices. Arrivals from Mexico supplied the market with moderate quantities of Bananas, Pineapples, and Mangoes, which sold at unchanged rates. Apples by the box retailed at \$1.25 to \$2.50.

Green Peas were very abundant, and prices lower about the 20th of last month (February). Then, also, the first Rhubarb made its appearance, and found ready sale at 25c. per lb. Asparagus was more plentiful, and considerably cheaper. A consignment of New Potatoes from San Bernardino turned out to be bogus, being only a lot of old ones, that had been buried until the skin peeled off, thus giving them the appearance of new. Genuine New Potatoes, raised in the vicinity of the city, were more plentiful, and have declined to 5c. to 8c. per lb. Spinach was quoted at 8c.; Lettuce, 20c. to 25c. per doz.; Salsify, 8c. to 10c. per bunch; Potatoes, by the sack, delivered, \$2.25 to \$2.50 per cental.

The receipts of California Oranges continue to increase, and the supply is now so abundant that prices are beginning to weaken. Choice Pears are very scarce, and command fancy prices; but the refuse from Eastern shipments are sufficiently plentiful and cheap, though not very salable. The 200 bunches of Bananas by the D. C. Murray, from Honolulu, arrived in first-class order, and find an appreciative market. Apples are plentiful, and by the box retail at \$1 to \$2.50. A few Pears of inferior quality continue to be offered for sale. Outside of these descriptions imported and dried native fruits only appear on the stalls.

The supply of Green Peas was never known to be so large as it was about the last of February. A few were gen-

erally to be found in market all winter, but they were never before sufficiently abundant in February to sell for 6c. to 8c. per pound. Within two or three years a considerable tract of land along the foot-hills in the vicinity of Warm Springs, Alameda County, has been found peculiarly adapted to the growth of early Peas, in consequence of its almost entire exemption from frost, and this region now furnishes almost the whole supply. The daily receipts average nearly 100 sacks, or about four tons. Asparagus came forward at the same time in limited quantities, but the abundance of Peas interfered materially with the sale of it, and kept articles below the fancy figures usually obtainable at this season.

New Potatoes were more plentiful and retailed at 6c. to 8c. per lb. The high rates obtained for Humboldt, Petaluma, and other descriptions of old Potatoes, for several months, were still maintained. Onions were very abundant, and could be had by the sack at \$1.50 to \$2.00 per cental. We quote Spinach at 8c.; Lettuce, 20c. to 25c. per doz.; Salsify, 8c. to 16c. per bunch; Potatoes, by the sack, delivered, \$2.25 to \$2.50 per cental.

The market was well supplied with Los Angeles Oranges and Lemons. Apples were very plentiful, renewed shipments from Oregon contributing to the supply.

During the last week in February, arrivals of fruit from foreign countries included large consignments of Sicily Lemons, Mexican Limes, and Bananas and Pineapples from Panama, by the coast steamer, and Bananas from Honolulu. Pears were very scarce, and generally inferior in quality. Apples by the box retailed at \$1.25 to \$2.25, delivered.

The quality of the Green Peas offered

was just as inferior as the quantity was excessive.

New Potatoes are this year subjected to a new form of adulteration. Formerly what are known as "volunteer" Potatoes were, without much attempt at concealment, palmed off on unwary purchasers for genuine new Potatoes. We took especial pains last year to inform housekeepers of this practice, and placed them on guard against this species of fraud. The result has been that growers are no longer encouraged to continue it so openly, and now we have a mixture of "new" and "volunteer" Potatoes presented as a genuine growth of new crop, and for which the price of genuine new Potatoes is asked—8c. per lb. Mushrooms continue steady at 10c. to 15c.

Bananas and Pineapples were very plentiful, the former at 50c. to 75c. per doz.; the latter at 50c. to \$1.25 each.

THE EUCALYPTUS.—This Australian tree, called Sweet Gum, or, botanically, *Eucalyptus globulus*, though comparatively recently known in the United States as a preventive of chills and fever, has been known in Mexico for very many years as possessing that quality. The three-mile drive from the City of Mexico to Chapultepec is bordered by an old avenue of these trees; and wherever there is malaria, there is the Eucalyptus. It seems strange that never until now should the people of our malarial localities, such as New Orleans, have discovered this "fever tree" and utilized it by planting it around them. By an order of the City Council of New Orleans, the Mayor of that city advertises for sealed proposals for planting it on a large scale in and about that malarial city.

Editorial Gleanings.

CALIFORNIA NORTHER.—The norther is essentially a land gale; its effects are seldom felt wide off at sea, but all the country from the base of the Sierra to the coast is under its dominion. Coming as the present one does right after a long rain-storm, its desiccating effects are not felt as much as in the spring-time or in midsummer. We have seen hedge-rows of Cypress turn brown under the influence of a norther as if a fire had passed over them; leaves upon trees would curl up and fall, young fruit would drop off, the paper upon the walls of dwellings would become detached, furniture would fall to pieces, and growing crops of young grain would be nearly ruined in a few hours. The norther sucks up the juices of plants and the juices of humanity at the same time. Nervous people are sometimes made nearly frantic under the rasping effects of the blast, and even animals become restless and excited. What the good effects of a norther may be we have never been able to find out. Does it execute some sort of a sanitary commission in the vigorous airing which it gives to everything out-of-doors, and in-doors, also? If it blows epidemics and malaria out of the country, let us be content with our norther. But unless we can find a redeeming sanitary side, we shall take a norther to be about as useless a gale as ever swept over land or sea.

BEECHER ON APPLES.—Rev. Henry Ward Beecher expatiates with true ecclesiastical unction on the manifold uses of the Apple in the domain of culinary art. It might take its place on the table as regularly as the Potato or the Onion, for though "the Onion is far more odorous, the Apple is far more

blessed." It is an admirable sauce for meat, which always craves a piquant acid for relish. When meat is wanting, "a scrap of pork in the frying-pan, with sliced Apples, will serve the economic table almost as well as if it had been carved from a beef or cut from a sheep." Mr. Beecher blesses the memory of the unknown inventor of the Apple pie. He would fain make a pilgrimage to his grave and rear over it an everlasting monument. But the juice of the Apple he accepts only with discreet reservations. Though banished from its former universal position upon the farmer's table, cider is creeping back again, but it comes in the name of a neighbor, and is called champagne. Whether in one form or another, it is still savory of the orchard; it still brings warmth to chilly veins, and adds to the cheer of many a homely domestic festival. "I can not," says Mr. Beecher, "as a temperance man, exhort you to make it, but I must say, that if you make it, you had better make it good."

PLANT FOR TANNING LEATHER.—A new plant is found in Iowa, which is supposed to grow in the northern part of California, and which we now describe, that farmers and herdsmen may look for it. Its use is for tanning leather. It contains more tannin than the best bark. To the eye it is a wild Buckwheat. Its stem is a lighter red and much thicker, usually over one-eighth of an inch in diameter. The plant is tall as Wheat. The leaves are the form of Peach-leaves. The joints of the stem resemble the leg of a fowl in shape. They are a little furzy. It flourishes on wet bottom land. Some people liken it to smart-weed. It is not reported as bearing a flower; but it

yields seeds, so a flower is supposed, of course.

Its botanical name is *Polygonon Amphibium*. Dr. Bolander has not found it, but he is advised that a plant answering the description has been observed in north California. Some seed is expected from Iowa, which will be described hereafter. Should any of our friends find this plant, they will confer a favor by informing us of the fact. It is believed to be worth looking after.

BANANAS IN SOUTHERN CALIFORNIA.—Rev. H. H. Messenger brought to our sanctum recently a number of Bananas which were grown in the open air on his place near the San Gabriel Mission. The bulbs from which the Banana stalks sprung were brought from the Sandwich Islands about twenty-two months ago. In eighteen months from the planting of the bulbs the stalks blossomed, and in three months longer the fruit matured. Fifteen Bananas were borne upon the bunch. They were small, but equal in flavor to any we have ever tasted. From the new bulbs, which will grow from the old ones this year, Mr. Messenger expects to procure much finer fruit. He thinks that the raising of Bananas can be successfully prosecuted here, and that without any unnatural protection for the plants. He also thinks that the Florida Banana is much better adapted to our soil and climate than any other.—*Los Angeles Herald*.

LOBELIA SUBNUDA.—The *Lobelia subnuda* is a small species with prettily veined foliage, spreading in a tuft about two inches high. It is cultivated on the rock-work at Kew, where it was received from Mr. Thompson, of Ipswich,

who is fortunate in possessing so interesting a novelty. The leaves have a dark metallic lustre, relieved with light green veins; they are ovate, obtusely serrated or incised, and purple underneath. The petiole rather exceeds an inch, the blade is somewhat less. The flowers are small and pale blue; in erect racemes ten inches high. It is a native of Mexico.—*Gardener's Chronicle*.

SMYRNA AND FIGS.—It would be hazarding little to say that the Fig-tree is the main prop and support of Smyrna, and that its fruit, fresh or dried, furnishes the chief pabulum of her people's prosperity. The Fig, in every phase, from imperfect to perfect ripeness, "with jacket on," or smothered in sugar, or neatly packed in drums for exportation (in which labor most of the adult population seems employed, meets the eye everywhere. Without entering into statistical details unsuited to this article, suffice it to say that this peculiar industry gives constant and profitable employment to thousands of the population, and it is literally "by their fruits" that we know the Smyrniotes. This really constitutes the chief trade of this bustling and busy little city, netting a royal revenue annually for "Giaour" Ismir from the remote infidel on the banks of the Thames or Hudson.—*Temple Bar*.

THE ORIGIN OF THE GREEN ROSE.—There appears to be some uncertainty in regard to the origin of this Rose. It is a sport from *Rosa indica* (the China Rose of England and Daily Rose of America). It was caught in Charleston, S. C., about 1833, and came to Baltimore through Mr. R. Halliday, from whom I obtained it, and present-

ed two plants to my old friend, Thos. Rivers, in 1837. The first clustering Rose was also found in Charleston, and sent to Noisette, of Paris, and there founded the Noisette family of Roses.—*R. Buist, Rosedale Nurseries, Philadelphia.*

THE FOOT-HILLS FOR CHESTNUTS.—The Nevada *Transcript* has the following: "Leme, the proprietor of the French Gardens, near this city, was exhibiting in town specimens of Chestnuts raised on his place the present year. The trees upon which the nuts grew were raised from the seed, which was planted only four years ago. The Chestnuts were sent from France, and were planted in 1870. The trees are quite heavily loaded with fruit this year, and the nuts are the largest-sized ones we ever saw. The burs contain from three to seven large-sized nuts, some of them exceeding in size a large Plum. They are thoroughly matured, and prove that this foot-hill region is well adapted to their culture. Mr. Leme informs us that he took no pains in planting or training the trees during their growth. They were put into ordinary ground and have grown as thriftily as any tree on his ranch. There are thousands of acres of land about here as well adapted to raising such trees as the ground on which those in question were planted, which can be obtained at Government price. An orchard of a few acres would in a few years afford a nice income, and the expense of starting it would be but trifling. Besides the Chestnut, other nut-bearing trees thrive well here. We noticed a Black Walnut tree in the yard of N. P. Brown, about six inches in diameter, on which, we should judge, there have grown this year two bushels of nuts. The ground around the tree has not been cultivated at all. The

tree was set out merely as an ornamental shade-tree. The Almond-trees in the orchard of Josiah Rogers were this year heavily loaded with fruit, and in fact we believe there is not an instance of failure of nut-bearing trees producing bountifully wherever set out in the county. Is there not an opportunity here presented to men of small means to make a permanent home and establish a good paying business in a short time? An acre of good trees would, in a few years, produce four-fold more than any acre planted to grain in the valleys. The crop is always sure, and the market is never over-supplied. It is an industry that in time will be an important one, and those who embark in it will be sure to reap a rich harvest in the future.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING FEBRUARY 28, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office.)

BAROMETER.

Mean height at 9 A. M.....	30.19 in.
do 12 M.....	30.19
do 3 P. M.....	30.17
do 6 P. M.....	30.16
Highest point on the 7th, at 9 A. M. and 12 M.....	30.32
Lowest point on the 21st, at 6 P. M.....	29.94

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	51°
do 12 M.....	57°
do 3 P. M.....	57°
do 6 P. M.....	52°
Highest point on the 6th and 26th, at 3 P.M.....	63°
Lowest point on the 3d, at 9 A. M.....	45°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	44°
Highest point at sunrise on the 7th and 14th.....	48°
Lowest point at sunrise on the 2d, 3d, 22d, 24th, and 28th.....	40°

WINDS.

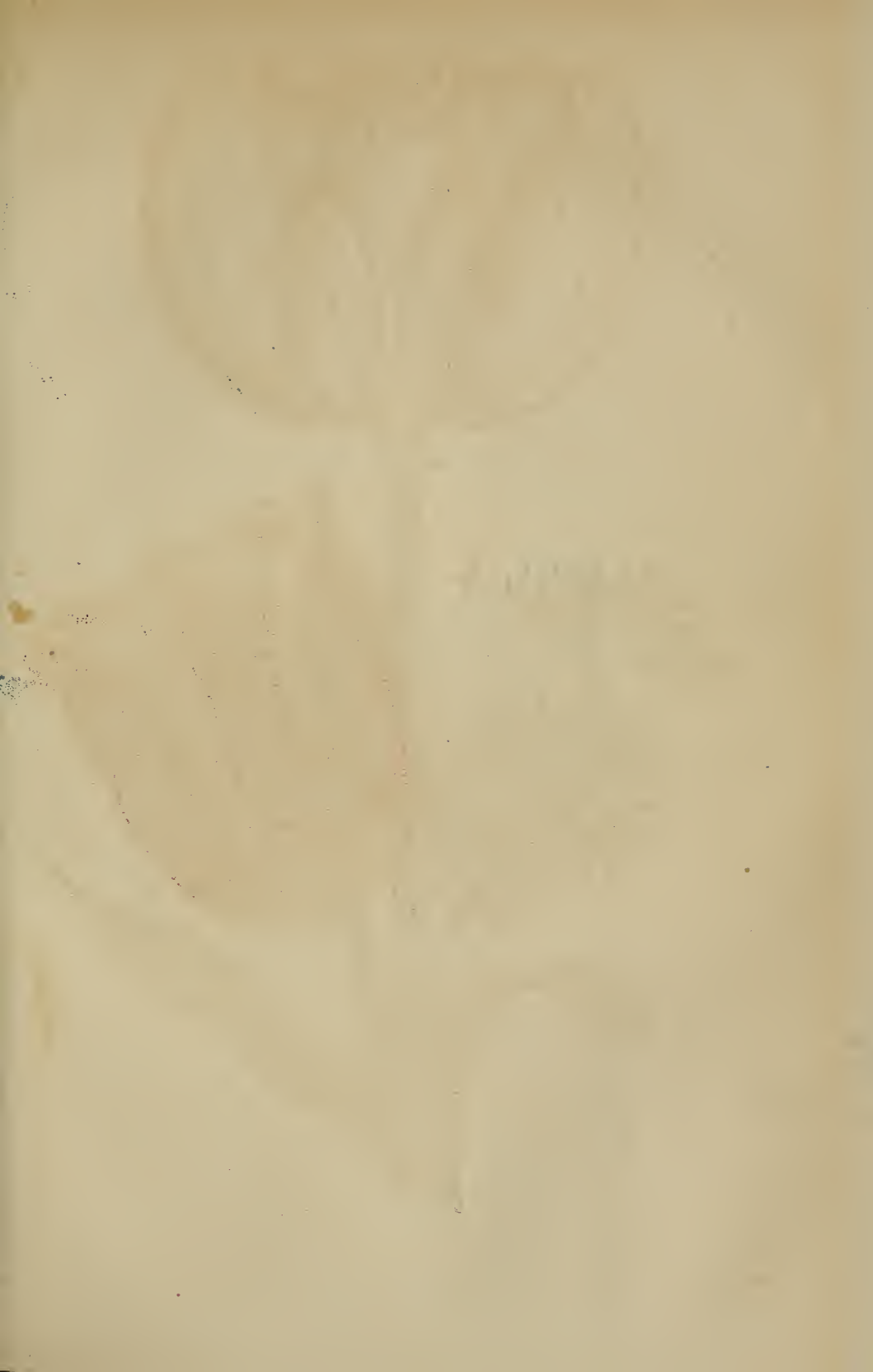
North and north-east on 13 days; south-east on 1 day; south-west on 2 days; north-west on 7 days; west on 5 days.

WEATHER.

Clear on 7 days; cloudy on 5 days; variable on 16 days; rain on 1 day.

RAIN GAUGE.

1st.....	0.20
Total Rain of the season to date.....	16.18





SUILLA. SINGLE AND DOUBLE TULIP.

Engraved on Wood, and printed in Colors by GEO. FRAUENBERGER, Rochester, N. Y.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, APRIL, 1875.

No. 4.

SEED-PLANTING.

BY F. A. MILLER.

[Continued.]

There is less occasion to cultivate annuals in our gardens here, than is customary in colder climates, for the very reason that nearly all bedding-plants are hardy here, and continue to flower for a number of years. Besides, our mild climate admits the cultivation of a great variety of tropical and semi-tropical plants, so much preferable to most of the annuals, that only the very best of these should receive a place in our gardens. However, there are a number of annuals and herbaceous plants, which are indispensable to the flower-garden, and these I will undertake to point out, as far as practicable and within my acquaintance.

I shall begin with the Mignonnette, so well known for its delightful fragrance, that it will not require any comments on my part. No one can do without it, and everyone seems to succeed with its cultivation. If the seed is good, it will germinate freely in a few days if sown in the open ground. It should be sown where it is wanted, as it does not bear transplanting very well. In California

we may have Mignonnette in bloom throughout the year, at least in all the milder districts. We have it in bloom at all times, by sowing the seed twice a year. Seed which is sown in February will flower freely until late in autumn, and seed sown in June will flower during winter and spring. We have had cut-flowers from one planting for nearly eighteen months, but the plants become unsightly when more than nine months old. New varieties of Mignonnette have lately been introduced, but I fail to see any remarkable difference from the old variety. In some the flowers are a trifle lighter in color, in others a trifle darker, while others grow perhaps a little more robust. Until I see something better, I will be perfectly contented with the old variety. Mignonnette thrives best in a sunny exposure, and to have it in nice condition the ground should be well manured before planting. Successive rains or artificial irrigations are apt to make the surface of the ground hard and crusty; to prevent this it will be well to scatter over the ground after sowing the seed, say an eighth to a quarter of an inch of well-decayed manure, finely pulverized; this will help the young plants very much.

If this is inconvenient, or if it has been neglected, the surface must be loosened carefully as soon as the young plants have made a few leaves. To do this without injury to the young plants, the ground should be sprinkled the evening before, so as to soften the crusty surface.

I have said more about Mignonnette than will perhaps seem justifiable to the reader, but these remarks are applicable to most of other seeds, particularly annuals.

Pansies are equally as popular for the garden as Mignonnette, and can not be dispensed with. Who would not admire the Pansy? The very fact that it has received so many pet names speaks well for it. The English call it "Heart's-ease," the Germans "*Stiefmutterchen*," the French "*Pensée*." When we take into consideration that the magnificent varieties now under cultivation owe their origin to the *Viola tricolor*, a common weed of the European corn-fields, we begin to realize the enormous progress which the science of Floriculture is continually making. The Pansy is very easily cultivated, and very few observations suffice to grow it to perfection. First of all, seed should be obtained from a good strain, and we should not mind paying a good price for "number one" seed. We have paid as low as \$1.50 per ounce for Pansy seed, and as high as \$5.00 per ounce. Imported French or German seeds have always given us more satisfaction than any other. Home-grown seed is not generally gathered with that care which the European seed-growers of reputation are willing to give. Do not mind, therefore, paying a good price for your seed, if you can have confidence in the man you deal with.

Pansy seed germinates freely, and may be sown in the open ground; but

I would strongly recommend to sow in pots or boxes, and transplant when sufficiently strong. Our coast districts are admirably adapted for the cultivation of the Pansy; our cool climate is just the thing. To make the very best of them, I would advise to sow seed twice a year, say in November and again in March or April. From the seed sown in November we generally succeed in having a fine lot of strong flowering plants from February to May; and the seed sown in March or April gives us a fine crop of flowers for the early summer months as well as for the autumn and early winter, the climate being remarkably cool during the summer months. This rule, however, can not be applied to the interior districts, where the excessive summer heat and dry atmosphere is very unfavorable to the Pansy; there the cultivation of the Pansy should be confined to the winter months and early spring; and one sowing early in autumn, at the commencement of the rainy season, will answer the purpose.

As soon as the young plants have made from five to six leaves, they should be transplanted into soil which has been well manured and carefully prepared. The Pansy thrives best in rich sandy loam. Water carefully after planting, and finish off by covering the surface of the soil to the depth of about one inch with half-decayed stable manure. The richer the soil is made, the finer will be the flowers. This, more than anything else, is the secret of success in Pansy culture; and surely the little extra trouble will amply repay you.

[To be Continued.]

THERE are nearly or quite 500 nursery and florist's establishments in New York or within fifteen miles of the city.

AMONG THE CALIFORNIA BOTANISTS.

BY JAMES S. LIPPINCOTT.

A residence of ten months' duration in California afforded me opportunity to become acquainted with many of the remarkable plants peculiar to that State, and with several of her adopted sons who have made her flora an object of especial study. If botanical enthusiasm may anywhere rightfully possess its student, surely California's claim to this prerogative will not be questioned by anyone who has passed many months among her infinite spread of flowers, which in early spring render that State almost one continuous "field of the cloth of gold." Five hundred acres in one body, covered densely by the California Poppy (*Eschscholtzia*), well known to our readers, and too brilliant for mortal gaze, might have been seen near Los Angeles, in March of the year just closed. Hundreds of acres of *Burrielia chrysostomia* or the Golden-mouthed, adorned and varied by beds of blue *Phacelia* as regularly shaped and as neatly trimmed as if they had obeyed a gardener's hand, delighted us as we approached Los Angeles from its port of San Pedro. *Dodecatheons* which in profusion adorn the low hills of Paradise Valley near San Diego, and the *Calochortus* or Mariposa Lilies which lend so great a charm to the trip to the Yosemite, must be seen at home if one would appreciate their exquisite beauty of form and color.

We were not surprised to find her botanists inspired with a zeal for collecting and studying her flora, as much surpassing our eastern students as does their field that to which we have been limited on the Atlantic border. Among these, in whom we became more especially interested, we may name Professor H. N. Bolander of San Francisco,

Dr. William P. Gibbons of Alameda, and the late Hiram G. Bloomer, Director of the Museum of the California Academy of Sciences.

Professor H. N. Bolander has for many years been one of the most active botanists on the coast, and from 1861 to 1867 was connected with the Geological Survey, as State Botanist. During his term of office and yearly since, he traversed the northern and middle sections, making extensive pedestrian excursions, and has been rewarded by the discovery of several hundred plants new to science. He has indeed been the largest contributor to our knowledge of the rich flora of California, and his extraordinary enthusiasm and success have received fitting acknowledgment at the hands of the eastern botanists who have studied his collections. Professor Bolander has added five new genera of plants, one of which, *Bolandra*, appropriately commemorates his service to science, while nearly one hundred and fifty species of Phænogams, Mosses, and Lichens, have taken their specific name from him. In and about 1866, he collected and distributed about five hundred species of California plants, and in 1870 was published by A. Roman & Co., of San Francisco, "*A Catalogue of Plants growing in the Vicinity of San Francisco*," of which he is the author. The term vicinity is stretched to the extreme of its elasticity, and is made to extend about one hundred miles north and south of the Golden Gate. This catalogue contains the names of nearly all the phænogamous and cryptogamous plants within the range indicated, and in the absence of a text-book of the California flora, is exceedingly valuable.

For several years past Professor Bolander has filled the very important and responsible position of Superin-

tendent of Public Instruction in California. His term of office will soon expire, or has already concluded, and he is about to devote his extensive and accurate knowledge of the California flora to the growth and dissemination of her many ornamental plants. He has erected propagating houses and will soon be prepared to supply a demand for her beautiful bulbous-rooted plants, her ornamental shrubs, and peculiar coniferous trees. To the study of the last named, Professor Bolander has given especial attention, and has succeeded in determining the numerous varieties, and fixing the true character of the species to which they belong. The distribution of seeds of native growth will also receive especial attention at his hands. Professor Bolander is a gentleman of fine presence, of manners courteous and affable, with whom every eastern botanist visiting California should at once become acquainted. His residence is in San Francisco.—*Gardener's Monthly.*

HEALTHFULNESS OF APPLES.—The frequent use of Apples, either before or after meals, has a most healthful effect upon digestion. Better eat less meat and more fruit.

An eminent French physician is of the opinion that the marked decrease of dyspepsia and bilious affections in Paris is owing to the increased consumption of Apples, which fruit he maintains is an admirable prophylactic and tonic, as well as a very nourishing and easily digested article of food. The Parisians are said to devour one hundred millions of Apples every winter—that is, they did before the war. Whether this estimate is true or not, the French are extravagantly fond of Apples and other fruit.

THE SPANISH CHESTNUT.

BY E. J. HOOPER.

The Spanish Chestnut, (*Castanea vesca*) so valuable for its fruit, flourishes well in California (as indeed do most other trees), although, of course, many of them are comparatively young. Some Chestnuts in England have reached nearly 500 years in age. When of good size it is one of the most stately of trees, exceeding the Oak in height, and equaling it in bulk. The foliage exhibits a more decided character; it is glossy and formed into clusters, which are peculiarly elegant when surrounded with florescent catkins. This is the tree which we often see gracing the landscapes of Salvator Rosa and other great Italian painters. And in truth, no other tree affords such continued variety to scenery in pictures: at one time rising in all its leafy majesty in some shady recess or rock-encircled nook, safe from the war of winds; at another, broken and distorted on some high rock, or half-way down a steep and rugged declivity, beneath which might roll an impetuous torrent—for its wood is naturally rather brittle, and liable to be shattered by fierce winds. In California it is at present in what may be called a state of domesticity, being planted round homesteads or in orchards.

Some have described the Spanish Chestnut as being indigenous to Britain; others maintain that it was brought from Sardis into Italy, whence it passed into France and England. No doubt is now existing that it is not exotic in Britain. The great profit arising from the wood, being much used for hop-poles, accounts for the disappearance of large trees from their forest growing-places. Many of the oldest houses in England are floored or wain-

scoted with the wood. No doubt noble forests of these trees once existed in the central part of England.

In Italy the nuts have always been acceptable with milk and cheese; and, as with us, the nuts are roasted on small stoves in the streets by fruit-sellers, who dispose of them to the passing wayfarers. They are equally as grateful and nutritious as, and to me they have much the flavor of, roasted Sweet Potatoes. In Italy, bread made from the flour is very strengthening, and is said greatly to improve the complexion. The Italians also use the flour in making fritters, which are wetted with rose-water, and which, when sprinkled with grated Parmesan cheese, are fried in fresh butter. I think, in time, if these trees are much increased in California, they will be used here, partially at any rate, for similar purposes.

The girth of the ancient tree in England before spoken of, at the height of six feet from the ground was forty-six feet and six inches, about 130 years ago—that is, when it was about 400 years old.

The foliage of the Spanish Chestnut is very beautiful, both in spring and autumn: in the first, grandly umbrageous, and presenting a fine clear green in its spear-shaped leaves; in the second, and when falling into

“The sear, the yellow leaf,”

gorgeously contributing to the rich and varying tints of woodland or landscape-gardening scenery.

I do not see why, in time, these trees in California may not aspire to as grand dimensions as they do in Italy.

The foreign varieties (*Marroniers* of the French) of the Chestnut, differ in little from the American native variety, except in the larger size of their nuts. They are of distinct importance, how-

ever, in a landscape, on account of their remaining green for weeks after our native kind has fallen into its autumnal decay.

The Chestnut will thrive in the most barren soils, especially those of a rocky or gravelly nature, provided they have sufficient moderate moisture; doing fully as well in a deep rich loam, or any soil but a wet one. It is, in fact, a tree for any situation. The Bartram specimen is eighty feet high, and seven feet nine inches in circumference; and one of the Marron variety thirty-five feet high and three feet in circumference.

It may be propagated by seed sown in drills in the spring, or in the late fall, if preserved from vermin. The improved varieties are perpetuated by grafting.

THE CACTUS.

BY F. W. POPPEY.

The traveler, when emerging from the primeval forests of Guiana and entering the pampas of Venezuela, will find the scenery changed. The rich verdure that covered the soil has disappeared, the surface is hot, and in the crevices of the cracked ground appear the gloomy forms of the Melon Cactus armed with frightful thorns. Farther up the Andes the ground is almost covered with the pale grayish-green balls of the Mammillarias, among which the Old Man—*Cereus senilis*, is standing, the gray hairs hanging from its serious head. Descending into the plains of Mexico, where the gigantic ruins of the Aztec castles give evidences of a remote and vanished culture, we perceive a scenery spread before the eye, melancholy, bare and dead, as if roasted by the scorching sun of the *Sierra caliente*. Dull grayish-green, branchless, leafless,

rise from twenty to thirty feet high the angular pillars of the Torch-thistle Cactus, surrounded by an impenetrable hedge of the Indian Fig or Prickly Pear, covered with dangerous hurtful spines, whilst all around are seen groups of the strange and ugly forms of the Echinocactus and small Cereuses, between which seem to creep like poisonous reptiles the long dry stems of the large-flowered Cactus, *Cereus nyciticaulus*. In short, on the whole journey we are accompanied by a family of plants which in their odd forms seem totally to abnegate the principle of beauty, and yet stand forward so prominently as to give to the whole region its peculiar character. We can not forbear granting them our earnest attention, and as a group of plants which seem to revolt against the laws of all the rest of the vegetable kingdom they certainly deserve our interest to a high degree.

All about these plants is not less wonderful than it is peculiar. With the sole exception of the genus *Peireskeia*, none have leaves; for what is commonly supposed to be and called leaf with the *Cactus alatus* or the *Opuntia* is but a flattened stem or trunk, more or less fleshy, covered with a leathery skin, and where the leaves, if there were any, would be, we find instead bundles of hair, spines, or thorns.

Few families of plants are confined to so narrow a space on the surface of the earth as the Cactus. All of them are perhaps without a single exception natives of that portion of our continent which is situated between latitude 40° S. and 40° N. All prefer a dry soil, exposed to the full rays of the sun, which circumstance strangely contrasts with the fleshy texture of the trunk, filled with a watery subacid juice, not disagreeable to the taste. This peculiarity renders them invaluable to the thirsty

languishing traveler, and Bernardin de St. Pierre very appropriately calls them "the springs of the desert." For in the dry season, when all animal life has fled from the *llanos*, when the boa and the crocodile sink into a death-like sleep, the wild asses and mules alone know how to sustain life by availing themselves of the providential Cactus. Cautiously with their hoofs they rub off the spines, split open the large Melon Cactus, and then suck the cooling, refreshing, and nutritious juice. What nature denied them in form of body she gave with liberal measure in the shape, color, and perfume of their flowers. Who has not been delighted with the blossom and its odor of the Night-blooming *Cereus*? But it is not only the charm of their flowers that gladdens our sight, nor the cooling juice that refreshes the thirsty creature, which make these curious children of nature an object of interest; it is also their manifold economic usefulness.

Almost all the Cactuses bear eatable fruit, and some are among the most delicious of the hot zone, in which alone they fully mature. Their fruit might not improperly be considered a higher order of Gooseberries, which they in a botanical view really are nearest related to. Though the trunk originally is fleshy and juicy, in course of time it hardens into wood, which is both firm and light. Especially the long pillow-shaped *Cereuses* are in this respect very convenient to the weary traveler in those timberless deserts, to light up the night and bake his *tortilla*. From their being used as torches their name Torch-thistle is derived. On the Hacienda de Antisana, perhaps the highest inhabited spot on the earth (12,000 feet above the level of the sea), the beams, posts, etc., are of this wood, which with its lightness could be carried thither on the

back of mules. In Mexico, in the south of Europe, the north of Africa, and especially on the Canary Islands, the *Opuntia*, the common Prickly Pear of Texas and New Mexico, is effectually employed for hedges, which with their thorns present a formidable barrier to every intruder. And here we might mention the fact that it is this plant, the *Opuntia cochinellifera*, upon which that precious little parasite the Cochineal (*coccus cacti*) lives. In Brazil, Spain and Corsica, but principally round Oaxaca, Tlascalala and Guanaxate, are extensive plantations, called Nopaleros, on which the *Opuntias* (Nopal) are cultivated for the production of the cochineal, which gives us the carmine. The breeding of the cochineal introduced on the Canary Islands in the year 1833 permitted in 1859 an export of this very light article of 1,369,000 pounds, at \$1.50 per pound.

For medical purposes also, both the fleshy stem and the fruit is frequently used by American and Mexican physicians. A considerable amount of oxalic acid contained in the stem of this vegetable may be extracted from it. The Peruvian and the Old Man Cactus yield about 85 per cent. oxalate of lime.

This short view may suffice to account for the interest this plant has so deservedly met with, by the naturalist, the economist, and, for its apparently abnormal organization, by the natural philosopher.—*Gardener's Monthly*.

LORD KAMES, in conversation with his gardener one day, said: "George, the time will soon come when a man shall be able to carry the manure for an acre of land in one of his waistcoat pockets." To which the gardener replied: "I believe it, sir, but he will be able to carry all the crop in the other pocket."

THE ROSE.

BY ONE OF ITS ADMIRERS.

"Child of the summer, lovely Rose,
No longer in confinement lie;
Arise to light, thy form disclose;
Rival the spangles of the sky.

"The rains are gone, the storms are o'er;
Winter retires to make the way.
Come, then, thou sweetly blushing flower;
Come, lovely stranger, come away."

Most of the readers of the HORTICULTURIST are no doubt aware that the celebrated Linnæus, a Swede by birth, devised a system and nomenclature now almost universally adopted by botanists, and according to which the whole vegetable creation has been divided into twenty-four classes, which are distinguished by the number of stamens in the flower. These classes are again subdivided into orders, under each class, determined by the number of pistils in each flower. These are still further divided into genera or tribes, and the tribes into species or individuals. In this arrangement, the Rose belongs to the *icosandria* class, which is the twelfth, (including a great variety of fruit-trees, as the Apple, Pear, Cherry, Plum, Nectarine, etc.), the blossoms of which have twenty or more stamens. These stamens, in the Rose, constitute that beautiful array in the flower, which looks somewhat like yellow floss-silk. In this class, the Rose is a genus of the order *polygynia*, in which the pistils—whose little points lie in the middle of the blossom—are more than twelve, and placed in the same flower with the stamens. The leaves which compose the *corolla*, or flower, are denominated *petals*, of which there are five in the wild Rose, which is considered the representative of the genus. The *calyx* or flower-cup, which is usually a green empalement protect-

ing and inclosing the blossom, is, in the Rose, urceolated, or pitcher-shaped, quinquefid, carneous or fleshy, and straitened at the neck. The seeds are numerous and hispid or prickly, and affixed to the inside of the calyx.

It is very difficult to distinguish the species of the Rose from the varieties. Loudon describes *seventy-seven* species, besides adverting to about as many more which are not sufficiently known; and these, together, are very far from equaling the number of well-known varieties—for we may see descriptive catalogues of more than 1,500 cultivated Roses! In striking contrast to this multitudinous array, others have comprised the sorts usually found in our gardens under fourteen species, as follows: 1. *Rosa alba*, the common White Rose. 2. *Rosa Alpina*, the Alpine Inermous or Unarmed Rose. 3. *Rosa Canina*, the Canine or Wild Dog-rose. 4. *Rosa Carolinensis*, or Carolina and Virginia Rose. 5. *Rosa Centifolia*, or Hundred-leaved Rose. 6. *Rosa Cinnamonea*, or Cinnamon Rose. 7. *Rosa Eglanteria*, the Eglantine Rose, or Sweet-briar Rose. 8. *Rosa Gallica*, the Gallican Rose. 9. *Rosa Moschata*, the Musk Rose. 10. *Rosa Pimpinellifolia*, or the Burnet-leaved Rose. 11. *Rosa Semper-virens*, the Evergreen Musk Rose. 12. *Rosa Spinossissima*, or the Most-spinous Dwarf Burnet-leaved Rose. 13. *Rosa Villosa*, or Villose Apple-bearing Rose. 14. *Rosa Virginiensis*, Virgin Rose.

In modern systematic arrangements the Rose belongs to vast groups of flowering-trees denominated, from our favorite, *Rosaceæ*; including in immediate connection, on the one hand the *Rubises* or Brambles and the *Potentilla* or shrubby species of Cinquefoil, etc., and on the other, the numerous species of *Cratægus* or Hawthorn, of which there are about eighty sorts cultivated in Eu-

rope and America. Linnæus himself devised a *natural method*, divided into fifty-eight classes or orders; he ranks the Rose under the thirty-fifth, or *Senticosæ*, so called from *sentis*, a thorn, and comprehending the bramble, the briar, and others, which resemble them in external structure.

The usual method of propagating the Rose is either by suckers detached from the root of the parent tree, or by cuttings or slips. The former are generally to be obtained in sufficient plenty from the common garden Roses; but the Moss, Provence, and others, which seldom send up these suckers, must be increased by cuttings or layers. In the latter method, the branches, being bent down and partly cut downward, are fastened with a peg into the earth, and covered with soil, until they have struck root. Slips of the monthly kinds will take root with great readiness, either in vials of water, or in common earth.

The more curious sorts of Roses, however, are generally produced and multiplied by inoculation or budding. The usual process by this method is, first to make a transverse incision in the branch and then another from it downward, resembling a T; the rind is then opened, by a proper budding-knife, at the junction of the lines, and the bud inserted; the whole is then tied close with a string of soft cotton, or matting: this is usually practiced in spring, when the sap is rising freely.

The diversities of the Rose are so numerous, that botanists have found it very difficult to determine with accuracy which are species and which only varieties—or whether, indeed, there be properly more than one species, which is the *Rosa Canina*, or *Dog-rose* of our valleys and hills. To this sentiment many eminent writers have inclined; and this also was the opinion of Lin-

næus, who attributed the different varieties to culture and accident. Whatever may be the claims of the Wild Dog-rose, or "Hip-tree," to be considered as the ancestor of "royal Roses"—upon which it appears very difficult to decide—certainly the flower itself possesses an elegant simplicity, and a delicate fragrance, hardly surpassed by any of our wild flowers. It is plentiful in most parts of the world, and not less so in California, where I have met with it in great abundance, in all parts of Napa Valley, and other portions of the State, and where, this spring or summer, I hope to greet it again while pursuing with rod and line the rushing trout along the brook-side, when I shall be tempted to exclaim with the poet:

"Welcome! O welcome once again,
Thou dearest of all the laughing flowers,
That open their odorous bosoms when
The summer birds are in their bowers.
There's none that I love more, sweet gem than
thee,
So mildly through the green leaves stealing;
For I seem, as thy delicate flush I see,
In the dewy haunts of my youth to be,
And a gladsome youthful feeling
Springs to my heart, that not all the glare
Of this blossoming West could awaken there."

Next I will mention the Eglantine or Sweet-Briar, of which there are numerous varieties, if not species. This Rose is not esteemed for its flowers, which are very small and single; but the peculiar sweetness and fragrance of its leaves, especially when rubbed a little, render it a very valuable shrub. It grows indigenously in some parts of England and Switzerland, as well as in America. It claims culture in every garden, for this odoriferous quality of its leaves; and should be planted in the borders, and other compartments contiguous to walks, or near the habitation, where the plants will impart, particularly in the moist air of some even-

ings, their refreshing fragrance very profusely around.

But I will close with the exquisitely simple lines and beautiful moral and eulogy of another esteemed poet:

"How fair is the Rose! what a beautiful flower!
The glory of April and May!
But the leaves are beginning to fade in an hour,
And they wither and die in a day.

Yet the Rose has one powerful virtue to boast,
Above all the flowers of the field:
When its leaves are all dead and fine colors are
lost,
Still how sweet a perfume it will yield.

So frail is the youth and beauty of men,
Though they bloom and look gay like the
Rose;
But all our fond care to preserve them is vain,
Time kills them as fast as he goes.

Then I'll not be proud of my youth or my beauty,
Since both of them wither and fade;
But gain a good name by well doing my duty:
This will scent like a Rose, when I'm dead.'

THE BLUE GUM AND ITS CULTURE.

BY R. J. TRUMBULL.

The Eucalypti family is rather numerous—there being not less than thirty species, of which the "Blue Gum," or *Eucalyptus globulus*, ranks highest in the estimation of Californians. Of all trees, whether of this family, or any other, the "Blue Gum" is the most rapid grower—besides possessing medicinal qualities which add much to its value. For a sparsely wooded region, where the temperature does not descend below 25 degrees Fahrenheit, no variety of tree can be grown to the same size in the same period of time. Its wood is valuable for fuel as well as for manufacturing. There are, however, other species of the family, but little known here generally at present, that will at no distant day become

perhaps even more popular than the "Blue Gum," whose wood is harder, closer grained, and better adapted to the thousand uses to which timber is applied. When it becomes known that this family has among its members species whose wood can be converted into shingles, studding, and weather-boarding, and that buildings constructed of such will be not only remarkable for their durability, but nearly as "fire-proof" as are iron buildings, and on which underwriters will willingly issue policies at half the rates common on other buildings, then the value of such species will be better appreciated by tree-growers.

CULTURE.—Make boxes about two feet long by sixteen inches wide, and from three to four inches deep, allowing small holes in the bottom for drainage. Fill up till within half an inch of the top with fine alluvial soil, moderately rich. Smooth the surface; sprinkle the seed evenly over it, and cover with an eighth of an inch of soil composed of half sand. To attain the best results the boxes should be placed in a "cold frame," described elsewhere. If sown in summer, the glass should be shaded by a covering of whitewash or light muslin. In the absence of glass, make a frame of boards with a movable cover made of laths nailed from one-quarter to one-half an inch apart, under which place the boxes. Water will be needed daily if the weather is warm and little moisture in the atmosphere, and should be applied with a fine sprinkler. Seed will germinate in from eight to fourteen days. When plants are two inches high, begin to "harden" them by allowing more air, increasing from time to time until they have become hardy enough to withstand the hot sun of the day and the cool air of the night. When six inches or more high they may be

transplanted to a temporary or permanent place, if care is taken to remove the plants with some earth attached to the roots—at least not to allow the roots to be exposed to the atmosphere. For forest culture, the young trees should be planted from eight¹ to twelve feet apart each way, and between the rows should be cultivated for two years, when they will be strong enough in trunk and root to care for themselves.

ACACIAS.

BY DR. KELLOGG.

A friend in a letter under date of February 20th, says: "If I knew which of the Acacias were trees or shrubs, I could give them due distance and better arrangement. Could you inform me?"

Our information is very limited, but we may be able to help some. If the names alone were sent, by return mail "trees" or "shrubs" could be checked and returned.

Acacia melanoxylon (Black-wood Acacia) here grows large, with a very sturdy body and ample base. It is quite a charm to behold its bearing in a storm, so stubbornly upright. It is at all times clad in cheerful evergreen foliage; perfectly symmetrical in its conic form; somewhat decked in flowers at a season when other trees are dormant and bare. Mr. S. Nolan, of Oakland, has a young tree about twenty feet in height, a perfect beauty. The wood is black, and very much esteemed in cabinet-work; regarded as very superior for oars and buggy-shafts, and for ornamental work in general. Fine tree to alternate or contrast with an avenue of spire-trees.

Acacia pendula (Weeping Acacia, Drooping Myall). This species and *A.*

homalophylla are both small, say ten to fifteen feet, and graceful as the Weeping Willow. Laden with golden flowers, with silvery attenuated branches, they are objects of exceeding beauty. Both have dark-colored fragrant wood of the sweet violet odor of rosewood. Of these the natives of north-eastern Australia make boomerangs, sportsmen ramrods, and the stockmen whip-handles; and in general they are very useful for turnery-work. This would prove a great boon to our dry plains, such as the San Joaquin Valley. The only objection is, the cattle are so exceedingly fond of it, they would soon dismantle a forest; they will even stand on their hind feet to "come the giraffe" over the defenseless Myall shrub.

Brevity requires that we combine several together where a family is so large; and even then but few can be noted. Formerly many of these were termed "Mimosa-trees," and now, by the English and Australians are called "Wattles."

A. cultriformis (Blade Acacia) and *A. prominens* (Prominent Acacia), are both shrubs, about six feet high. The first has smooth rather-arching angular branches; leaves of light soft bloom, small, one-half to one inch long and broad, somewhat triangular like the end of a shoe-knife blade, the prickly point hooked (which leans to one side), a gland on the middle of the upper margin, one-nerved nearly parallel with the lower margin. Flowers crowded in heads; these racemes are both in the axils and on the end of the twigs. Blooms in February and March.

A. prominens, similar in size and general form, and flowering as above. The leaves spread out and turn back, sickle-shaped, one-nerved, ending also in a prickle; a prominent gland on the upper margin, at the base.

A. lophantha (Crest-flowered Acacia, or Elegant Mimosa), common but exceedingly delicate and beautiful; foliage, opening to the morn and closing at eve, dark green; the leaves consist of eight to ten pairs of pinnæ or wings, each one bearing twenty-five to thirty pairs of little linear bluntish leaflets. The bunches of flowers oblong-egg-form, in pairs at the axils. The common fate of this tree here is to be potted too long; the roots become crumpled and the tree therefore blows over. It is somewhat flat-topped, ten feet high, and very handsomely spreading.

A. dealbata (Whited Acacia). Like the last it is unarmed; distinguished from it, and from *A. mollissima*, at a distance by the soft gray-green hue, instead of the sap-green color of its kindred. The pinnæ of the leaves are fifteen-paired, each bearing very many pairs of minute equal pubescent leaflets; a perforated gland or glands seated between one (or more) of the pairs of its wings; the elongated cluster of flowers lateral. This tree aspires to an oblong rounded form; the foliage is more closed in and massive than most of its section, yet it is softer and more fleecy than a summer evening cloud: in short, it has peculiar charms to our taste, and is very desirable for a middle or foreground tree on a lawn—attains to ten or twenty feet. Fine specimen trees may be seen at Mr. S. Nolan's garden, Oakland. The bark of this Acacia is so strong in tannin as to require some caution, or it may "burn the leather." It is now an article of commerce; also, an extract is made from it (and some others), which is deemed a more feasible form of exchange, and is used as a substitute for "Japan earth" (*terra Japonica*)—an extract from the outer colored wood and bark of *A. catechu* (and others), by boiling, evapo-

ration, and drying: the purer form is the *catechu* of druggists. Where astringents are required, the bark may be used; brandy saturated with it forms an estimable wash for nipples to forestall or cure any excoriations which the delicate suffer from nursing; also, for hoarseness, relaxation of palate or fauces, diarrhoea, ulcers, canker, etc. Here, too, the "stricken deer" that leaves the herd, in lonely solitude to roam, will find a living tablet of the smoothest bark on which to carve his "Rosalind."

[To be Continued].

JAPANESE VEGETABLE WAX.

The *Japanese Mail* contains an account of the manner in which this article of commerce is obtained. The trees from which wax is made are the Urushi, or Lacquer-tree, the Yama-urushi, the Hage-urushi, better known as the Ronoki, and the Koganoki. [? Various species of *Rhus*, such as *R. succedaneum*.] The wax is made from the rind of the fruit. In places where wax is manufactured to any great extent the Urushi is not used for its lacquer. As the trees are not cut for several years, they may be seen in the wax-producing districts growing to a height of thirty-five or forty feet. In districts where the trees are used for their lacquer or varnish, they are cut every seven or ten years. The mode of obtaining the wax from the Urushi, or Lacquer-tree, is as follows:

Late in the autumn the branches, heavy with fruit, are lopped off and taken into the house. The fruit is pounded with a pestle, and then shaken in a basket-sieve, so as to separate seed from rind. From this rind the wax is made. The mode of expressing it differs here and there, but in no very important particulars. The following

brief description is taken from the mode as followed out in Sendai and Aidzu: Boiling water is got ready in an iron caldron, over which a lattice-work of sticks is placed, and on these some matting. The sifted rinds of the fruit are then laid out on the matting and steamed, after which they are placed in hempen bags and again steamed. The bag, with its contents, is then put in a wooden trough, wedges on blocks are inserted in the trough, and driven home into the bag with heavy blows from a mallet. An aperture at the bottom of the trough provides for the egress of the wax. The trough and wedges are made of Kiaki wood, and the mallets and blocks of wild Mulberry, a very hard wood, and well suited for the purpose. A small quantity of oil, in the proportion of about one-tenth, is added to the wax, to allow of its being expressed more easily. It then goes through another steaming process, and is again pounded in the trough.

Wax from the Yama-urushi, or wild Lacquer-tree, is obtained thus: The fruit is collected at the latter end of summer, and is at once steamed, without being pounded with a pestle, as is the case with the Urushi wax. The wax is purified by melting. A large tub of cold water is taken and placed under a wooden tank having a small aperture close to the bottom. The melted wax is then poured into this tank, and escapes through the aperture into the tub beneath; while doing so it is stirred rapidly with the hand, after which it is placed either in matting or shallow boxes, and dried in the open air for about fifteen days.

The Hage-urushi, from which wax is largely obtained, grows in the southwestern part of Japan. This tree was first brought from the Loochoo Islands to Sakurajima, an island near Satsuma.

Its production has so increased that there are now no less than seven different species. The Hage-urushi tree is raised from seed or from slips. Koga wax is made from the fruit of the Koga-tree, which differs from the Urushi and Hage-urushi trees. It is an evergreen, and is largely grown in Ossugori, in the northern part of Nagato. It flowers in the middle of summer, the fruit ripening in autumn, when it is plucked and soaked in water for four or five days, after which it is trodden out with the feet, thus separating the outer rind. The Koga wax contains a large proportion of natural oil, which in a measure restricts its use to cold and temperate districts. Candles made of it show a very bright light, and if some contrivance could be hit upon for extracting the oil, the consumption of this wax would be increased, as it is very cheap compared with the other kinds. Refuse wax is used for manuring purposes.

WILD FLOWERS.

BY AN AMATEUR.

Wild flowers may not improperly be called the true philanthropists of their family and race. How often do their generous profusion and cheerful display, especially in this paradise of floral beauty—California—give a kindly greeting to the solitary Rambler, or parties of excursionists, with their merry children, who delight to revel in their blossoming wealth. And how welcome are they, gladdening the eyes of city merchants or toiling men of business, who breathe the fresh country air when they can spare a day in the week; or on Sunday, roaming over the hills of Angel Island, or Saucelito, or back of Oakland, gathering handfuls of Buttercups, Poppies, Larkspurs, Lupines, or the

prouder Foxglove, with numberless others, to carry home, and set in the most choice and conspicuous spot in their dwellings. So dear and attractive are wild flowers, that one would think that everyone *must* love them.

“O, I'll never envy riches,
 Though toilin' at the plough,
 There 're flowers along the peasant's path,
 E'en a king might stoop to pu'.”

Although most of us are brought into contact in this favored land and climate with what are generally regarded as the more richly tinted and gorgeous productions of foreign climes—splendid exotics—yet for poems in praise of the Geranium and the Cactus we might search in vain; while for those which celebrate the “wildlings of nature,” have we not enough to fill volumes? Ay! volumes fraught with beauty and fragrance, of which the following is but a foretaste and a specimen:

“Not only with vine-leaves and ears of Corn
 Is nature dress'd, but 'neath the feet of man,
 As at a sovereign's feet, she scatters flowers,
 And sweet and useful plants, which, born to
 please,
 Also essay to serve.”

We are too apt to look upon part of the vegetation with which the earth is covered—“clothed as with a garment of beauty”—as worthless and contemptible, especially when there are no blossoms which with their taint or perfume afford gratification to the senses; and to pass by “common weeds” as vile things, not simply useless, but mischievous.

“Scorn not those rude unlovely things,
 All cultureless that grow,
 And rank, o'er woods, and wilds, and springs,
 Their vain luxuriance throw.

“Eternal love and wisdom drew
 The plan of earth and skies;
 And He the span of heaven that threw,
 Commands the weeds to rise.

“Then think not nature’s scheme sublime
 These common things might spare;
 For science may detect in time
 A thousand virtues there.”

Daily more and more are the mysteries of nature unfolded to us; daily more and more are her “hidden uses” made manifest. And this is the *moral* which may be drawn from the meanest weed, or blade, or leaf on which we gaze.

Of all the creatures and objects which minister to our wants or pleasures, flowers are the gentlest, the most unresisting. Set flowers on your table—a whole bouquet if you can get it, or but two or three, or a single flower—a bunch of Violets, which are so plenty even in the season of winter here—a Rose, a Pink, nay, the common garden Daisy. Bring a few Evening Primroses from your last field walk, and keep them alive in a little water, or stick them in damp sand; preserve but a bunch of Lupines, or a handful of flowering grass (one of the most elegant, as well as cheap, of nature’s productions), and you have something on your table or mantel that reminds you of the beauty of God’s creation, and gives you a link with the poets and sages who have done it most honor. Put but a Rose, or a Lily, or a Violet on your table, and *you and Lord Bacon* have a custom in common; for that great and wise man, it is said, was in the habit of having the flowers, both wild and cultivated, set upon his study table, morning, noon, and night, and at all his meals. Now here is a good fashion that shall always last us; never changing with silks or velvets or ribbons, nor dependent upon the caprices of fashion. The *a la mode* of the garments of heaven and earth endures forever, and we may adorn our houses with specimens of their elegant drapery—with flowers out

of the fields, and golden beams out of the blue ether. The holiness of nature is a loftier contemplation than the gilded saloons of the great or the “diamond palaces” of the merchant.

The flowers of the field, independent of their charms, form a delightful study—a good botanical dictionary being an assistant about their uses and qualities.

Thomas Starr King thus speaks of our California wealth of wild flowers: “Here we have abundance of flowers early in April, not shy, but rampant; flowers by the acre, flowers by the square mile; flowers as a visible carpet of an immense mountain wall, or a whole hill-side, or vast plains. You can gather them in clumps, a dozen varieties at one pull. You can fill a bushel basket in five minutes. And the colors are as charming as the numbers are profuse. Yellow, purple, violet, pink, and pied, are spread around you, now in separate level masses, now two or three combined in a swelling knoll, now intermixed in gorgeous confusion. Here are a hundred acres of wild meadows, stretching to the base of hills nearly 2,000 feet high—the whole expanse swarming with little straw-colored flowers, orange Poppies, squadrons of purple beauties, battalions of pink, glowing brilliantly with all these and other hues. The orange and purple predominate in the mountain robe. On the lower slopes a ‘strange sprinkling of blue, gathered here and there with intenser stripes, the general basis being of purple, orange, and yellow.”

Then there is no end to the great variety of wild flowers, to be found in the woods, valleys, cañons, swamps, near springs, under the shrubs and chapparal, and in shady nooks.

SODA is called a specific for plant-lice.

THE CALLA LILY.

BY WILLIAM SUTHERLAND.

Calla Lilies, and Orange and Lemon trees, must be especial favorites of the fair sex, judging from the innumerable questions asked us by our lady patrons, in regard to their cultivation, time of blooming, etc.

Thinking that some of the fair readers of the *Monthly* would like to have some information on the subject, I give them a few notes below:

The Calla Lilly (*Richardia Æthiopica*) was first introduced into Europe from Africa, about the beginning of the present century, from which time it has been cultivated with more or less success all over the civilized world, until it has become one of the most popular flowers we have—not only as a window plant, but also as a bouquet flower—thousands of the flowers being used by our bouquet makers annually; in fact, very few large bouquets of any pretensions are now made up without them, and most of our cut-flower growers have a succession of the blossoms the year round, receiving from ten cents to twenty-five cents for each flower, according to the time of year, demand, etc.

There are some four varieties of the Calla in cultivation—two with green foliage, and two with ornamental leaves—besides our own native variety, all requiring about the same treatment, and resembling each other in the shape of the flower, but differing somewhat in size and shade of color. Strictly speaking, what passes for the flower is only the spathe or sheath that envelops the flowers, the true flowers being clustered together on a short stem in the middle of the sheath, those at the base being pistillate; those on the upper portion being staminate.

Richardia Æthiopica, the old Calla

Lily, grows from two to three feet in height, the leaves being green and the stalks of a brownish color, the sheath pure white on both sides.

Richardia Æthiopica nana, a dwarfer variety of the above; the spathes or sheaths are smaller, and can be more readily used in bouquets, etc.; the same color as the above, alike on both sides, sometimes of a green shade in the centre. This is easily distinguished from the above by its bright green stem.

Richardia variegata grows about one foot in height; its leaves beautifully veined with white. This variety must be extremely scarce, as I have seen it in no other collection besides that of the late B. A. Fahnestock, of this city.

Richardia alba maculata grows one foot in height, resembling the preceding variety in style of growth, shape, etc. Its leaves are beautifully spotted with long white spots, as if some insect had eaten the green part out in patches. The spathes are small, and shaded with purple in the middle.

Richardia palustris, our native variety, grows about one foot in height. Its leaves are heart-shaped; the spathes, which are white on the upper side, and green on the back, spread away from its clustering flowers. This variety forms no bulb, but can readily be grown from its long and jointed fleshy roots; it also bears a conspicuous cluster of red berries in the fall.

While the Calla Lily is not very fastidious as to soil, etc., I have found it to do best in a rich, sandy loam—say about equal parts of loam-sand and well-rotted cow manure. When growing, it should have abundance of water. For this purpose it may be grown in pots, standing in pans of water, or its roots entirely or partially submerged. In this way it can be grown in fountains, and other bodies of water. When done

blooming, it should be dried up until all the leaves fall off. For this purpose the pots containing the plants may be laid down on their sides in any dry place, where, after resting a month or six weeks, the bulbs should be shaken out of the old earth and repotted in fresh soil. Removing all small bulbs and side shoots, reserve only the strong bulbs for flowering. Water sparingly until they begin to grow, when they must have a more copious supply. They generally begin to bloom about four months after being potted.—*Gardener's Monthly*.

DRYING NORTHERS OR MARCH WINDS.

BY DR. A. KELLOGG.

Apples, Almonds, Peaches, Pears, etc., are often totally lost or sadly dwarfed in the struggle for existence against the adverse withering winds that sweep down from the north only for a few days in the spring months. These winds, from some cause, are dreadfully drying and exhausting to crops and especially to all tender herb-growth, fruit-trees, shrubs, Roses, and the like. Plants are so very sensitive to the depressing power of this state of the elements, that we are almost inclined to credit them with *anticipating* the harm—as the poet has it,

“And feel alive through all her tender form,
The whisper'd murmurs of the gath'ring storm,”

they shrink so suddenly from its baleful influence. Some have even thought this palsying effect was due to an electric or vital divergence, temporarily retarding if not arresting sap circulation, while exhausting at the same time unduly its own and the soil's supply of moisture.

But however we may account for it, the main point is, to know how best to

forestall, fortify, and so practically counteract its injurious influence at the time, and onward to “closing autumn's farewell smile.” This is done by a bountiful and thorough irrigation—water being the universal medium of plant supply to meet the exhausting demand this hyperborean sirocco makes so suddenly upon its resources. If this be timely done, the fruit will set well in spite of all adverse winds, and not only produce abundant fruit, but fruit increased to double the ordinary size. (See Sowerby's “Report to the Royal Horticultural Society,” 1817.) Trees, unlike men, are seldom ungrateful to the friend in need.

INFLUENCE OF TREES ON RAIN-FALL AND CLIMATE.

At a recent meeting of the Scottish Arboricultural Society, a report was made by Mr. Buchan, Secretary of the Scottish Meteorological Society, of experiments on rain-fall made at Carnwath. “The forest selected contained about sixty-two acres, and a little outside, to the north-west, was a green knoll quite clear of trees. In the interior of the wood, and 320 yards distant, was another knoll of precisely similar character. Immediately on the top of the western slope of this knoll was a bare patch about fifty feet in diameter, and this was surrounded on all sides with trees of various sorts, varying from forty to fifty feet in height. The growth of the greensward and of the plants around showed that the situation was well fitted for the inquiry.” Two sets of meteorological instruments, exactly alike, were placed one on each knoll, at exactly the same elevation above the ground. Observations were begun on the 16th of September, 1874. “The precise points to be elucidated were the

temperature and the condition of the atmosphere as regards moisture outside as compared with the interior of the wood." In the interior, the highest temperature was $79^{\circ}.4$; the lowest, 19° ; range $60^{\circ}.4$; on the outside (occurring the same day as the preceding), the highest, $78^{\circ}.1$; the lowest, $19^{\circ}.8$; range, $58^{\circ}.53$. The mean of all the maximum day temperatures at the station within the woods was $52^{\circ}.2$; on the outside, $51^{\circ}.7$; of all the minimum day temperatures inside the interior, $38^{\circ}.8$; on the outside, $38^{\circ}.7$. The means of the night temperatures were very nearly identical at both stations during the whole period of observation; except in June, the difference was never more than a fifth of a degree, but for the days of maximum temperature the averages show an excess of half a degree in favor of the station inside. "The remarkable result disclosed during the annual rise of temperature in the spring and summer months was, that in the inside of the wood the temperature was two degrees higher than on the outside, while during the annual fall of temperature in the autumn, the temperature of the day inside of the wood was in the mean half a degree lower than on the outside."

In respect to moisture, the results were as follow: The average dew-point at 9 o'clock in the morning, was, at the interior station, $42^{\circ}.5$; at the exterior, 42° ; at 9 in the evening, respectively, $42^{\circ}.2$ and 42° . In the month of August the dew-point at the interior was, on the average, 41° , or .8 higher than at the exterior.—*American Sportsman*.

THE JAPAN OAKS.—Numerous species of the Oaks of China and Japan are now coming into popular favor in England. Their introduction into California might be a good move.

VANILLA BEAN IN MEXICO.

The Vanilla bean (properly called "Vainilla") grows on a vine which, although growing from the root, is a parasite, as it will grow even cut from the root, for it takes its substance from the tree around which it clings by means of its thousands of fine tendrils. Like all parasites, there are trees which are particularly adapted to its support. They are planted about ten feet apart, in rows, at the foot of small trees which are left in clearing the lands. They begin to bear the third year, and in favorable years give from \$400 to \$1,000 per acre. No cultivation is needed but to cut down the grass and weeds; no plowing or spading being necessary. The bean is often gathered in September and October, but as it is not yet ripe, the Vanilla is of inferior quality, and sells for a low price; but if left till the end of November or December it comes to perfection. It is then gathered carefully and spread out in the sun on mats, if the weather be favorable, but if otherwise it is placed in ovens, which processes change the color from a pale green to a deep rich brownish or purple, and at the same time develop the oil which on pressure exudes from the bean. They are then packed in blankets while warm, and put into large tin cases to go through a sweating process, again put in the sun and again in the blankets until they attain the proper color. They are then placed in a dry room upon shelves made of some open material, so that the air can circulate under and around them. This evaporates all the watery part of the beans. When sufficiently dried they are put into large cases ready to be assorted into sizes and qualities. The person that raises the beans seldom cures them, for that requires a good deal of

care and special attention. There are about fifteen different classes, but they are sold by the packers at one round price. Four years ago the value here was \$60 to \$70 per thousand beans; now they are worth from \$130 to \$180 per thousand, such has been the increase in the consumption without a proportionate increase in the cultivation. The people will work only about one hundred days during the year, which provides them with all they need, and as they will do no more there is very little increase in the production of anything. When the beans are assorted they are tied up neatly in bunches of fifty beans each, and packed in cases of tin holding from two to three thousand. These tin cases are lined with tin foil and a ticket put on the lid giving the quality, size, and quantity. Some five or six of these tin cases are put into a neatly made cedar chest, which is sometimes lined with zinc and hermetically sealed so as to prevent moisture from getting to the Vanilla in transporting, which would ruin it. These cedar cases are then sewed in mats, and these are covered with a coarse bagging to avoid the dangers of transportation on mules. In this manner all the Mexican Vanilla goes to places of sale in Europe and the United States, where it is worth from \$9 to \$20 per pound, the thousand beans weighing from nine to ten pounds.

Formerly France was the great market for Vanilla, but the enterprise of some of our American merchants has diverted the trade to New York, which is now the great depot of Vanilla, and parties from Europe come to New York to buy.—*Report of Dept. of Agriculture.*

A LARGE CUCUMBER.—A "Marquis of Lorne" Cucumber has been grown that measured *thirty-six inches* in length.

INSECTS AND WILD FLOWERS.

The most recent treatise from Sir John Lubbock's pen is one on *British Wild Flowers, considered in Relation to Insects*, forming a very important number in the "Nature Series," published by Macmillan & Co., of London, in which the author's pet "ism" (Darwinism) receives quite a respectable airing. The object of the book is to show the important part insects perform in the propagation of plants. He starts out with the proposition "that if, on the one hand, flowers are in some cases necessary to the existence of insects, insects, on the other hand, are still more indispensable to the very existence of flowers; that if insects have been in many cases modified and adapted, with a view to obtain honey and pollen from flowers, flowers in their turn owe their scent and color, their honey, and even their distinctive forms to the action of insects. There has thus been (according to Sir John's opinion), an interaction of insects upon flowers, and of flowers upon insects, resulting in the gradual modification of both. . . . It is obvious that those flowers which, either by their larger size or brighter color, or sweeter scent, or greater richness in honey, are most attractive to insects, will, *ceteris paribus*, have an advantage in the struggle for existence, and be most likely to perpetuate their race." "Insects," he adds, "unconsciously produce changes (in plants) similar to those which man effects by design." These propositions, having direct bearing upon the chief tenets in the Darwinian creed, are the groundwork of Sir John's subsequent inquiries into the relations of insects to flowers. He explains the anatomy of insects and the structure of the flowers they visit in search of food; the obstacles in the

way of the self-fertilization of flowers, and the manner in which insects unconsciously act as fertilizing agents.

SELECTED PLANTS SUITED TO CALIFORNIA CULTURE.

BY DR. A. KELLOGG.

YAMS.

Dioscorea villosa, or Native Wild Yam. Middle and Southern States. An ornamental twiner, with an enormous tuber, forty to fifty pounds weight; rarely eaten.

D. alata. The Uvi Yam. Stems twining, four-angled and smooth. Tubers eight feet long; and of prodigious weight, attaining to 100 pounds; vines supported by reeds, poles, or bushes. Propagated from pieces of the old root; matures in about seven months. The tubers are baked or boiled. From India and South Sea Islands.

D. purpurea, Roxb. India. In Bengal considered next best to the above (*D. alata*).

D. globosa, Roxb. This is said to be the most esteemed Yam in Bengal.

D. pentaphylla. Prickly, alternate, divided leaves. Continental and insular India and South Sea Islands. A good Yam.

D. aculeata. The Kaawi Yam. India, Cochin China, and South Sea Islands. Stems prickly, not angled, leaves alternate. This species ripens later, and needs no staking; is raised from small tubers. This Yam is of a sweetish taste, regarded as one of the finest esculent roots of the globe. There is an excellent variety, with flesh of a bluish hue, cultivated in Central America—*e. g.*, at Caraccas and occasionally in the Southern States—driest and mealiest, though not so large, and of very delicious taste.

D. nummularia, Lamarek. Tivoli Yam. Continental and insular India, also South Sea Islands. A high-climbing prickly species, with opposite leaves. Root cylindrical, as thick as an arm; the taste exceedingly good.

D. oppositifolia. India and China. Not prickly. One of the edible Yams.

Besides these are a great variety little estimated, but all are ornamental vines. There are thirty species and many varieties found in Brazil alone, of which we have good descriptions.

Our long warm summer seasons and mild winters are sufficient to ripen all the species of Yams.

ONE of the oldest and best of the varieties of the common English Ivy is the *Irish* or *Giant Ivy* (variety *Canariensis*), a native of the Canary Islands, but introduced into Great Britain very many years ago. It is preferable of the species on account of its more luxuriant growth and larger foliage, yet possibly it is less hardy. As a basket-plant it is exceedingly fine, and is still in demand, notwithstanding the many new and beautiful forms. The *Palmate-leaved Ivy* (variety *digitata*) is very neat and pretty for hanging-baskets, and for trailing over rockeries. The foliage is deeply divided, not unlike the fingers of a hand, hence the name.

DESTROYING WEEDS IN WALKS.—An efficacious means to destroy weeds growing between pavements, in alleys, etc., is to boil twenty-four pounds of lime, four pounds of sulphur and 100 quarts of water; allowing the mixture to cool, and adding an equal quantity of water, before pouring over the weeds—selecting if possible a sunny day for the work. This will keep the ground clear for a twelvemonth.

Editorial Portfolio.

ANOTHER BRIEF BUT PLEASANT VISIT TO THE OAKLAND NURSERIES.

Delightful and splendid California's early spring weather greatly enhanced the pleasure of a trip to this beautiful garden city, as it may very properly be called.

The first place we stopped at was Mr. W. F. Kelsey's Nursery and Floral Establishment, on Telegraph Avenue, commenced in 1852. Mr. Kelsey has again undertaken the management of this business, with Mr. David Tisch as foreman. Mr. Tisch has had much experience as a florist and propagator of plants in various cities of the Union, among which as the most prominent was St. Louis, where he operated chiefly with Mr. Shaw, the spirited propagator of the famous and admirable gardens, ever open for the enjoyment of the public of that grand Missouri metropolis and State. Mr. Tisch has also had considerable experience in California, as a nurseryman. His houses are proofs of his diligence and skill. His leaf Begonias are in splendid growth and condition, and are likely to make good show-plants, as well as many of his numerous other plants. At this nursery may be found fruit-trees and plants of every variety and kind, evergreens, and ornamental trees and plants, bulbs, Roses, etc. Mr. Kelsey has put up additional buildings to accommodate his many boarders. It is a delightful location to enjoy both country and town, as the street cars pass the place every five or ten minutes.

Nearly opposite are Mr. James Hutchison's very neat and finely appointed grounds and plant-houses, the Bay Nursery. Untiring industry, energy, and unremitting attention have made this

nursery one of the best and most extensive in point of number and sorts of trees, ornamental shrubs, and flowering plants in the State. New and rare plants receive especial attention. Here and at Mr. Hutchison's Depot and Seed Store, Broadway and 13th streets, are to be found all choice seeds. Nothing can be found more systematic than both the nursery and depot.

The next place we visited was Mr. John Hampton's "Oakland Nursery." This nursery and its greenhouses are at present on a comparatively small scale; but everything can be found here, amply sufficient to embellish any new home. One of Mr. Hampton's specialties is the importation of Araucarias from Australia—also all the varieties of Palms suitable to our climate. New and choice plants receive all desirable attention. Next year Mr. Hampton will publish a complete catalogue of his nursery and floral stock, which will then be sufficiently large for that and every other purpose.

Oakland Gardens are beginning to look gay in their spring dress. We had the pleasure of visiting Mr. Harmon's handsome residence and grounds. This place was commenced, we believe, only three or four years ago. But since that time much that is elegant and beautiful in building, premises, and planting, has been accomplished. A most architecturally handsome, graceful and spacious conservatory of iron and glass—truly a small crystal palace—has been erected. In the two wings are grape-tries; in the central portion, formed as a high and domelike structure, is to be placed a large and handsome aquarium with a central water-pipe, and side pipes conveying water through the mouths of sculptured birds or fishes. At right angles with the grape-houses are wings, in which are placed the

tropical and many other kinds of vegetation. Mr. Turnbull, manager of the garden, conservatory, and plant-houses, has invented a fluted iron grating, which covers the walks in this large conservatory, and on which water is poured from a hose, to promote evaporation and a healthful dampness. Mr. Turnbull showed us in one of the greenhouses, among a fine variety of other plants, an attractive species of *Primula*—a seedling of his—with distinct purely golden eyes; a white *Azalea* (*Indica variegata*,) with pink stripes and variegated foliage; also, *Poinsettia pulcherrima*. We mention this last-named plant on account of the method which Mr. Turnbull has of dwarfing it, which is by taking a short cutting in the fall, and striking it, which enables him to have a plant in the spring with its flowers, as he said, “on short legs instead of its naturally very long ones.” He performs the same operation with Rutland’s beautiful *Thyrsacanthus rutilans*, which renders it beautifully adapted for a hanging-basket, with its crimson flowers drooping gracefully below it. Mr. T. has also some very fine *Rhododendrons*, with large flower-trusses—one of them colored a delicate pinky white. We saw some large beds of many varieties of the *Hyacinth*, double and single; the old early flowering *Euonymus*, with its brilliant yellow flowers; *Heaths* of various-colored flowers, and a handsomely planted rockery; with many horticultural attractions of fruit-trees, evergreens, and shrubs, with a good vegetable garden nearly bordering on Lake Merritt, some distance back of the mansion.

THE collection of Pears in the *Jardin des Plantes*, at Paris, was begun in the year 1792. There are now more than 1,400 varieties.

FLOWERS AND PRACTICAL HINTS FOR THE GARDEN—FOR LADIES.

Spring-time is come: for although we, in our highly favored California, have more or less hardy and tender flowers all the year round, still vegetation has some rest even with us, and Flora begins to deck herself more carefully and beautifully in the month of March, and puts on her most rich, brilliant, and precious jewels about the latter part of June. What can be a more interesting and refined occupation for ladies than the raising and care of flowers, either in the lot, garden, house, or conservatory? What more healthful and elegant employment? We would like very much to be somewhat instrumental in creating among our fair sisters a love for the practical knowledge of the culture of these nature’s gems, so analogous to the precious jewels with which they are in the habit of adorning their persons. They are far from being so expensive, but in form and coloring, at least, equal those lustrous and favorite natural mineral productions. A poet, addressing a lovely and sweet collection of flowers, thus speaks:

“You are gifts that all may offer—
Wealth can find no better proffer;
For you tell of tastes refined,
Thoughtful heart and spirit kind.
Gift of gold or jeweled dresses,
Ostentatious thought confesses;
Simplest boon this boon may give,
Modesty herself receive.
For lovely woman you were meant,
The just and natural ornament;
Sleeping on her bosom fair,
Hiding in her raven hair,
Or peeping out mid golden curls;
You outshine barbaric pearls.
Let the rich, with heart elate,
Pile their board with costly plate;
Richer ornaments are ours,
We will dress our home with flowers.
Comfort for the aged eye,

For the poor cheap luxury.
 Though your life is but a day,
 Precious things, dear flowers, you say:
 Telling that the Being good,
 Who supplies our daily food,
 Deems it needful to supply
 Daily food for heart and eye."

But let us cease for the present our poetry about flowers, and come to mere matter-of-fact concerning them. Say the lot you have, dear ladies, is 60 x 100 feet. On the north side may be planted in a bed about three wide wide, next to the house, Fuchsias, Ferns, Begonias, and all plants requiring partial shade; also Azaleas, Smilax, Hydrangeas, and other similar plants. Ivies and other ornamental vines are trained on simple wire or wooden trellis-work, or on the side of the house, forming a dark and rich background. On any board fence, often on one side, are trained Clematis, Solanum, Jasminoides, Wisteria, and Sweet-scented Honey-suckle. If there is a trellis built around the front door, any kind of handsome climbing Rose-bushes may be trained over. Round whatever internal beds are made there may be an edging of a small species of *Sedum* or Stone-crop. Near this edge plant a row of *Nierembergia gracilis* and *rivularis*, a few inches apart. Beyond these, and in a parterre and nearer the house, is a row of variegated Geraniums. In the centre is planted a *Dracæna terminalis* and around it *Nierembergia variegata*, Ivy Geranium, Lobelias, Alternanthera, Tradescantia, and Moneywort. On each side of the centre may be planted *Deutzia gracilis*, Larkspurs, etc. For a background there may be a row of Cannas. In other larger beds there may be Dielytra, Pæonies, *Spiræa Japonica*, and other herbaceous plants and bulbs. Here Dahlias, Gladioluses, and some other bulbs may remain permanently in the ground. Some *Eucalypti*

and Acacias, with an evergreen or two, may be planted for both shade and ornament. All this is a mere outline. In addition to the above flowers, Petunias, Verbenas, Maurandia, and Tropæolum vines may be planted.

Some more hints on such subjects as the above will be given in future numbers of the HORTICULTURIST.

DIFFICULTY OF GIVING ANY GENERAL CERTAIN RULES FOR CULTIVATION OF PLANTS IN CALIFORNIA.

One of the greatest obstacles in advancing rules for cultivators in our State is the many various climates that are to be found in it. What advice in that respect experience has found to be applicable in one section of the country, will not answer at all for another portion, and so on to a very considerable extent all over this slope. For example, the Pansy, which flourishes and flowers well in this city and neighborhood the year round, and along the more humid coast counties, will, for a large part of the year, be found to be dried up in the interior valleys. The same difference of atmospheric effects exists between San Francisco and other coast cities and towns, and their surrounding lands: the warm valleys, the foot-hills, and the more elevated plateaus toward the Sierra. Trees, plants, and flowers of all kinds are, therefore, more or less affected according to these several locations, and each district requires for its vegetable productions, and for their well-being and prosperity, a particular treatment. In other words, vegetation depends much in any part of our planet upon climate, altitude, sea-coast, and interior surfaces, and other external conditions, just as what may be termed the physiognomy of a region or country arises from the predomi-

nance in it of certain families or even of particular genera of plants; and an intelligent observer, even without an acquaintance with the characters which distinguish one species from another, will be easily led to discriminate the general effect which the prevalence of each impresses upon the landscape. Atmospheric conditions in the aggregate serve to constitute the definition of climate everywhere on the globe, and in California in a comparatively limited extent are witnessed those climatic varieties which, as we have observed, render it so arduous a labor for us to lay down a system of cultivation, either in book or essay, which could much assist the general florist or fruit-raiser, but more especially the former.

California includes the warmer, temperate, and the sub-tropical zones, but how much, also, as regards its vegetation, does elevation, or vicinity to or distance from the ocean, and the interior level and valley sections as well as Southern California, affect it.

A manual on the cultivation of flowers would be a desirable publication for many, but this would be very far from an easy undertaking in our many climatic influences and effects.

NEW AND RARE FRUITS AND PLANTS.

A New Melon.—“SUTTON’S HERO OF BATH SCARLET FLESH.” This is considered by many the very best scarlet-fleshed variety ever brought out. It was awarded the first prize at the Royal Horticultural Society’s Birmingham Show, with other prizes at other places in England. It is very early, of vigorous growth, most delicious flavor, handsomely netted all over the outside, and keeps well after cutting. It is of moderate size and thin-skinned. We ob-

tain the above from “Sutton’s Spring Catalogue and Amateur’s Guide for 1875, Royal Berks Seed Establishment, Reading, Berkshire, England.”

New Rose—DUCHESS OF EDINBURGH, CRIMSON TEA.—Most Tea Roses are light—a dark one will be welcome. Messrs. Veitch & Son say: “The color is a deep glowing crimson, very free flowering, and from its present appearance we have every reason to believe it will make as good a bedding variety as the Crimson China.” The flowers are large and full, fine form and substance.

It was exhibited at the Royal Horticultural Society’s Show on May 13th, when it received a first-class certificate from the Floral Committee, and was greatly admired.

CATALOGUES RECEIVED.

From the Dingee and Conard Co., Rose Growers, Westgrove, Chester Co., Penn.: “Descriptive Catalogue for 1875 of New and Beautiful Roses. Roses by mail a specialty.” This catalogue presents instructions how to grow Roses in open ground, and Roses in pots, and for winter-blooming, together with their insect enemies.

THE JAPAN PEA.—We have received from L. L. Osment, Cleveland, Tenn., sample packages of this new vegetable, that in appearance is small and differs from the ordinary Pea, but is said to be equally good for table use and invaluable for stock food, as it gives a product of 200 bushels to the acre. One Pea is planted in a hill, and forms a bush from three to five feet high. Those desiring to procure it can obtain three packages for \$1 currency by addressing Mr. Osment, as above.

OUR FRONTISPIECE.

We believe our readers will admit that we have embellished our present number with a beautifully drawn and colored plate, representing those brilliant and favorite flowers, the Single and Double Tulip, and Scilla, of the natural order *Liliaceæ*.

In a wild state the Tulip species is a most unattractive object, for it is of a dull brownish red, with no stripes or other marking except a circle of black at the base of the petals. Yet from this origin are all our fine handsome varieties obtained.

The season is just at hand when these showy flowers will be making their best display in beds or as single plants. All of them, either planted in groups or otherwise, are very desirable in the borders of the flower garden as affording a rich display at a season when flowers are most valued. One class, called *par excellence* "early," are particularly handsome on account of the great variety exhibited in their colors. Such varieties as the Pottebakkers, Claramond, Vuurburg, Canary, Vogel, etc., deserve a place in every collection. The lovely species *Oculus solis*, on account of its rich color, and the Florentine for its scent, are also desirable. Nor should the gaudy Parrot Tulips be neglected; all assist in forming a most agreeable and gaily colored whole.

The Scilla are very pretty bulbous-rooted plants; all of them hardy, of course, in California, and very desirable on account of their early habit of flowering. *S. amœna*, blue; *bifolia*, red, blue, or white; *brevifolia*, pink; and *siberica*, blue, are among the most beautiful and earliest, as they produce flowers from December to April in pots in the greenhouse during winter, and bloom out-doors late in the summer. If they

are intermixed among other large-growing plants, they will afford a pretty variety, especially those which produce long spikes of beautiful flowers, and continue a long time in bloom.

Correspondence.

LETTER FROM HON. MARSHALL P. WILDER,
PRESIDENT OF AMERICAN POMOLOGICAL SOCIETY.

E. J. HOOPER, ESQ.—*My Dear Sir:*—I am always pleased with your articles in the CALIFORNIA HORTICULTURIST. The American Pomological Society's next meeting will be at Chicago, September 8th, 9th, and 10th. A great time will be had, and you and your friends must meet us there with your fruits. The circulars are now preparing, and will soon be out. Please give your readers an article in the HORTICULTURIST, urging upon them the importance of the hints contained in our catalogue of fruits for fifty States and Territories—the work of our most experienced men. There is nothing like it in other lands. No other society has made such progress, and performed so much work in that line. I will forward a copy by mail.

Yours, as ever,

MARSHALL P. WILDER.
BOSTON, March 25th, 1875.

THE LARGEST PEAR IN THE WORLD.—T. Brehaut, of Guernsey, has raised of the Uvedale's St. Germain, six Pears, twenty pounds, and he asks whether any one in the world has beaten this? One weighed "all but" five pounds. In his remarks on this subject, Mr. B. intimates that Belle de Jersey and Belle Angevine are not the same as Uvedale's St. Germain, which will be news to American pomologists. These large Pears seem to attract, for Mr. B.

says six of his large Pears brought nine guineas. Some \$8 apiece is profitable Pear-growing, but it will not do to figure up an acre at this price.—*The Gardener's Monthly*.

FRUIT CULTIVATION, AND REPORT ON
THE FRUIT AND VEGETABLE
MARKET.

BY E. J. HOOPER.

There are some fruits, like the Bartlett Pear and the Newtown Pippin for example, that are suited for almost any country or locality where the Apple and the Pear can be grown to profit. But there are a great many others that are adapted only to certain large sections of the States, as the northern or southern; some, also, are confined to a limited tract. Perhaps there is no portion of the world where so many fruits succeed so well as in the soil and climate of California, owing to its equable and mild temperature, and originally fertile earth, either of fine loam or more compact adobe. We are then incurring but little risk of committing errors, or misleading cultivators of fruit, when we bring forward any new specimen which has been found good and profitable in any of the other States or Territories. We have one before us, namely, the Bassett Apple, a highly popular new winter fruit, originated in Connecticut, by W. D. Hall, of New Haven County. It is so highly esteemed that "the more widely known winter Apples on the nursery lists have not been able to displace it. It belongs to the Pearmain family, and it is said to resemble the Cogswell Apple in general appearance, except that it is smaller, and ranks medium as to size. This will, probably, be enlarged in California, as there is no doubt that nearly all fruits and veg-

etables here go beyond their Eastern size. The skin of the Bassett is a rich yellow, nearly covered with red, marked and streaked with bright red. Flesh white, compact, tender, juicy, scarcely subacid, with a rich, refreshing flavor. Ripe, in the East, December to February. A handsome dessert fruit of good quality. It is reported as a good bearer. It has never been sent out by the nurserymen. We have already, in America, 2,300 described Apples, but I publish this new Apple—the Bassett—because of its apparent superior qualities to the majority of the above immense list. It must be a very showy fruit for the market and the table, and would likely be an acquisition as an addition to our late Apples.

As we have, and are likely to have continually, importations of new plants and fruits from foreign lands, and especially from China, Japan, and Australia, a few brief remarks derived from an experienced importer as to their management on the voyage, may not be unacceptable to many cultivators or botanists. This importer states, that what he found most convenient was an oblong box with a span-glass roof. Its width inside should be about eighteen inches, so as to receive two rows of square wooden pots, made to fit accurately. The glazed sides of the roof should be movable, and hinged to the case by their lower edge; and, if possible, they should be fitted with transparent oyster shells, easily procured at the China sea-ports. Hooks should be adapted to the ends, for the purpose of keeping the glazed sides open in fine weather. The bottom of the case should be double, with a cavity of half an inch to allow for the running off of salt-water in case it gets in when the decks are washed. The whole should be covered by a water-tight tarpauling, without

which it would be impossible to keep the cases on deck, which is much the best place. When the plants are put into the box, the whole of the mold should be covered with moss, to prevent its being shaken out of its place, and likewise to keep it moist. After this it should be crossed with laths, nailed tightly down. The best situation is where they get plenty of sun and light. If the plants have too much sun, shade them by closing one shutter, or by using the tarpauling as a shade. Some exposure to the sun is indispensable to harden the wood and enable the plants to endure the vicissitudes of climate. Water sparingly as long as they are seen not to droop. They can not endure the salt atmosphere. The period of leaving China should, if possible, be late in the year.

But to speak of our markets. About the 5th of this month (March) some excellent new Potatoes appeared in the market, and found ready sale at 6c. to 8c. per lb. Inferior New Potatoes could be had at almost any price, although the range was from 3c. to 4c. per lb. Mushrooms were selling at 10c. per lb.; Salsify at 75c. per dozen bunches; Garden Lettuce at 25c. per lb.; Horseradish, 20c.; Chile Peppers, 50c.; Shives, 15c. per bunch; Cabbage Sprouts, 8c. per lb.; Rhubarb, 20c.; Asparagus, white, 25c.; green, 30c. to 35c.; Jerusalem Artichokes, 8c.; Artichokes, \$1 to \$1 25 per dozen. Green Peas were still high—8c. per pound.

California Lemons were retailing for 25c. to 50c. per dozen. Oranges were to be had all the way from 15c. to 75c. per dozen. There was an excellent display of Apples, some lots of choice Oregon having been recently received. There were also some good Oregon Pears at the beginning of March. The season of early Strawberries is close at

hand. Two years ago the first lot of early crop had come to hand about that time. Last year the season was backward and the ripening of the fruit was considerably delayed; there has been a notable absence of warm weather so far this year, and there may be a similar delay in the arrival of the Strawberry crop.

The feature on or about March 5th was the first appearance of Cucumbers. Receipts of Green Peas continued to increase. Asparagus was a little more plentiful and cheaper.

Apples and Oranges were very plentiful. The receipts of Los Angeles Oranges were never more liberal, and they moved off slowly and at reduced figures. Oregon contributed largely to the supply of Apples, and sent a few Pears. By the box, Apples retailed at \$1.25 to \$2.25, delivered. The retail price of Italian Chestnuts was reduced to 35c. per lb.

The first Strawberries of the season were received about the 10th of March, and retailed at \$2.50 per pound. The lot was very small, consisting of only two short pounds, hence the extravagant price at which it was peddled out to epicures. It is not often, if ever, the first Strawberries of the season here command such a high price. If the warm weather which had prevailed during the past week had continued, we should much sooner have had an abundant and cheap supply of this delicious fruit. California Lemons have never been more plentiful, in better condition, and cheaper than they are now. The supply of Oranges, if anything, has been and still is excessive, and there are no signs, even up to this month (April) of diminution in the shipments from the southern counties. The better descriptions of Apples were a little dearer about the middle of March than

they had been for some time previous. Dried fruit was plentiful about the 10th of last month.

German Prunes were quoted at 16c. to 25c. per lb.; California Raisins, 20c.; Dates, 25c. Nuts were as follows: Walnuts, 20c. to 25c. per lb.; Almonds, soft shell, imported, 35c. per lb.: do. California, 25c.; Filberts, 25c.; Italian Chestnuts, 40c.; Common Ohio do., badly damaged by frost, 25c.; Cocanuts, 15c. each.

Vegetables were improving. There was a better showing in new Potatoes at reduced prices, 6c. per lb. being the top of the range. Mushrooms were retailing at 15c. to 25c. per lb. Asparagus was selling at 12½c. to 15c. for white, and 25c. for green. Artichokes were quoted at 75c. per dozen, and Jerusalem Artichokes at 8c. per lb. Rhubarb was cheaper; it was quoted at 20c. to 25c. per lb. Shives were retailing at 15c. per lb.; Cabbage Sprouts, 8c. per lb.; Horseradish, 20c.; Chile Peppers, 50c.; Field Lettuce, 25c.; Green Peas, 8c.; Garlic, 25c.; String Beans were not yet in, although due.

The first Strawberries above spoken of, were from San Jose. The first of the new Tahiti Oranges was expected about the 24th of March. A few Pears from Oregon were still in market about the middle of last month, and there was little demand for them at 5c. to 10c. per lb. There was much complaint at the small size of New Potatoes. A few at the top of the sacks were large, but the bulk of the remainder was made up of almost unsalable trash. The producer is the sufferer, from the low prices his dishonest practice obtains. The prospect of an abundant yield of Strawberries is excellent, and warm weather will soon bring forward a most plentiful supply.

About the 19th of March Mission

Sweet Peas were in market, retailing at 12½c. per lb.; also the first lot of this season of Sugar Peas was received, the price for which, although very variable, may be placed at 25c. per lb. Peas did not command more than 6c., but there was a very marked improvement noticeable in their condition. Mushrooms gave out about the same time. Asparagus improved, and the supply was increasing: prices were, however, steady. Artichokes were cheaper, selling at 50c. per dozen. Jerusalem Artichokes were steady at 8c. per lb.; Rhubarb was quotable at 15c. to 20c. per lb., being 5c. per lb. lower than last week. New Potatoes continue to retail at 6c. per lb. Cabbage Sprouts are steady at 8c.; Horseradish at 20c.; Chile Peppers at 50c.; Field Lettuce at 25c., and Garlic at 25c.

A good supply of Apples was received by the last Oregon steamer. California Apples are getting poor; native Red Cheeks are nearly out of the market altogether. Pears are scarce, poor, and dear. There have been no receipts of Strawberries from the 12th to the 20th of March. Semi-tropical fruit is abundant. Dried fruit is also plentiful.

Anything like a plentiful supply of Strawberries can not be expected much before the early part of this month (April). The ripening has been retarded by recent cool weather, but the prospects of the crop are flattering, and the yield promises to be abundant and of good quality.

The first cargo of new-crop Tahiti Oranges arrived during the week. The fruit is unripe and too sour to have any effect upon the sale of the California variety. The Mexican steamer, which arrived on Tuesday, brought a few packages of Limes and forty cases of Oranges from a plantation back of Ma-

zatlan. These Oranges are some of the finest ever received from that country. They arrived in perfect order, and, being of large size, sweet and juicy, are selling very readily. Los Angeles Oranges and Lemons are arriving as freely as ever, and are in good demand at slightly improved prices. The market is fairly supplied with Apples, but the stock of Pears is almost exhausted, the few remaining being mostly from Oregon, and inferior in quality. California Raisins, Almonds, and Walnuts are still coming forward, and are displacing the foreign products to a great extent. By the box, Apples retail at \$1.25 to \$2.50 delivered.

Asparagus, Green Peas, and Cucumbers are more plentiful and cheaper. New Potatoes in considerable quantities are coming forward from Halfmoon Bay and the Mission gardens, and retail readily at 5c. to 6c. per pound. We quote Spinach at 8c., and Lettuce at 20c. to 25c. per doz.; Salsify, 8c. to 10c. per bunch; Potatoes by the sack, delivered, \$2 to \$2.50 per cental.

A few Strawberries have come in from San José, which brought \$2.50 per lb. The cool weather and frosty nights prevent the fruit from ripening. California Oranges are now at their best, and are selling very readily, the demand for them not being in the least affected by the cargo of Tahiti. Apples are becoming quite scarce, and prices are advancing. The different qualities now retail at \$1.50 to \$3 per box.

ALTERNANTHERA AMABILIS TRICOLOR.—This is a charming variety, remarkable for the brilliancy of its large leaves; it is of very free habit, and forms a beautiful ornament to the flower garden in the summer months, either in small beds or as a border plant.—*New York Horticulturist*.

Editorial Cleanings.

THE AILANTHUS AS A MEDICAL REMEDY.—The *Archives de Medicine Navale* publishes an official note, addressed by Dr. Robert, who is the medical chief of the naval division of China and Japan, to the Inspector-General of the Health Service in the French navy, calling attention to a drug used by the Chinese physicians in the treatment of dysentery. It consists of the root bark of the common Ailanthus, and is by them employed in the fresh state only; but Dr. Robert, having been compelled to use some that had become dry, found no sensible difference in its action in the two states. For administration, one and a half ounce weight of the root is cut into very small pieces and triturated with two ounces of hot water for a few minutes in a mortar, in order to soften the bark, and then strained. A teaspoonful of this strong infusion is administered as a dose morning and evening, alone or in a cup of tea. Taken in this form it provokes vomiting. The medicine is administered in this manner during three days, the patient being kept upon full diet. After that time the Ailanthus is omitted, and the diet is altered to broths until health is restored; if there is no cure at the end of ten days, the use of the Ailanthus is recommenced.

DEEP AND SHALLOW ROOTS.—Some of our best cultivators of fruit attach great importance to inviting the roots of fruit-trees to run near the surface of the soil, and with this end in view they never cultivate nor tear up the surface, applying a top-dressing of manure to compensate for the deficient cultivation. They raise excellent crops this way; but they do not give us any experiments on trees growing side by side, with the

same top-dressing and a mellow surface added, to prove which is best. The matter seems at present to rest on single opinion or "theory." J. H. Clary, a correspondent of the *Prairie Farmer*, urges the importance of the opposite course, remarking that "experience is better than theories;" then goes on to give his theory, and the practice of some western orchardists based on it. He says that "Judge McGonigal plants his Grape-vines at least fifteen inches deep; I plant my fruit-trees the same depth; and Rothius Scott, with orchards of 2,000 of the finest trees I ever saw, plants at least two feet, and some two and a-half feet." He fills the hole partly at first, and cuts off the side roots to keep the roots well down. His object is to keep the roots away from sudden changes of weather, heat, cold, drouth, etc. But neither do these cultivators furnish us the results on other trees set side by side to test the relative advantage of each mode. We often hear long speeches at horticultural meetings, in which the speakers recommend their own practice and the theories on which it is based, but we are still left in conjecture as to the actual comparative results.

BOTANICAL GARDENS.—The public-spirited citizens of Chicago, progressive in everything, and desirous of making their home what its name expresses—"Garden City"—are taking preliminary steps for the commencement of a Botanical Garden in the west division of the South Park of that city. Her lovers of the floral kingdom and others are uniting together, and have enlisted the aid of scientific men and associations both in this country and abroad, in furtherance of their worthy enterprise. Similar efforts were made in Philadelphia a quar-

ter of a century or more ago, but they did not meet the success that usually attends all efforts of the more vigorous and determined city of the north-west. If the latter determine to rival Paris with her *Jardin des Plantes*, it is believed she will make a strong effort to that end.

THE GROVES OF MOROCCO.—The groves of Rose-trees and the flower farms of Morocco are said, by a recent traveler, to exceed in extent and value those of Damascus, or even those of the valley of Mexico. The general climate of the country is very favorable to this kind of culture. Swept alternately by the breezes of the Atlantic and the Mediterranean, and tempered by the snows of the Atlas ranges, the degree of heat in Morocco is much lower than in Algeria, while the soil is exceedingly fertile. To the Date-palm and to Orange and Lemon trees the climate seems to be especially suited, the Dates of Tafilat having been famous even from Roman times. The Orange plantations are of great extent in various parts of the country, while Olives and Almonds are also staples exported in large quantities. Seeing that this fertile land, lying within five days' steam of London, produces so much vegetable wealth under the most barbarous cultivation, it appears extraordinary that European enterprise does not in such a climate seek profitable employment for its over-abundant capital in its application to the development of such vast resources, so close at hand, instead of going to so far a field as Australia or America.—*London Garden.*

THINNING FRUIT.—The value of the practice is well established, of thinning out the young fruit on overloaded trees, for the purpose of improving the size,

flavor, appearance, and market price of what remains, and producing less exhaustion to the trees. A correspondent of the *Maine Farmer* adopts the practice of cutting and thinning out the small branches after the fruit has formed, taking off in this way at least half the crop. He gets the usual crop with double the size of the Apples. There appears one objection to this practice—the tendency to check the growth of the tree by the removal of so large an amount of foliage while growing. It might do on strong, rich soils, with young trees; but young trees on rich land are not apt to overbear. We would recommend caution and comparison. It should be remembered that thinning out the young fruit when small is much easier than to hand-pick it when mature.

A WRITER in the *Sacramento Record* says that since the planting of the vine in California, over a hundred years ago, the Grape crop has never been a total failure.

Now, where France possesses one acre of land especially adapted to the production of the best quality of Champagne wine, or where Germany possesses one acre peculiarly calculated for the production of the still light wines of the Rhine, or where Spain has one rod of soil on which she can produce the Malaga raisins, California has one thousand acres adapted to each particular product. These lands are lying unappropriated and unoccupied all along the foot-hills of the Sierra Nevada and Coast Range mountains from one end of the State to the other, and may be had at a price that brings them within the reach of the poorest peasant of Europe. The man who spends his money in a vain endeavor to make a

light delicate table wine from Grapes grown upon the rich luxuriant soil of the Sacramento, San Joaquin, or other California river bottoms, is doing just as absurd a thing as would be the German Rhine wine maker in attempting to excel the Malaga raisin maker in his business by drying the wine Grapes for raisins, or as would be the resident of Malaga in making an effort to rival the Hock or Rhine wine by expressing and fermenting the juice from his Malaga Grapes.

THE TEMPERATE CHARACTER OF OUR CLIMATE.—In a show-window of C. C. Hastings & Co.'s store, beneath the Lick House, may be seen a cluster of five Oranges, to which is pinned a notice to this effect.

“These Oranges were raised this winter, in the open air, by C. L. Beard, (in Alameda County) within twenty miles of San Francisco. There can now be seen on the same tree from 300 to 500 Oranges, from green to ripe. The tree is seventeen years old, eighteen feet high, and fourteen inches in circumference. This cluster broke off from its own weight. Oranges, Olives, Lemons, Dates, Figs, Grapes, Peaches, Nectarines, Apricots, Berries, etc., grow in the same garden.”

Mr. Beard's is not an isolated case of Orange culture in the open air, within easy distance of San Francisco.

PLOW AND SPADE DEEP. — Diss, of San Francisco, who returned from a visit to his ranch on Cross Creek a few days since, said to us, “Tell the farmers to be sure and plow deep.” The effect of the two theories of plowing is very clearly demonstrated in his Alfalfa field, where the ground was

plowed three, six, twelve, and fifteen inches deep. The different depths show a distinct shade of growth ranging upward in response to the plow going down. We know of several farmers who mortgaged their farms last fall in consequence of their shallow plowing theory.—*Visalia Delta*.

GRAPES FOR HOGS.—A practical farmer, a man of over twenty years' experience in the Corn regions of the West, and about the same in California, gave us the other day his candid opinion that good, sweet, well-ripened Mission Grapes fed to hogs would make as much pork, pound for pound, as Corn. Doubting on our part led to investigation into the theory of fat and flesh production, and though still unwilling to believe that a hundred pounds of Grapes will make twenty pounds of pork—about what Corn will do when properly fed—we can not but admit that they may prove very profitable for feeding, and as this gentleman informs us that his hogs will leave Barley or Wheat to eat Grapes, would recommend those parties who, because wine-making has not been a success with them, and their common Grapes are not the things for raisins, have meditated rooting out their vines, to try this mode of disposing of their crop. An acre of vines when they are five years old will bear, say 10,000 pounds of Grapes. If we place their pork-producing capacity at one-half that of Corn we have a thousand pounds of pork made from an acre of these condemned vines, worth, as prices go here in Grass Valley, from eighty to one hundred dollars. An acre of Grapes can be raised and picked, after once the vines are in good bearing condition, for less than an acre of Corn can, and yet an Illinois or Missouri farmer will

raise three or four acres of Corn and feed it to his hogs to make a thousand pounds of pork, and when made pay freight to Grass Valley, and sell the pork to be cut up and made bacon of for the very men who have those non-paying vineyards.—*Foot-Hill Tidings*.

ADIANTUM FARLEYENSE.—Probably one of the finest examples in the United Kingdom of the beautiful exotic Fern, *Adiantum Farleyense*, "The Queen of the Maiden-hair Ferns," was shown at the exhibition of the Stamford Horticultural Society, September 4th. It was staged by Mr. Allsop, gardener to C. T. S. Birch Reynardson, Esq., Holywell Hall, Lincolnshire. Well grown, very healthy, and beautifully colored, this specimen must have measured nearly or quite three feet in diameter; and the boldly arched elegant fronds gave it a fine symmetrical appearance, which did not fail to excite the admiration of all who saw it. A single frond of this superb Fern is a sight to be thankful for; but it is when a large and well-grown example of it meets the eye, that one seems to fully appreciate and delight in its exquisite beauty and almost unrivaled elegance.—*Gardener's Chronicle*.

Do ANY of your readers know of a Plum called the "Winter Plum?" A few years since an intelligent Polander gave me a few seeds that he had brought from the north of Europe. I took but little interest in them, supposing them to be nothing more nor less than the "German Prune." However, I planted them; the most of them came up and grew finely. I transplanted four of the trees, which have borne several crops. I can see no difference between this fruit and the Damson, only they are

from four to six weeks later in ripening—coming in when all other varieties are gone. This lateness in getting ripe will, I think, make them very profitable to raise for market. I am satisfied that like the Damson they will reproduce themselves from the seed, as the four trees are precisely similar in all respects. Do any of your readers know of this Plum? If so, will they please give the proper name of them through your columns?—*C. C. Cooley, Adams Co., Ohio.*

POISON OAK AS FOOD FOR CATTLE AND HOGS.—Poison Oak, the mere looking upon which will cause swelling and eruption upon some people, while others can handle and work among it with perfect impunity, is said to be a useful and duly appreciated shrub by some of our foot-hill farmers. Philip Roberts was asking Mr. Underwood, who lives some miles below here, and upon whose place Poison Oak is plentiful, not long since, why he did not dig it out and get rid of it. "Why," said Mr. Underwood, "that is one of the best crops I have on my farm. Before grass starts, after the rains have spoiled the dry feed, my cattle and hogs browse the leaves and tops off and seem to thrive upon them; and later in the spring the hogs root up and greedily devour the young sprouts, making a living when other food is scarce. Then, in the fall, when feed is dry, stock will eat the green leaves of Poison Oak, and mixed with the dry grass it seems to do them good."—*Grass Valley Tidings.*

A WELL-KNOWN BOTANIST, now on a visit to this city, many years ago took great interest in the matter of naturalizing in this State the best known foreign grass. He addressed letters of

inquiry to a great number of foreign countries, and especially to such as had a climate much like ours. There was a remarkable unanimity in the replies, naming *Lucerne* or *Alfalfa*, or the same grass under some other name, as the one grass which was preferable to all others. After some years he returns to find that Alfalfa has not only taken root here, but that the experimental stages have been successfully passed. Perhaps as good an illustration as any other of the real value of Alfalfa in this State may be found in the fact that where the land is well set in this grass it can be rented at \$10 an acre, with a good margin of profit to the parties taking it on such terms. The roots of this grass have been known to live sixty years.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING MARCH 31, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.	30.23 in.
do 12 M.	30.23
do 3 P. M.	30.22
do 6 P. M.	30.22
Highest point on the 31st, at 12 M.	30.40
Lowest point on the 18th, at 9 A. M.	30.05

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	53°
do 12 M.	58°
do 3 P. M.	58°
do 6 P. M.	54°
Highest point on the 10th, at 3 P. M.	68°
Lowest point on the 14th, at 9 A. M.	47°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	43°
Highest point at sunrise on the 12th	50°
Lowest point at sunrise on the 3d	36°

WINDS.

North and north-east on 4 days; south-west on 4 days; north-west on 20 days; west on 3 days.

WEATHER.

Clear on 16 days; cloudy on 6 days; variable on 9 days; rain on 6 days.

RAIN GAUGE.

2d.	0.33
4th.	0.17
5th.	0.03
24th.	0.22
27th.	0.05
28th.	0.28

Total..... 1.08
Total Rain of the season to date..... 17.26



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2



3



GROUP OF BULBOUS PLANTS.

1. *Gladiolus.*

2. *Tritoma varia.*

3. *Tuberose.*

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, MAY, 1875.

No. 5.

SEED - PLANTING.

BY F. A. MILLER.

[Continued.]

I will now say a few words in favor of the Stock (*Matthiola*) which is now grown to its greatest perfection in Germany, and has become one of the leading bedding-plants everywhere. European catalogues now enumerate so many varieties and forms, that it seems difficult to select from their lists. I believe it answers our purpose, if we will confine ourselves to three varieties, namely: The large-flowering Ten-week Stock for summer flowering; the Autumnal Stock, for early winter; and the Winter or Brompton Stock, for late winter and early spring flowering. They are decidedly a most desirable feature in the flower-garden, and present no difficulties so far as their cultivation is concerned.

Like the Pansy, I prefer to plant the seed in pots or boxes, and find no objection to plant the three varieties mentioned at one and the same time, say in March or April; their distinct characters bring them out in their respective seasons, as their names imply. The seeds germinate freely, particularly if

covered with a pane of glass, but as soon as the plants are up, they should be aired every day, and when the second or third leaves appear, the glass should be removed entirely, in order to harden them well before transplanting. The Summer Stock should be transplanted when quite young, say a month or six weeks after the young plants have made their first appearance; the Autumn and Winter Stocks may remain in the seed-boxes for several months, before transplanting becomes necessary. To produce fine plants and perfect flowers, the ground should be kept clean and loose. As soon as the flower-buds make their appearance, and the single-flowering plants can be distinguished from the double-flowering ones, the former should be removed; the main object being the production of double flowers. Imported German seed is preferable to all others, for the same reasons as mentioned in connection with the Pansy.

Phlox Drummondii is also a most desirable annual, and produces a very cheerful effect during the summer months. As a bedding-plant it has no superior; it is a neat and compact grower, and a most profuse bloomer.

Near the coast, I find it does not germinate readily in the open ground, the climate apparently being too cool. The seed should be sown in pots or boxes with glass covers; the young plants to be transplanted with more than ordinary care, unless the weather is cloudy. Where professional gardeners are employed, and frames or greenhouses are at command, the surest and best way is to pot off the young plants, and when established in the pots to transfer them into the open ground; but where such conveniences are not at hand, careful transplanting from the seed-boxes into the open ground will answer; in which case it will be well to shade the plants for a few days during bright weather. In the interior the seed may be sown at once in the open ground as soon as the frosts are over. They will flower in profusion from midsummer until late in autumn.

THE MAGNOLIAS.

A valuable paper on these admirable ornamental trees was presented to the late horticultural meeting at Rochester, by Mr. George Ellwanger, and being the result of extensive experience for more than a quarter of a century with all the kinds that can be cultivated at the North, we give it nearly entire to our readers, its excellence fully warranting the space it occupies. After some introductory remarks, Mr. E. says:

“There is no tree or shrub, in our opinion, whether deciduous or evergreen, that can compare with the Magnolia in effectiveness, or take its place in all well-laid-out public or private grounds. Its superior stateliness of form and splendor of growth, the size and richness of its foliage, and its lavish yield of fragrant flowers, all tend to place it in the foremost rank among

hardy ornamental trees and shrubs.

“Its proper place is on the lawn, where it shows to fine advantage in contrast with the green; or it may be planted effectively on the border of lawns, with an evergreen in the background to heighten the contrast. Planted in groups, it yields to no rival, and its effect in the early spring is grand beyond description, illuminating the landscape and loading the atmosphere with its rich perfume.

“The Magnolias are all either indigenous to America or Asia, and occupy very similar parallels of latitude. The Chinese varieties possess the peculiarity of coming into bloom before the appearance of the leaves. On their own roots they are all of slow growth, growing at best into low, bushy trees, and on that account, are admirably adapted to be planted with the larger varieties of shrubs, or to claim a place in small grounds where there is not room for anything larger. Where the space is abundant, however, to give room for a finely developed tree, they should be budded on the *Magnolia acuminata*, which adds materially to their vigor, hardiness, shapeliness and size. The French inarch them on the *purpurea*, a dwarf Chinese variety of less vigor than the others, but more easy of propagation. The *acuminata*, however, is far preferable with us.

“The Magnolia, very erroneously, has long been considered by many a tender tree. This idea has obtained prevalence, doubtless, from its extreme shyness to being transplanted. No roots, to my knowledge, are so sensitive to exposure to the wind, or sun, as those of the Magnolia; hence the poor success in transplanting them.

“It often occurs that after being moved they survive for a few months, maintaining a sickly existence, and hav-

ing made no roots, perish in the winter, thereby, unfortunately, strengthening the impression that they are not a hardy tree.

“To insure success in their transplanting they should be moved in the spring—never in the fall—and the Chinese varieties at that period when they are coming into bloom, and, consequently, before the leaves have made their appearance. Great care should be exercised in their removal, the fibrous roots being preserved as nearly as possible and carefully guarded from any exposure to wind or sun. For this purpose a cloudy or rainy day is preferable. While almost any good soil is sufficient to insure their growth, they succeed best in a soil which is warm, rich, and dry.

“The varieties embraced in the annexed list, with but one or two exceptions, are all of sufficient hardiness to endure the rigors of even a New England winter. On our own grounds we have a number of specimens over thirty years old, as hardy and thrifty as our native Oaks. In enumerating varieties I shall call attention only to those which have for years come under my observation on our own grounds.

AMERICAN VARIETIES.

The *Magnolia acuminata*, or Cucumber-tree, as it is often called from the resemblance of the young cones to a Cucumber, forms when well developed one of our noblest and most finely proportioned trees, often growing in our forests to a height of from sixty to seventy feet, and attaining a diameter of several feet. The leaves are large on young trees, and the flowers, which vary from five to six inches in diameter, are yellowish white, tinted with bluish purple. In autumn the cones open, displaying the coral-colored, polished

seeds, and adding greatly to the charm of the tree. The *acuminata*, as previously mentioned, is invaluable as a stock upon which to work the Chinese and other slow-growing varieties.

The *Magnolia acuminata variegata* is a variety of the preceding, with the foliage and young wood striped with yellow. It is also of superior growth, and is very distinct and fine. It originated on our grounds about fifteen years since.

“The *Magnolia tripetala*, one of our best-known varieties, is of medium size, with immense leaves growing in clusters, and large white flowers five to seven inches in diameter. This variety is seldom seen with a single stem. Its natural habit is to throw offsets from the base of the trunk, which, when allowed to grow, add to its attractiveness. Its period of flowering is June, and, while not nearly as fragrant as the Chinese varieties, its immense leaves at the end of the branches and showy cones of seeds render it a highly ornamental tree.

“The *Magnolia Thompsoniana* is one of the most unique and attractive of its species. Anyone who has passed a tree in bloom, or even possessed one of its wonderfully fragrant flowers, becomes enamored of it at once. The *Thompsoniana* is a hybrid of the *glauca* and *tripetala*. It commences to flower near the middle of June, continuing more or less during the summer. It is the rarest as well as the most fragrant of all the Magnolias. It is, however, difficult of propagation. It continues growing until the latter part of September. The young wood does not always ripen well on young plants, and should be protected with straw or mats during the winter, and planted where they will be sheltered from the west and north-west winds.

"The *Magnolia glauca*, or Swamp Laurel, is of low growth, with extremely fragrant flowers and laurel-like leaves. As its name indicates, it is a favorite of moist soils, never succeeding on limestone unless budded on the *acuminata*. Owing to its remarkably bushy growth, and handsome fragrant blossoms, it is extremely valuable as an ornamental shrub.

"The *Magnolia glauca longifolia* is a variety of and similar to the foregoing, but differing from it in being more vigorous, and in its finer foliage.

"The *Magnolia macrophylla*, were it not for its sensitiveness to the cold, would prove one of our most invaluable ornamental trees. It is a native of North Carolina, where it grows very luxuriantly, the flowers and foliage both growing to extreme size. The *macrophylla* is among the rarest of the native Magnolias. It is not hardy as far north as New York in exposed situations. If planted, however, with judgment, in a warm soil and protected situation, it often does well. At any rate it is worthy of a careful trial. We have had it flowering on our grounds for several years.

CHINESE VARIETIES AND THEIR HYBRIDS.

"*Magnolia conspicua* (Chandelier or Yulan). In many respects this is the finest of the Chinese varieties. We have always held it in the greatest esteem, owing to its being the earliest flowering of all the Magnolias, as also for the matchless whiteness of its flowers. If placed in contrast with evergreens or the *Forsythia viridissima*, which begins blooming at nearly the same time, its effect is almost startling. It has aptly been christened "Chandelier," for there is nothing to compare with it in lighting up the landscape of early spring. Its flowers are large, white, and extreme-

ly numerous, often numbering thousands on a single tree.

"*Magnolia Soulangeana*.—This fine variety is a hybrid of the *conspicua* and the *purpurea*. While in general habit it closely resembles the former, it lacks its wonderful effectiveness, owing to the flower being tinged with purple. Coming in blossom, however, a few days later, the flowers are not as liable to injury from late spring frosts in the Northern States. Perhaps the *Soulangeana* has been more disseminated in the United States than any other variety.

"*Magnolia Norbertiana*.—It is also a hybrid between the *conspicua* and the *purpurea*. It differs from the varieties previously mentioned, in its flowers being much darker, and, therefore, we regard it as superior to the *Soulangeana*. This variety is still scarce.

"*Magnolia Lenne*.—The Lenne seems to be closely related to the *Norbertiana*, and is doubtless of a similar parentage. In color it is darker, and in size somewhat larger. It is a decided acquisition.

"*Magnolia speciosa*.—In habit of growth this variety resembles the *Soulangeana*. The flowers are smaller and of a lighter color. They also come into bloom a few days later and continue some days longer than any of the other sorts. It is a remarkably free bloomer. For florists it is the best for cut-flowers.

"*Magnolia obovata* (Chinese purple).—The *obovata* is a charming dwarf variety, hardly ever seen over five or six feet high. It has showy purple flowers, and blooms in the latter part of May or in early June.

"*Magnolia rubra* (Chinese red).—This is a variety of the preceding, of more slender and erect habit, with larger flowers of a deep purple color."

COLORS OF FLOWERS.

BY E. J. HOOPER.

We are all rather at a loss for words to give us an exact idea of floral colors and their various shapes. We are sometimes embarrassed when, walking in a rich and beautiful garden, we are called upon to designate particular colors. We are annoyed the more, too, because colors have for the writer harmonies as ravishing as those of music, because their influence acts powerfully upon his imagination. Horrible discordance in colors in the paper or staining of a room where a man may be imprisoned by sickness, is enough in itself, in some minds, to aggravate the malady. So too the inharmonious disposal of flowering plants in grounds or beds, or where there is too great monotony of colors, is about as great an eyesore to a refined and accurate taste.

One of the most disagreeable things to us in traveling, is the manner in which the apartments of hotels are decorated; yellow curtains and red fringe, chairs with red covers and yellow fringe: these colors, so generally and barbarously brought together by upholsterers, produce with us the most disagreeable impressions. There are, to us, between colors and their shades, discords as strong as those that can possibly exist between certain notes of music. There are assemblages of colors as false as the notes of anyone who had never had a bow in his hand, but took up a violin and scraped away at random. Sometimes, but fortunately very seldom, we meet with women who always appear in green dresses and necks and hats trimmed with yellow; and men who deck themselves in staring purplish red vests and bright blue cravats.

With regard to the correct names of

the colors of certain flowers or insects, we think perhaps that we shall all better understand them by employing the names of many of our precious stones. Most people seem better acquainted with the colors and tints of jewels and minerals, or pearls and corals, than with those of the flowers which surround them. This may be, probably because vanity has attached a singular and excessive value to precious stones, to decorate their persons, neglecting to notice the more common riches which nature has spread with such profusion over the surface of the earth. It is true there are many precious stones which are singularly agreeable to our sight, but there is not one whose colors may not be found upon some flower or insect. Is not the chrysis a living jewel, composed of an emerald and a ruby? Do we know a sapphire so blue as the *Tritelia laxa* of the fields, as brilliant as the *Salvia patens*, or the blue Delphiniums, which flourish in our gardens? Discover if you can among stones the color of the Scarlet Geraniums, and of the red Verbenas, which eclipse even the Geranium. Is there a diamond which has the fire and colors of drops of dew in the sun? Is not a garden a living jewel-case, full of jewels which fly, and others that brightly and gaudily blossom and spread around in addition their perfume?

But precious stones are dear; all the world can not have them, and that is the reason all the world wishes for them. The matter, besides, is not so much to see and possess precious jewels as to exhibit them. We have but to look around us; flowers, birds, and insects have more varied and beautiful colors than they have. Besides, all precious stones are so closely imitated in glass, that few persons can distinguish them.

Many colors have taken their names from certain precious stones. These denominations have not much meaning, but they vary singularly in their shades, and even in their color, as mineralogists will tell us. In flowers, as not in gems, for the purpose of designating color we have a complete gamut, which would be wanting in no tone or the fraction of a tone, and a language exact and well arranged. Some names of colors have been borrowed from flowers; as lilac, violet, amaranth, buttercup, and rose. Also the names of fruit: orange, lemon, plum, apricot, and apple-green.

Flowers present us more than in any other way colors expressed by comparisons to objects most familiar to us, and in addition that of containing in the same order of things and ideas all colors and all possible shades. There are yet numberless shades without names.

Let us take, for example, the least common color among flowers—blue—and let us begin our gamut. Certain Hyacinths will first give us a white scarcely tinged with blue; the Parma Violet is of an extremely pale lapis blue; then comes the blue Geranium of the fields; then the Chinese Wistaria; then the Flax-blossom, and many others. We have no words to express the shades of the Rose. And how can we express the shades of white? There are four trees covered with white blossoms—the Cherry, Plum, Apricot, and Almond. Other trees have white blossoms, but of a different shade.

Language is at least equally poor in its attempts to express scents in flowers. But it must be admitted that nature has not bestowed an equal susceptibility with regard to colors or scents to all persons. There are least as many people with a false sight in colors as with a false ear in music, and some are naturally what is called color-blind.

RAISIN BUSINESS—PLANTING A VINE-YARD.

The raisin business on this coast is bound in time to be a leading one. Better raisin Grapes can not be found in any climate than are produced in California. We have a climate that is also generally very favorable for the drying of raisins out of doors. Last fall was an exception, on account of early rains. The best method of drying appears to be an open question at the present time among viniculturists. Evidently the Alden and other hot-air driers are not the thing. No satisfactory results have been obtained from such processes. It does not do to partially cook the Grape, as Prunes and other fruits are treated by the hot-air driers, and with a lesser heat it takes too long to be economically done. Possibly large chambers may be so arranged with glass roofs that heated air in circulation can greatly assist the sun in the drying of raisins. The best raisins that have been yet produced have been dried in open air and sunlight.

As the Grape is just ripe, it is found to be best to nearly sever the vine bearing the bunches from the main stalk, and let it hang until the Grapes are fully ripe and shriveled before picking them. When the branch is thus treated, the leaves absorb the moisture faster than the main vine can supply the sap, and the Grapes lose much of their water by absorption back through their stems to the leaves. This process seems to mature and concentrate the saccharine of the Grape and hasten the drying.

The best bed to dry Grapes upon is said, by those who have experience, to be fine gravel about four inches thick, upon the dry ground, where sun and air can exercise full power. In locali-

ties where dampness is deposited at night, a shelter of canvas or other convenient material is found to be practical. This may be unrolled over a light frame and rolled back with little trouble.

The way to make the best raisins with the least expense is the question. After they are made, with as little handling as possible, it is quite as important to select the best bunches, cull out all inferior berries, and box carefully for market. Raisins should be assorted into extra, first and second qualities.

We advise the planting of raisin grapes on every farm where they will be likely to do well. The White Muscat of Alexandria is the best variety for raisins. Cuttings should be planted about December. The ground does not require to be deeply plowed. Good, thorough surface cultivation is enough. Cuttings twelve to eighteen inches long, put in with a spade, standing about forty-five degrees, will grow and do well. Two men can soon put in an acre. Mark off the land in perfect squares eight feet each way, so the rows will be straight, and plant with one good bud above the ground. You will be surprised how quickly, easily, and cheaply a vineyard can be planted. Be sure to cultivate the surface soil so as to allow no weeds to grow the first season, and success is almost certain. A bearing vineyard can just as quickly be made from good cuttings as roots.—*California Agriculturist.*

CRANBERRIES IN JAPAN.—A young Japanese, while in the United States, expressed much surprise at seeing Cranberries eaten at the table, and said that in the mountains of Japan they grew very large and beautiful, but are never cooked. Some old man occasionally

goes up to the mountain and picks a long basketful of them, which he brings on his shoulders down to the town. Here the boys gather about him, and for a small coin purchase the right to crowd their pockets with them. And what use do you think they make of this otherwise useless fruit? The boys blow the glowing berries through rattan tubes, as our boys blow beans through tin ones. That's what Cranberries are used for in Japan, where they grow to great perfection.

THE CULTIVATION OF SUMAC.

The Grass Valley *Foot-hill Tidings* draws attention to the fact that the foot-hills and other portions of California offer opportunities for the cultivation of the Sumac-tree. The leaves of this tree are a valuable article of merchandise, being used in the manufacture of leather. Tanning is becoming an important industry in the State, and Sumac contains more tannin or coloring principle than any other known vegetable product. In Europe the best Sumac comes from Sicily, where the climate greatly resembles that of California. It is also grown extensively on this continent, that raised in Virginia being considered the best article. The *Shoe and Leather Reporter* of a late date gives the following as the present market rates for the products for tanning purposes: "Hemlock bark is quoted from \$15 to \$16 per cord or ton; Quercitron, or Black Oak ground bark, \$30 to \$32 per ton. Mimosa bark, which is procured in Australia and in South Africa, is quite noted in the English market at \$40 per ton; while the ground Sumac is quoted in all these markets for from \$70 to \$130 per ton, as per quality or grade." If we are not mistaken, some two or three years ago a

plant supposed to be Sumac was discovered growing wild in San Diego, and samples were sent on to Washington. It was, however, discovered that this, like the supposed wild Coffee, was not the genuine article. But there is no reason why the Sumac-tree may not be cultivated in California, as in Virginia and other Eastern States, with profit to the grower and with advantage to the leather manufacturing industry.

ACACIA TREES.

BY DR. A. KELLOGG.

[Concluded.]

In our zeal for the culture of Australian Gums and the other foreign timber-trees, let us not undervalue our own. Even prophets, as the proverb of wisdom hath it, are not without honor save in their own country.

Among Acacias, our native Locust-tree (*Robinia Pseudo-Acacia*) must still stand at the head of the list, for the following, among many reasons:

For ship-building it is found to be superior to Oak, Ash, or Elm; and for posts and rails, wet or dry, near the ground, it equals Cedar. It is of rapid growth, and, once established, is self-perpetuating. Gracefully ornamental in foliage or flowers, the former a light loose horizontal spray most delicately soft, gauzy, feminine, which never fails to grace lawn or copse, countenancing the grass and herbage, which thrives beneath its shade; with chaste white flowers, drooping like clusters of the Virgin's Bower, and fragrant withal. In point of taste it pleasingly contrasts with the more sombre Cypress, or deep-green foliage of Firs and Pines.

Besides, it grows well on any shallow sandy and gravelly soils, where Oak and many other good timber-trees will not

thrive; and on good soils, tested with Oak, Ash, Elm, Maple, etc., surpasses them all. On gulches and drainage-washes, creek-banks, rivers, etc., it is prone to shoot up groves of suckers from interlaced root-runners, that fix such soils well, and so check the incursions and wear and tear of streams and occasional freshets; meanwhile furnishing the best of browsing scrub, timber, fuel, stakes, everlasting (?) hop-poles, etc. One of these suckers has been known to grow twenty feet high in a single season, and measure three inches in circumference, by authoritative measurement. In this respect its growth is quite equal to the Lombardy Poplar, that so often cumbers the ground, or the comparatively useless Willow. All this, mind, is mere underwood; for there is no poisonous drip, that kills most vegetation, from these trees. At the same time the proper timber-growth for ships' knees, floor-timbers, foot-hooks, and straight-grained trunk for pins, or treenails (trunnels, for short, as they are called), go steadily on prospering toward a never-failing market, for there is no end to the demand. Even the best Oak tillers are known to break sometimes near the head of the rudder in a gale; yet this has never happened with the Locust. This timber, though soft and brittle when young and green, is nevertheless very hard, tough, and elastic when of proper age, grown in open exposures, and well-seasoned. Tillers of all seagoing vessels at the East are now made of the Locust.

To prepare the hard-coated seeds, pour on boiling water and let it stand a day, then pour off the water and select out all the seed that are swelled; pour on boiling water again, and after standing a day pour off and select the swelled seed as before; then repeat. Plant

in drills four feet apart; in eight to ten days they will come up as regularly as Beans or any other garden seed.

All timber-trees should by no means be mutilated at all at the roots.

We have not spoken of these trees for hedges, but they bear clipping, and when woven readily graft or coalesce at the point of contact, and soon give a solid wall of twelve to thirteen feet high, and make good substantial wind-breaks, etc.

Acacia mollissima, or Very-soft *Acacia*, is a tree here of fifteen to twenty feet in height, of somewhat rounded form; the foliage of a soft green hue; branches and leaf-stems angular, pubescent; leaves of eight to ten pairs of wing divisions, each bearing thirty to forty pairs of linear much-crowded pubescent leaflets, a gland between each pair of pinnæ; heads of flowers on stemlets disposed in racemes along the auxiliary flower-stems, and so presenting one vast mass of fragrant golden blossoms, which magnanimously cheer the winter months of California. The bark is valuable for tanning, and the gum for food. Unlike the "Black-wood *Acacia*" (*A. melanoxylon*) it requires some pruning, or to be sheltered from the force of high winds. The same may be said of *A. floribunda*, or Bundle-flowered *Acacia*; (Syn. *fragrans*—perhaps some may consider *retinoides* the true name). Without extending this article through the great family, we can only briefly say, this tree is one of the most desirable because a perpetual bloomer. Like those of superabounding humor, who sweetly scatter flowers along life's social circles, so this charming tree carries onward the summer joy and the songs of flowers into autumn brown and sear; indeed, encircling forever with a golden garland of fragrant flowers Time's rolling years.

LIQUID MANURE FOR POT-PLANTS.

The beneficial results obtained from manure water, when judiciously applied to fruiting and flowering plants, have long been recognized by cultivators; and its use is now becoming more general. It is well known that the roots of plants are more healthy when growing in pure soil free from rank manure, and that these roots will draw more healthy nourishment to the plants from manure given in a liquid state, than when they are incased in rank material which they can not consume. We know that our most successful Grape-growers use very little solid manure in the soil—only a few bones or bone meal, or similar material, which can not give off more stimulant than the plants can consume. These will remain much longer in the soil than manure, which dissolves rapidly, and continue their action as a fertilizer to the end.

The successful florist has more faith in giving stimulants when the plant really needs them, than in keeping the roots buried in soil made rich and almost offensive by strong manure. When roots are few and the plants almost at rest, the purer the soil and the less stimulant the plants receive, the better will they thrive when their roots come to draw up larger supplies of nourishment. Moisture is needed to soften the soil and to allow the roots to extract nourishment from it; but when all the virtue is out of the earth, and the plants begin to show signs of distress, all the watering in the world will not give vigor to the exhausted functions. But let a portion of guano or any well prepared manure be mixed with the water sufficient to color it, and let this be repeated at every watering instead of giving a much stronger dose at long-

er intervals, and the result will be most satisfactory. We have tried a number of experiments this season with liquid manure, and all lead us to have faith in the application of it, at every watering, in a weakly state.

A number of old Fuchsias were stunted and pot-bound, but pressure of more important matters prevented our potting them into fresh earth; but to each watering a coloring of guano was allowed, and the plants with their pot-bound roots have not only made vigorous growth but flowered freely from June until November. Some Pelargoniums, which were cut down last season and allowed to break in the usual way, were shaken out of the pots and placed in smaller ones, but, when they should have been shifted, they were allowed to remain in the small pots, which were crammed with roots. Guano water was given at all times when they required moisture, and the plants grew and made fine foliage, and flowered better than the others which were favored with larger pots and fresh soil. We could give many other examples to prove that giving liquid manure frequently, and not until roots are in abundance to consume it, is the proper way to deal with this important assistant to cultivation.—*Florist*.

ORIGIN OF PLANTS.—Cabbages grew wild in Siberia; Buckwheat originated in Siberia; Celery originated in Germany; the Potato is a native of Peru; the Onion originated in Egypt; Tobacco is a native of South America; Millet was first known in India; the Nettle is a native of Europe; the Citron is a native of Asia; Oats originated in North Africa; Rye came originally from Siberia; Parsley was first known in Sardinia; the Parsnip is a native of Arabia;

the Sunflower was brought from Peru; Spinach was first cultivated in Arabia; the Pear and Apple are from Europe; the Horse-chestnut is a native of Thibet; the Cucumber came from the East Indies; the Quince came from the Island of Crete; the Radish is a native of China and Japan; the Pear is supposed to be of Egyptian origin; the Horseradish came from the south of Europe.

SOME GOOD ROSES.

BY F. A. MILLER.

[Continued.]

There are some other very excellent Roses, besides those already mentioned, which are profuse and nearly constant bloomers, but they seem to do much better in one locality than in another; and again there are other and newer sorts, which promise fairly to establish a reputation as constant bloomers, but are not sufficiently tested to be placed side by side with those mentioned. These, together with some older sorts, form a most extensive group of most desirable Roses of excellent blooming quality.

Beauty of Waltham, very crimson; Duchess of Norfolk, bright crimson; Géant de Batailles, purple scarlet (an old favorite); John Hopper, rose and crimson (also an old and very popular Rose); Jean Bart, velvet crimson; Lord Raglan, velvet crimson; Louis Odier, bright rose; Madame Laffay, rosy crimson; Maréchal Vaillant, reddish purple; Peter Lawson, deep scarlet; are some of the Hybrid Perpetuals which bloom throughout the summer season, and will under favorable circumstances produce a few flowers during our winter months.

Auguste Vacher, white, straw centre; Catharine Mermet, light flesh; Isabella

Sprunt, beautiful yellow Rose; Marie, copper; La Quintinie, rose; Souvenir d'un Ami, salmon and rose; Souvenir d'Elise Varden, white, yellow centre; Regulus, coppery rose; all of which are free-blooming Tea Roses, and are nearly constant during a mild winter. To this, however, I would certainly add a few, which are of a more recent introduction and seem very prominent: Bon Silene, Bougere, Marie Sisley, canary; Gloire de Dijon (old but scarce), Comtesse de la Bath, a most exquisite Rose, lately introduced here.

Souvenir de Malmaison, blush; Docteur Berthet, dark crimson; George Peobody, purple crimson; and Louise Margottin, light rose, are free-blooming Bourbon Roses, and continue in bloom during the greatest part of the year.

Of the Bengal (or Daily) Roses, Citizen des Beaux Mondes, Hermet, Madame Brean, Madeline and Prince Charles should be in every collection of Roses; they produce flowers profusely and nearly constant.

To this already rather extensive list, I may safely add the following Noisettes: Amie Vibert, pure white; Ophir, buff; Fellenberg, crimson; and Jaune Desprez, rosy buff.

The yellow and white Banksias also deserve a place in every garden; they are rapid evergreen climbers, and most excellent winter-flowering varieties.

The next point in the selection of Roses should be color. If only a few varieties are planted, certainly the colors should be very distinct and decided. To select colors from the descriptive catalogues is not always satisfactory, inasmuch as the terms used in them are much more decided than the colors are in reality.

Of the Hybrid Perpetuals, the following twelve are, in my opinion, the

most contrasting, and comprise the leading colors:

Mad'le Bonnaire, pure white.

Madame Vidot, satin blush.

Madame Rivers, pale flesh.

Jules Margottin, bright cherry.

John Hopper, rose and crimson.

La Brilliant, clear carmine.

Lord Raglan, violet crimson.

Gloire de France, deep red.

Géant de Batailles, purple scarlet.

Eugene Appert, brilliant crimson.

Black Prince, dark crimson.

Emperor de Maroc, very dark velvety crimson.

Of Tea Roses I would select the following as the most contrasting:

Devoniensis, creamy white.

Souvenir d'Elise Varden, white, yellow centre.

Isabella Sprunt, beautiful yellow.

Catharine Mermet, light flesh.

Duc de Magenta, bright rose.

Regulus, coppery rose.

Safrano, apricot to buff.

La Sylphide, flesh to pink.

Gerard Desbois, bright red.

Of the Daily (China) Roses I can recommend the following as the most decided colors:

Daily White, pure white.

Mrs. Bosanquet, clear flesh.

Madam Brean, fine rose.

Madeline, bright cherry.

Citizen des Beaux Mondes, carmine to crimson.

Hermet, deep crimson.

Agrippina, brilliant red.

To these I would add a few of the Noisettes and miscellaneous Roses, such as:

La Marque, pure white.

Cloth of Gold, sulphur yellow.

Maréchal Neil, deep yellow.

Fellenberg, rosy crimson.

Persian Yellow, rich golden yellow.

Prairie Queen, rosy.

HARDY CLIMBING PLANTS.

There are two classes of climbing plants—those which are strong growers with large heavy foliage, and those of more delicate foliage, and of more delicate growth. The first are suitable for covering the ends of buildings, blank walls, and arbors; the second are more suitable for piazzas, verandas, and similar positions. For brick or stone walls, unfurnished with training-rods or lattice-work, the best climbers are Ivy, Virginian Creeper, and the Bignonia or Trumpet Creeper. These throw out rootlets from their stems and branches, and thus they attach themselves to the wall against which they are planted or trained. They are especially useful for covering brick or stone walls, as the walls defend them from the action of the weather; but are not so useful for covering wooden walls, because they must be torn off, to their great injury, when the walls require painting.

Of Ivies, the best for the purpose of covering walls is the *Hedera canariensis* or Irish Ivy, which has large foliage and is a rapid grower. *H. Rægnieriana* has, also, very large foliage; while *H. helix*, the English Ivy, has small foliage. There are many varieties of Ivy with variegated foliage, but mostly delicate growers—except *H. marmorata* (or *H. latifolia maculata* of some catalogues), the foliage of which is large and beautifully marbled.

The *Ampelopsis* (*A. hederifolia*) or Virginian Creeper, is well known. It is not evergreen as are the Ivies, but sheds its leaves in autumn. These, for some time before they fall, are of a beautiful scarlet or crimson color. *Ampelopsis* is not nearly so much planted as it should be.

The *Bignonia* (*Tecoma*), or Trumpet Creeper, has lighter foliage than the Ivy

or *Ampelopsis*, but the flowers are very beautiful. The species are: *T. radicans*, with reddish-orange flowers, and *T. grandiflora*, with orange-yellow flowers.

Aristolochia siphon, or Dutchman's Pipe (so called from the curious shape of the flowers), although an old inhabitant of our gardens, is seldom seen. It is a free-growing plant, with very large, striking foliage, and is very suitable for planting against and training up the columns or open-work pilasters of a piazza. There are two other hardy climbing species—*A. tomentosa*, and *A. ficifolia*—which have smaller foliage, and are not as strong growers as the first-named. They all require to be trained up, as they do not themselves take hold of the walls or other supports as do the Ivies, the *Ampelopsis* and the Bignonias.

The *Wistaria* is a well-known climber, and is admirably adapted for training up a blank wall or along the frieze of a piazza. There are now several species and varieties to be found in the nurseries besides the common Chinese purple. The best of them are the Chinese white, the long-racemed, the double-flowered, the Japanese white, and Magnifica. The Chinese white is not as strong a grower as the purple. It produces a beautiful effect when grafted into the purple variety or trained with it. The long-racemed variety is from Japan. It is a profuse bloomer, and produces racemes of flowers from two to three feet long. The double-flowered has very double dark purple flowers, but they are not produced in such numbers on the racemes as are those of the single-flowered varieties. The Japanese white is a profuse bloomer, producing large racemes of pure white flowers; it is an earlier bloomer than the Chinese white. Magnifica is a

strong-growing variety, with large-shouldered racemes; the individual flowers are very large, and of a deep purple. It is a very beautiful variety. Wistarias should be trained on No. 12 or 14 wire, well fastened—the hold-fasts being set three or four inches from the wall—and stretched taut by such means as are used for tightening buck-saws.

For cottages, or small piazzas, verandas, and porches, the lighter and delicate-growing vines are more suitable and appropriate. Honeysuckles, Akebia, and Clematises are best adapted to this purpose. Running Roses do not succeed so well in such warm exposures as when planted in the free air and trained to pillars made for the purpose. They are also liable to the attacks of insects which greatly disfigure them, and would thus give a neglected, slovenly look to the veranda, were they trained against it. The climbers here recommended are nearly, if not entirely, free from the attacks of insects.

Of Honeysuckles, the Chinese, the Golden-leaved, and Halliana are the best adapted for the purpose of which we speak. The well-known Red and the Yellow Trumpet Honeysuckles are also excellent in shady situations; but the Belgian, the Monthly, and most of the other sorts require cooler and more moist situations than are likely to be found in close proximity to a dwelling. *Akebia quinata* has digitate leaves, from two to three inches across, which remain on the plant far into the winter. It is a rapid grower when established, and produces a profusion of curiously shaped chocolate-purple flowers, of a very peculiar but not disagreeable odor. It is perfectly hardy, and is to be highly recommended for this purpose.

The varieties of Clematis have been so largely increased within the past few

years, that it is almost impossible to say which are the best. But few of them have ligneous or truly woody stems, and of these, the hardiest and best two are *C. Virginiana*, a native species, and *C. apiifolia*, a Japanese species. Both have white flowers, produced in July and August, and are rapid, strong growers. The varieties of Clematis that produce their flowers on shoots of the same year's growth are too many to be here enumerated. Many of them have flowers, five, six, and seven inches in diameter, and of almost all shades of color. Some are pure white, some of different shades of blue, purple, mauve, crimson, and violet. The following, among the leading sorts, are easily grown in any good soil; preferring a rich loam and to be well mulched with manure:

Jackmanni, of free growth; flowers intense violet-purple, abundantly produced from July to October. *Lanuginosa nivea*, similar in habit and growth to the preceding; flowers, pure white; a constant bloomer from June to October. *Rubella*, similar in habit and growth to the first; flowers large, of a deep claret color, freely produced from July to October. *Rubra violacea*, like the preceding, but having the flowers maroon-purple, flushed with reddish-violet.

Great attention has been paid of late years, in England, to this family of plants, and a work especially published about them. In this country, Messrs. S. B. Parsons & Sons, of Flushing, N. Y.; T. C. Maxwell & Brothers, of Geneva, N. Y., and Mr. John Saul, of Washington, D. C., have paid special attention to them, and have all the leading varieties. They are a lovely class of plants, and we can not too highly recommend their cultivation.—*American Garden*.

FLORICULTURE.

BY AN AMATEUR.

Gardening is founded on natural philosophy, and the smallest economical principle in its theoretical study, of course, initiates the mind into the nature and truth of the practical culture of flowers, and we can discover the habits of those plants we wish to cultivate with success. Where nature has not endowed the mind with a taste for the physiological principles of Floriculture, it is time almost lost to endeavor to acquire it.

“What then is taste, but those internal powers, Active and strong, and feelingly alive
To each fine impulse? a discerning sense
Of decent and sublime, with quick disgust
From things deformed, or disarranged, or gross
In species? This, nor gems, nor stores of gold
Nor purple state, nor culture can bestow:
But God alone, when first his active hand
Imprints the sacred bias of the soul.”

Where taste really does exist, there is a pleasure bestowed on the mind which serves to benefit our lives greatly; more than is apparent to the common observer. This will not appear strange when we reflect on the solace the mind undergoes at leisure moments, even to the business man, or housewife. The evenness created in the temper, the pleasurable change experienced after the pursuits of business or labor, tend to create in the mind that which it stands in need of, a blissful feeling, an incentive that keeps the body in health and vigor. The time in the occupation of gardening, after the business of the day is over, if not then passed, would be likely to be employed in some perhaps injurious luxuries, or some merely temporary pleasure, which would only debilitate the mind and constitution.

That department of gardening which relates to the culture of plants is not of difficult management, and does not re-

quire the skill so generally supposed necessary to be bestowed on them. Many plants are killed by over-kindness, when it should be borne in mind that they, like the human family, require a state of rest; therefore they should not be kept constantly in a growing state, though it is not always easy to perfectly prevent this in our stimulating climate and soil.

For instance, a person deprived of his natural rest becomes eventually unfit for his vocation; not only that, he must live regularly, or he will never be vigorous or of a healthful habit. Plants are living things in some sense. Nature has not endowed them with speech, it is true; still, by watching them closely, there are such signs in their appearance, if not treated correctly in their habits, as will convince the cultivator that a different system must be adopted. Therefore to come as near nature as possible, our understanding should teach us that plants in pots should be repotted into fresh soil in their season—that is, when in a state of rest—and be watered only when growing, to make them healthy, and the soil should, as nearly as, we can possibly find be such as suits their natural habits. By doing this we make them healthy, and in a fit condition to perform the functions so desirable in them to flower at all. This is the business of the amateur to see to, and it may be considered their food and rest, without which no science in gardening can prosper.

Gardening, as an amusement, is certainly one of the most pleasing of recreations, possessing much novelty, creating a pleasant enthusiasm, and is such food for the mind as softens the passions, improves the understanding, and adds many moments of happiness to that existence which our Maker has blessed us with. The mind is filled

with a pleasing excitement in the attainment of a new plant, thus giving to science an opportunity of still further increasing pleasures that are most beneficial and therefore desirable. The diffusion of a useful knowledge in gardening is also communicative from one person to another, making our condition as rational beings more elevated, and developing our ideas as they expand, and is more influential in the path of life, even to the most humble attainment in vegetable physiology.

There has been, in many works published, a mystery upheld on the subject of gardening and the propagation of plants. For what reason, may it be asked, has this dogmatical system predominated so long? This can not be answered, unless it be argued that the whole system has been confined too much to certain classes of men, who, instead of endeavoring to create a taste for flowers, have been studious to conceal their knowledge, and thus to check Floriculture; unmindful at the same time that the more converts gained to the system of gardening the more plants would be sold by them. I am happy to say, that now the knowledge of their cultivation is becoming better diffused; indeed, the whole art is in a state of rapid revolution. We can not turn to any place but we see some of the most beautiful gems of Flora almost at every home. This is as it should be. Ladies will find a solace to their minds in their leisure hours, that could not be better employed.

In regard to gardeners in general, in this country, most of them are self-taught, and this reflection on this particular subject ought alone to convince those who have a natural taste for the science, that the art is attainable. This will better encourage all persons to cultivate flowers.

The Scotch gardeners are considered the best in Europe. We seldom find an English gardener on his arrival in this country, capable of conducting greenhouse as it should be conducted. This leads a person to suppose that those *exotics* are only employed in the drudgery of weeding in their native country, and when here wish to pass for *bona fide* gardeners. Indeed, even most of the experienced English gardeners find their knowledge of cultivation in this country deficient, as the difference of climate and soil varies materially from what they have been accustomed to. But a scientific man will soon discover the difference and alter his mode, if not too old in his fixed principles or prejudices.

There are other sciences attached to gardening that help to make the system more complete, which are understood but partially in practice, and not at all in theory. I allude to Botany—that part that relates to plants; it is a branch that ought to be studied, as it leads the mind to a thorough knowledge of the distinct species of plants, their properties, sexes, order, and indeed the whole system. The ground-work of this science leads the mind to a knowledge of many important particulars in relation to flowers. To know how to anatomize flowers is particularly interesting to the cultivator, though not absolutely necessary. It is obvious that this study tends to refinement, and its knowledge is essential to the mind; the materials thus created attract friends, who seek for information. Thus we find a pleasure in diffusing the usefulness we may attain by study.

There are but few *florists* that are *botanists*. This may appear strange, but it is an incontrovertible fact. Both pursuits may be studied in leisure moments without interfering with each

other; and if florists understood the fundamental principles of Botany many errors could be avoided or corrected that are now existing, as the practical botanist is sometimes arbitrary in his rules, which are out of the power of the theoretic florist to correct.

Chemistry is another branch highly essential to the art of gardening, which will be understood better before many years elapse. The farmers will find it necessary to know the *quality of the soil they make use of, to insure success* in this business, as well as the practical gardener.

It is not my object to crowd the mind of the young amateur in the art of gardening, or its requisites; for it is simple, and can be carried on without understanding all the theories of Botany or chemistry. I only wish to point out the great *desideratum* of a valuable acquisition to the mind, if these theories could be attained. Educated to these sciences, the mind would be elevated above the condition that falls to the lot of practical gardeners, and the field of science would be open to discover things that are not now contemplated by them.

“WOODS.”

FROM A LECTURE BY PROFESSOR BESSEY, OF
THE IOWA AGRICULTURAL COLLEGE.

Few objects in nature are of more interest than trees; not only to the naturalist, who sees in this masterpiece of nature a complicated machine, pumping up sap in great quantities, and evaporating it from the myriads of breathing pores in the leaf, and pushing its roots far down into the soil, but also to the merchant, who sees in it a material that is essential to the manufacture of many indispensable articles. Not only do trees attain a size far surpassing that of

any other living thing, but the age they sometimes reach is almost inconceivable. Think of the Big Trees of Calaveras being alive 3,100 years ago, when the names of Homer's characters were familiar sounds. Or of the Dragon-tree, on the Island of Teneriffe, which died in 1867, after standing 5,000 years. When Moses was writing the *Pentateuch* this tree had been alive for more than 1,000 years; when the Big Trees of California were seedlings, it had seen centuries; when Rome was in its glory this Dragon-tree had passed its prime. Thus it was the only living link connecting pre-historic with modern times.

The lecture will not consider this branch of the subject, but will refer to trees having a commercial value. Among the many useful products of trees—food, medicine, balsam, gum, timber, etc.—the latter is most valued by us. Timber is divided into two kinds—soft and hard. In the former class are the different varieties of the cone-bearing family, and Poplars, Cottonwood, Lindens, etc. In the latter are the Oaks, Walnut, Hickory, Elms, Maples, Laurels, and others.

The cone-bearing are the most valuable for soft-wood timber, and almost all countries north of the equator have some representatives of this important family, while south of it these trees are replaced by other families, such as the Gum-trees of Australia and the Norfolk Island Pine. Europe is furnished with soft wood for many purposes by the Scotch Fir, which grows to the height of from seventy-five to one hundred feet in the mountainous parts of central Europe. It also occurs abundantly in the northern part of both Europe and Asia. The White Pine, that formerly covered immense tracts of the northern United States, and that still forms large forests, is useful for the

same purposes as the Scotch Fir. It grows much higher than its Scotch relative, often reaching a height of from two hundred to two hundred and fifty feet, but it is of small diameter, seldom more than three and a half to four and a half feet. The Yellow Pine, a tree of less than a hundred feet in height, takes the place of the White Pine in the South Atlantic States, growing there extensively, especially in Georgia and South Carolina. Its wood is heavy, dense, and full of sap, and becomes very hard when thoroughly dry. This makes it valuable for flooring, and for this purpose large quantities are sent to the Northern States, and even to California. Many thousand feet were brought to San Francisco to be used as flooring in the Palace Hotel.

The Sugar Pine is a California tree that furnishes to the West what the White Pine does to the North, the Yellow Pine to the South, and the Scotch Fir to Europe. We thus see that these similar trees supply the same need in the different parts of the northern hemisphere. The Sugar Pine is a very close relative of the White Pine, and differs from it only in size, being much larger. On account of the lightness and strength of the wood, of its having no tendency to warp, and its taking paint well, it is used for doors and window-frames; and but for the fact that there are other varieties of the cone-bearers here, would be as universally used as its relative in the Eastern States. The Redwood, a species of Cypress, is the lumber-tree of California. It is peculiar to this coast, and is restricted even here. Professor Gray, from fossils found in the Northern States, has concluded that the Redwoods are the remnants of a former gigantic race that covered a large part of the country. They are a dying race, that have for some reasons survived

longer in this State than elsewhere. The Douglas Spruce, found in the Rocky Mountains and in California, has been found to be more serviceable for railroad ties, sidewalks, and for other purposes, than other soft wood. The Oregon Pine, one of the most valuable woods on this coast, is firm, strong, and elastic, and has been proved to be as useful for ship-building as hard woods. As the wood is much lighter than the hard woods, the same weight of cargo does not sink these ships as deep into the water as Oak-built vessels. And, as the wood is very elastic, the masts and spars, although bent by a heavy press of sail for a long time, spring back to place when the pressure ceases.

There are other varieties of cone-bearing trees in California, but as their properties have never been thoroughly investigated, they have no market value. The foregoing are the only soft-wood trees of value in California, but they replace all the soft timber of the Eastern States, except that of the Tulip-tree or Yellow Poplar.

The Oaks are the most important of the hard woods, as the Pines are of the soft. The British Oak is known in every part of the world which English ships visit, and probably much of the efficiency of the British navy is owing to the abundant supply of this wood. Its value was understood many years ago, and plantations were set out, so that many ships now sailing are made from Oak planted in these places. The only American Oak of much value for ship-building is the Live-oak of the Southern States; and as this occurs south of the places where ships are built, inferior woods have been substituted.

California has no equal of the British Oak. For the common Evergreen Oak, such as occurs in Alameda County, no

use has as yet been found. The Tanbark Oak, which was long considered useless as a timber-tree, has been found to become, after proper preparation, a hard, tough wood, suitable for making wagons, agricultural implements, etc. The history of this one tree should incite a study of the properties of the trees now considered useless. The Cañon Oak, found in the cañons of the California mountains, is useful for ship-building, and resembles the British Oak. We can conclude, from a study of the woods and uses to which they are applied in one part of the world, what woods would be used in another place for the same purpose. Thus a study of English woods and their uses would indicate that similar woods would be used for similar purposes in other parts of the world.

There are many other varieties of hard woods. The Walnuts, of which one species is found in California, furnish useful timber; the Black Walnut especially. The Hickory, white, tough, and heavy, is used where great strength is required in a small space, but, as it is subject to attacks from insects, it can not be used for pillars. The Elm, Ash, and Maple belong to the Eastern States; one species of the latter, however, being found on this coast. The Laurel, which is coming into extensive use as an ornamental wood, is peculiar to this State. The Mexican hard woods, White Mahogany, Rosewood, Ebony, etc., will probably be largely used before long.

These few facts have been thrown together to incite the hearers to properly investigate and study the wood of trees now considered useless, with a view to their supplying the place of timber yet lacking on this coast, and enabling them thus to contribute to the wealth and prosperity of California,

CHINESE FRUITS.

BY DR. A. KELLOGG.

LONG-YEN AND LI-TCHI.—Many Chinese fruits are well adapted to California, especially the sheltered southern and middle portion of the State.

Among these are "Long-gan" or "Long-yen" (*Dimocarpus Longan* and *D. Li-tchi*). Both species are trees, but there are many varieties cultivated in southern China and the East Indian Islands. They differ in the quality of the flesh and time of ripening; also, in the shape of the fruit, some being globular like the Li-tchi so common on the Chinese fruit-stands of San Francisco; others are heart-shaped, or oblong, but nearly of the same size. Long-yen is also medicinal.

The twigs are thick and gross like the Fig, leaves oddly pinnatifid like the Walnut. The fruit is produced in long loose racemes or clusters, somewhat like an open bunch of very large Grapes, usually red when ripe. In one species it continues green. Both Li-tchi and Long-yen are of a uniform light-brown color as they appear sun-dried or oven-dried in our market. In the recent or fresh state it has a leathery coat, rather thin, and inside is a semi-transparent substance with a dark-brown seed in the centre. The flavor of the pulp is slightly sweet, subacid, and particularly pleasant to the taste in a warm climate. It should be remarked that when dried the pulp is shriveled and reduced to half its usual size. It is eaten with tea, and has a rich taste when well preserved. By the buckle-like or truffle markings of the cinnamon-brown surface, and thin brittle bladder-like shell, anyone will easily recognize it.

The trees bear fruit much sooner when raised from cuttings—if from seed eight or nine years are required,

whereas from cuttings only three or four years.

The best authorities now place these under the earlier Genus *Nephelium*—*N. cappaceum*, one of the most ornamental and wholesome.

CHINA PEACHES.—Some varieties grow to the height of forty to fifty feet, with fruit of great size. Marco Polo saw a Peach in the District of Cang-chew that weighed two pounds. In general the larger sorts are considered to be of inferior flavor, although some Peaches in the Emperor's District are said to be as exquisite and meltingly delicious as the best European. The gardeners have the secret art of preserving the fruit gathered in October until January, as nice in flesh and flavor and as smooth as in the fresh state. It should be noted that in China Peaches are budded upon stocks raised from seed or pits of the choicest varieties. The flat variety flowers in autumn, ripens very early, and with California excess of winter sun would do well.

GERMINATING SEEDS OF LOCUST-TREES.—

A correspondent of the *Scientific American* says: "The seed of the common Locust-tree will not only stand the temperature of boiling water, but will always fail to grow unless boiled for eight or ten minutes. My father planted about 15,000 seeds of the common Locust on four acres of land, and only about fifty seeds germinated. We now boil them for ten minutes, or place them in cold water and allow it to come to a boil, and remove them three minutes afterward. These seeds will grow finely after a large brush-pile has been burned over them. These are facts, occurring every year, to my personal knowledge."

ORANGE CULTURE AND THE HAWAIIAN ISLANDS.

The proposition to admit Hawaiian fruit into the United States free of duty has created considerable alarm among the Orange culturists of Southern California. The Chamber of Commerce of Los Angeles has formally memorialized Congress against entering into a treaty which may contemplate any such result, alleging that it would be a death-blow to one of the most important industries in that portion of the State—Orange culture. There is really no cause for alarm on any such score. It may be interesting to the Orange culturists of California to learn that the Hawaiian Islands have not been exporters of Oranges for many years, and they have ceased to produce more than enough for their own consumption. If we are correctly informed, the Orange-groves of Hawaii have long ago been almost annihilated by the very same pest which is now threatening the Orange-groves of southern California with destruction—the obnoxious scale-bug or Orange *coccus*. The Orange culturists of southern California have much more cause for alarm in the growing depredations of this insect than they have from any probable competition with the Hawaiian Islands. The disagreeable stain with which the rind of Los Angeles Oranges is covered has been so marked, during late years, that a good deal of the fruit is no longer presentable in the condition in which it is shipped to market. If the evil is one which can not be remedied, then it is a misfortune much to be deplored; but if it is owing to a want of care and to inefficient culture, the sooner Orange culturists set about correcting it the better. We would call attention to another thing in this connection. During the last two

seasons the native Orange crops have been large, but there has been a corresponding decrease in the size of the fruit. Complaints are thick on this account, especially from consumers in the remote sections of the interior. The diminutiveness of Los Angeles Oranges this year is such as to materially injure their market value, and, instead of commanding the top price at which this description of semi-tropical fruit is now selling here, it is difficult to dispose of it at second or third rate prices. The remedy is in the hands of the growers themselves. Instead of allowing the trees to carry more fruit than they can nourish, thinning out will have to be resorted to, so that what is left on the trees may attain full growth. There is perhaps as much danger to the Orange culturist's business from this cause as there is from the ravages of the scale-bug, and much more than there possibly can be from the competition of a country that is now almost a non-producer of Oranges.—*Bulletin.*

DIGGING AND MANURING ABOUT FRUIT TREES.

Where I first began my gardening career, it so happened that a change of gardeners took place; the new-comer being a very energetic man. Finding the out-door fruit-trees in a bad condition, he set us at once to work removing all the old soil out of a Peach border to the depth of about two feet, the border being about 150 by 12—commencing at the front and working the soil out behind us to be taken away, with the exception of about a foot and a half of the surface soil, which was mixed with the new, for placing on the surface again. The border contained only poor, light soil, with a yellow, stiff, and also poor

rocky subsoil, through which the roots were trying to penetrate; hence the starved condition of the trees. Proceeding with our work, we carefully preserved all the roots, both good and bad, until we had worked all the soil out with forks, keeping the desired depth, which allowed the soil to fall from among the roots with greater facility. After the old soil was removed, it was replaced by turf, cut some months previous from a meadow, mixed with a little dung (not leaf-mold) taken from a farm-yard. When we came up to the level for the roots to be laid down, we spread them openly and evenly, leaving only the best, which were very few for such large trees. We then put the same compost above the roots, treading the whole firmly, and lastly the old fine soil on the top, which completed the task. The following spring the trees broke out with renewed vigor, looking all that could be desired, but I did not remain to see the first year's crop. However, on paying my late master a visit last year, he informed me that they were now all he desired, producing heavy crops of the finest and best-flavored fruit.—*A Young Gardener.*

INDIA-RUBBER-TREE IN CALIFORNIA.—
J. P. Rowe, writing to the *California Agriculturist*, gives the following information: In answer to one of your correspondents who inquired some time ago about India-rubber-trees, I wish to inform him that they grow as easily here in California, as the Blue Gum and Pepper-trees. Here are the statistics of one grown at Captain Wilcox's town residence, San Diego: Age, two years; height, seven feet eight inches; circumference, five inches. It has been in the garden twenty months, and during that time it has grown seven feet.

Editorial Portfolio.

OUR FRONTISPIECE.

Our number this month is embellished with cuts of three favorite garden flowers—the *Gladiolus*, the *Tuberose*, and the *Tritoma uvaria*—for which we are again indebted to that eminent, indefatigable, and popular florist, James Vick, Esq., of Rochester, N. Y. These flowers are all pretty well known, and therefore require no long description; besides, we have before written upon their character and cultivation in previous volumes of the *HORTICULTURIST*.

The *Gladiolus* is the most beautiful and showy of our bulbs, being of almost every desirable color—brilliant scarlet, crimson, creamy white, striped, blotched, and spotted in the most curious and interesting manner. There is no other country in the world where the *Gladiolus*, and indeed nearly all other flowers, thrives so well as in California—at any rate for such a length of time in the year.

The *Tuberose* is a beautiful, pure white, wax-like, very sweet-scented double flower, growing on stems three feet high, each stem bearing a dozen or more flowers. Our cut is much reduced in size, but gives a good idea of its appearance when in blossom.

The *Tritoma uvaria* is a stately vigorous plant, sending up its strong flower-stems five or six feet in height, surmounted by a curious spike of red and orange pendent flowers, a foot in length. It is very striking and brilliant in color, and is very conspicuous and gay in our gardens in California in the winter and spring, at a time when we have the fewest plants in flower.

OAK timbers with their ends encased in cork have lasted 600 years.

VISIT TO F. LUDEMANN & CO.'S NURSERY.

The grounds and plant-houses at this establishment are quite extensive, and comprise the cultivation of everything in this line that can be required by the public. There are some things that of necessity must run out some years, or at least nearly so, for there are manias or fashions for the demand of particular plants and flowers at one period or season more than another, just as there is for certain articles in the fancy hat, ribbon, artificial flower, or dress business.

Most of our best florists have their specialties. F. Lüdemann & Co. have just now in this respect Pansies and Orchids. Some of the seedlings of the first genus of plants are very beautiful, distinct, and rare. They are of all colors and marking; some of a velvety black, dark purple, maroon, etc., with white or yellow borders and brilliant golden eyes, relieved above or below with white or ultra-marine tints, showing splendidly in the sunlight. Some of them are striped or mottled some handsomely or curiously. In fact there is an almost endless variety of them. They are raised from imported German seed.

This firm has just received a large importation of new Orchids from Guatemala. They comprise forty varieties, and from three to four thousand plants. Among them are *Casleya Skinnerii*, *Odontoglossum grandis*, *Lælia superba*, *Lælia acuminata*, *Epidendron mocoolum*, *Epidendron Stamfordiana*, *Lycosta Skinnerii*, *Epidendron Cnemidophora*, *Odontoglossum pulcherrima*, and *Stanhopia* in varieties. The *Orchidaceæ* is the type, as is well known, of the most extraordinary and remarkable order known in the whole range of vegetation.

THE OLIVE.

There are not many kinds of fruit-trees that we can more confidently recommend to our horticulturists and land-owners in California—at any rate in all parts of the State, except, perhaps, the extreme northern portion of it, and on too lofty mountains—than the Olive. It is true, it is a tree of rather low growth, especially on too elevated positions, and where the soil is rather poor and with little depth, but on good soil and in the warm and rather moist valleys it has proved hardy and productive, and its cultivation is not at all an untried experiment, for numbers of them are doing well and bearing fully in most of the old missions of the country. It is a tree that has proved itself both hardy and productive, and a great quantity of oil has been made from it, with a good profit.

The Olive may be advantageously grown on all grounds for ornament as well as use. Its continual verdant appearance and dark purple berries are pleasant to the sight, and it makes also a good shade on account of the density of its elegant foliage. A late practical writer, Dr. John D. Scott, says: "They are easily and cheaply propagated by pieces of the roots, suckers, seeds, or cuttings. The latter mode is most generally adopted. A trench is dug six or eight inches deep, and the soil thrown out on one side. On this inclined bank cuttings about a foot long and from one to one and a half inches in diameter, are laid about a foot apart. The ditch is now filled up and the soil drawn up to near the top of the cuttings. But one stem is permitted to grow. The soil is kept loose about the young trees and free from weeds. They are watered occasionally, and at three years old they are ready for the or-

chard. Their distance apart is thirty-six feet in light, hilly soil; in rich soil, forty-eight feet. Vegetables, Corn, Beans, and other light crops may be cultivated in the interspaces to help to pay expenses until the Olives come into full bearing. They begin to bear here in the sixth year, sometimes earlier, and the fruit may be profitably gathered and converted into oil about the tenth or twelfth year."

They might be planted with advantage probably in orchards with other fruit-trees—say every fourth space, as they would outlive the shorter-lived trees. A full-grown tree produce from fifty to seventy-five gallons of oil annually, which at \$4.50 per gallon would far outstrip in value any other fruit-tree—the far-famed Los Angeles Orange not excepted. Some exceptional trees have been known to yield 300 gallons each in a year, which would be worth more than the whole annual product of some farms that we are acquainted with.

We would recommend the planting of Olives, particularly in public watering-places, on account of their not being likely to be injured or destroyed with sticks and stones by visitors or strangers, as most other fruit-trees are, for the sake of their fruit. Fig-trees also may be advised to be planted in the same situations in preference to other fruits, as their fruit is mostly eaten on the spot, and from its softness not carried off in the pocket.

The writer above named also says: "The Olive-tree is of extraordinary longevity. Some are known to be 400, others 700 years old at the present time, and bid fair to flourish for many centuries yet to come. There are some in Italy which are supposed to have been in existence since the time of Pliny. Others still linger about the Mount

of Olives, but whether they ever extended their sheltering boughs over the kneeling Saviour, history, perhaps, will ever be silent."

Its timber constitutes one of the most valuable of woods. It takes a high polish, and is greatly prized by cabinet-makers. It is used extensively in inlaying with other valuable woods. The wood of the root, when polished, presents a marbled appearance, and is used for making snuff-boxes, dressing-cases, and other ornamental articles."

CATALOGUES RECEIVED.

"Descriptive Catalogue of Evergreen and Deciduous Trees and Shrubs cultivated and for sale by F. Lüdemann & Co., at the Pacific Nursery, Baker St., between Lombard and Chestnut, San Francisco, Cal." See notice, p. 157.

VICK'S FLORAL PREMIUMS.

For the purpose of encouraging the culture and love of flowers, I authorize the officers of every State and Territorial Agricultural Society in the United States (and when there are two prominent societies in one State, both), and the Provinces of Canada, to offer in my behalf, the following premiums:

For the best collection of Cut-flowers, \$25.00; second best, \$10.00; third best, \$5.00; fourth best, Floral Chromo.

The offer is made to amateurs only, and the flowers to be exhibited at the regular annual fairs. The awards to be made by the regular judges, or by any committee appointed for the purpose. When only one collection is exhibited the judges may award the first, or any other premium, according to merit; but the exhibition must be a creditable one,

and if not so, in the opinion of the judges, no premium to be awarded. The flowers not to be made up in bouquets but exhibited separately, and named. I shall not consider this offer accepted by any society, unless published in the regular premium list, so that all may have an opportunity to compete. The money will be forwarded by draft on the bank of New York City, as soon as the award is made known to us, either to the officers of the society, or to the persons obtaining the premium.

I also authorize the officers of EVERY COUNTY SOCIETY in America to offer one of my FLORAL CHROMOS for the best exhibition of Cut-flowers. Now let us have some grand exhibitions of flowers.

JAMES VICK.

MECHANICS' FAIR.

The Tenth Industrial Exhibition of the Mechanics' Institute will be held in their Pavilion on the 17th of August. We are happy to observe that Horticulture is to be well cared for, and that medals and premiums will be granted to meritorious exhibitors of plants and flowers and fruits. A large number of plants and ornamental trees have been placed in the garden, and are growing finely.

OVERLAND MONTHLY.—By consent of the best judges the May number of this popular periodical is even ahead of many of its predecessors in depicting the scenes and characters of the Pacific slope. "Big Jack Small," by F. W. Gally, is inimitable, and most of the other articles are of the highest order, and calculated to enhance the reputation of the magazine. J. H. Carmany & Co., publishers, 409 Washington St.

CULTIVATION OF FRUIT AND REPORT
ON THE FRUIT AND VEGETA-
BLE MARKET.

BY E. J. HOOPER.

In the culture of fruit, as in all other undertakings, we can not impress the orchardist too strongly that it should be performed in the most thorough manner to insure complete success, especially as regards young trees. He should be very careful not to injure the stems and the roots in plowing for the purpose of keeping his land free from wild grasses and weeds.

In practicing this necessarily constant cultivation of the soil, it will be found too expensive to restrict it to hand culture with the spade and fork. This may answer best for all dwarf fruit-trees, but it will be found too costly for the general orchard. Shallow working the ground with the plow and cultivator will be found the most judicious and least hurtful method, with suitable applications of manure when the natural richness of the soil becomes too much exhausted. Upon this occurring (which in California fortunately takes some time, so great is the general fertility of the land), by giving a dose of lime, horse-manure, or of marl or ashes, we shall infuse a new life and growth and productiveness that will astonish and delight us for our outlay and labor.

It is much better not to allow an orchard to become sodded, but to keep it always cultivated, and the earth loose.

It is an injurious practice to allow the branches to become too thick and long, and not cleanse the bark when it becomes foul and mossy. Some skillful annual pruning can not be dispensed with, and it is one of the most important operations that we can perform up-

on plants—especially woody plants. This has to be performed at several periods of their existence and growth. The season for pruning has been made the subject of animated discussion, and different periods have been very confidently indorsed by different authorities, from which it may safely be inferred that all are somewhat right, or may be supported by good reasons. This refers to pruning in its general sense, and applies to the removal of limbs of greater or less size. We always desire to avoid the removal of large limbs, and should endeavor to provide against the necessity of such removal by trimming our orchards sufficiently when they are young, and while the branches are small; but when such removal becomes absolutely necessary, it should be performed late in the fall, when vegetation here is partially at rest. For the removal of small limbs from young trees, hardly any time can come amiss. Better to do it out of season, than to neglect it.

Thinning fruit is not so much practiced as it should be, particularly on the Apple. Old trees are often too fruitful; so much so as not only to deteriorate the fruit, but to injure the tree itself. This is so much the case with certain varieties, as to constitute a serious objection to planting them; other sorts so exhaust themselves by overproduction in one season, as to be barren, or nearly so, the next year, during which period of rest they are able to recuperate their energies and to provide a new set of flower-buds. The Grape-vine is capable of sustaining a most wonderful amount of fruit on this coast; but on young vines especially it is very bad policy to allow of this overproduction. Whenever an old Apple-orchard has reached this condition of overfruitfulness the best method of thinning is

to give a severe winter-pruning; removing portions of the spray, and encouraging the free growth of young wood in various parts of the top, to replace the older portions that were removed.

The modes of keeping fruits are exceedingly various, and some of them are quite primitive here, and do not require the same care as in the East. The *desiderata* are coolness and dryness, and the latter should not be carried to too much desiccation. Fruits for market should be well selected, and of a like average quality throughout, and not fixed up for sale with the best only at the top of the boxes, or ends, or sides, whichever are to be first opened, while the inferior fruit is concealed within, as is too often the case. Honesty is the best policy everywhere, and dealers soon learn to discriminate in favor of the brands of honest packers. It is believed that any orchardists who will take pains in the selection of their fruits, and in the excellence and honest measure or weight of their packages, will soon establish a reputation that will be of great value to them in their offerings and sales.

As to our markets—the vegetable market about the 16th of last month (April) was flooded with Asparagus, which had reached the lowest notch on the scale of prices, being then quoted at only 5c. to 8c. New Potatoes about the same time came into market in large quantities and in improved condition; the scarcity of old Potatoes was therefore only slightly felt on that account. The former retailed at 5c. to 6c. per lb. Sugar Peas were abundant at 12½c. per lb. Sweet were down to 10c., and common Bay continued firm at 8c. Cucumbers were to be had in limited quantities at 15c. to 25c. each. Artichokes were unchanged, retailing

at 50c. per dozen. Rhubarb was selling at 6c. to 10c. per lb.; Horseradish, 20c. to 25c.; Dried Chili Peppers, 50c.; Spinach, 8c.; Field Lettuce, 15c.; Oyster plant, 75c. per dozen bunches; Thyme, 50c.; Kale, 50c.

There was not much change to note in fruit. Strawberries were more plentiful, riper and cheaper. The retail prices were 35c. to 50c. per 1-lb. basket. The supply of Oranges was undiminished, and prices were firm. Imported tropical fruit and California dried descriptions were steady at last quoted prices. Green Apples were scarce and poor. Mangoes, 50c. per dozen; preserved Bananas, 25c. per lb.

California Oranges came forward very freely, and met with ready sale. During the middle of April, another cargo of Oranges arrived from Tahiti. This fruit was, however, quite sour, and sells very slowly. The market was plentifully supplied with Bananas, received by the *Mikado*, from Honolulu, and with Pineapples and Limes by the last Panama steamer. Oregon Apples were received in large quantities by each steamer, and sold at high prices. Oregon and California Apples retailed at \$1.75 to \$3.50 per box.

About the 23d of last month (April) the list of seasonable vegetables was rapidly increasing, the addition being Summer Squash and String Beans. Asparagus especially was very plentiful and fine—so much so that it was sold at 3c. per lb. in many instances. This will prove a warning to the cultivators of that favorite vegetable, that sufficient beds of it have been made for market use for a year or two to come. Green Peas and Rhubarb also were in abundance, and prices were rapidly declining. Cucumbers were maintained, as the receipts were still limited to small lots raised under glass. Onions sud-

denly became very scarce, and prices showed an important advance. The market was well supplied with Potatoes, and rates were easier. The supply of String Beans was, of course, very limited, and the price ranged from 40c. to 50c. per lb.; very little being sold at the latter figure. Summer Squash was also quoted at 50c. per lb., and Windsor Beans at 8c. New Potatoes continued unchanged, the price of old crop being well kept up. Sugar Beans were selling at 10c. per lb.; Sweet do. at 8c. to 10c.; Common Bay at 6c. Horseradish was 15c. to 20c. per lb.—a decline on former rates. Rhubarb was down to 5c. to 8c. Asparagus could be had at almost any price the purchaser chose to offer, although the nominal prices asked by retailers ranged from 5c. to 8c. Kale was sold at 50c. per doz.; Herbs at 50c. per dozen bunches; Oyster plant, 75c.; Spinach, 8c. per lb.

Strawberries were the chief feature in the fruit market, and notwithstanding the frost in many districts there was a threatened glut in the market of this delicious fruit. One pound baskets were selling about the last of April at 15c. to 25c. each.

Another cargo of Tahiti Oranges found its way into the retail market, and the supply of native Oranges was still kept up. Pears were scarce and poor. Imported tropical fruits were in good supply at unchanged prices. A small lot of Cherries was received on the 23d of April from Vacaville, Solano County, and for early specimens were in good condition and pretty ripe. They sold at \$1.50 per lb. As the season advanced, cheap Oranges were disappearing, and for good to choice California 50c. to 75c. per dozen was asked. Tahiti Oranges were selling at \$1.00 per dozen for the best, and from that figure down to 50 cents, by market men,

though peddlers sold an inferior kind at a lower price. Other kinds of seasonable fruits were unchanged about the last of April.

The arrival of Cherries is considerably earlier than usual, the first lot last year coming to hand on the 8th of May. Strawberries were coming forward freely, but prices were still rather high. The steamer *Reform* brought 250 chests of a hundred pounds each every day from Santa Clara County, and small lots arrived from other points. The fruit, yet small although of good flavor, was disposed of at from 15c. to 20c. per lb.; and hawkers with their rickety wagons and lean horses yelled, "Strah-breez! Two bits a pun!" through the streets.

The market was well supplied with Oranges, both foreign and domestic, and prices were beginning to weaken, on account of the increasing abundance of Strawberries. Oregon and Californian Apples were retailing at \$1.75 to \$3.50 per box.

Last week an inquiry was made about Cranberries, and it was remarked that none are growing wild in California. Perhaps it is only known by a very few that they do grow here. They are to be found along the Corte Madera Creek, a stream emptying into the San Gregorio, and are like the Cranberries of Oregon for size and flavor. They are eaten in pies, and also from the stem, and pronounced equal to the best.

A small quantity of unripe Cherries were received about the 10th of April, and sold at \$1 to \$2 per pound. Tahiti Oranges were very plentiful at 50c. per dozen; the Los Angeles crop gave signs of exhaustion. Gooseberries appeared during the last week in April, selling at 50c. per pound.

In the first week of May, Cherries were coming in fast from the Pleasant

Valley orchards. Cucumbers from the same source have also been very plentiful this season, I. M. Bassford having already received \$1,200 for them.

New Potatoes were more plentiful about May 1st, but the price remained high. Cauliflower was very abundant, and large shipments have been made to the East. Other vegetables were in plentiful supply, and prices had declined.

On the 2d of May, Strawberries sold at 12c. to 15c. per lb. by the chest. The reports are to the effect that the crop is unusually large this season, which will soon put the prices down to about 10c. per pound retail. The probabilities are that they will not go very much lower, because the packers will can the fruit when it reaches that figure.

THE BOTANY OF WAR.—According to the *Savannah Republican*, after General Sherman made his march to the sea, in his track there sprung up a new and unknown grass from the soil, which the farmers called "Sherman Clover." It would grow up in the most unexpected places, and it is said would root out Bermuda Grass; and as a strange similarity, it is noted that after the Franco-Prussian war of 1870-'71, in many districts of France a new vegetation sprung up, evidently the result of the invasion. We may add to this account that a Paris professor has arranged a regular catalogue of plants discovered for the first time in France after the invasions from abroad. As some of these plants were well known to Germany, it was suggested that the seeds might have been brought along in the forage bags, or with the forage itself transported from Germany and turned out on French soil. A new plant is also said to have been introduced after the march of the allies to Paris in 1815.

Editorial Gleanings.

DOUBLE PYRETHRUMS.—Within the past seven or eight years there has sprung up abroad a new set of candidates for public favor, known as "florist's flowers." These are the Double Pyrethrums, belonging to what are known, in English parlance, as Feverfews. They are derived from two species, *P. carneum* and *P. roseum*, both natives of the Caucasus. They are hardy perennial plants, producing large double flowers resembling China Asters or Chrysanthemums, running through various shades of color—white, yellow, lilac, and red; from pale flesh color to the deepest shades of crimson; some varieties combining two shades of color, as white and red, in the same flower. The flowers of some varieties are strap-leaved or long, and ligulate; in others they are anemone-formed—that is, the central florets are tubular and the outer florets are ligulate.

Unfortunately in this country florists care little for perennial plants, and have not paid much attention to these. Few, if any, have them in their catalogues. But as seeds of them can be obtained in our seed stores, those desirous of growing them can obtain seed at small cost. Of course when raised from seed many will revert back to the single form, and others may not come up to the full standard of perfection required in a florist's flower; but, even the single ones are pretty, so that no great disappointment can arise. We have raised, from seed, some beautiful double varieties, and find them perfectly hardy and of easy cultivation—only requiring good rich soil, a light mulching of manure, and an occasional watering during a dry time. They flower the second year from the seed. We can confidently recommend them to

our readers as a most desirable addition to their list of perennials.—*American Garden.*

MAINTAINING FERTILITY IN ORCHARDS —

At a recent meeting of the Western New York Horticultural Society, the question, "How can the fertility of large orchards be most economically maintained?" was discussed at length.

President Barry remarked that large orchards must have manure just the same as small ones. Green crops are not sufficient. A farmer who plants 100 acres in an orchard without knowing where to get manure is as unwise as one who should buy 1,000 sheep with nothing to feed. Farmers must grow or feed more stock. This is the natural mode of getting manure, and he believes the best. He had known nurserymen to buy and feed sheep and cattle in the winter solely for the manure. Thus they received pay for feed and labor, and made the manuring extra. Farmers can do likewise. He practices drawing fresh stable manure every third or fourth year, and applies it as top-dressing in fall or early winter. Using the manure fresh, it goes much further, and a very slight application is sufficient. Pears should be manured with something lightly every autumn. Coal ashes are good for a top-dressing; wood ashes and lime are excellent. The great object is to keep the surface light. In applying stable manure to Pear-trees, always use it sparingly in fall or early winter, and never plow under. In contact with the roots stable manure may cause blight. Used as a top-dressing there is no danger.

PRIZE FOR CALIFORNIA RAISIN GRAPES.—

The Sacramento *Agriculturist* of the 14th of April says: "Last year, during the

progress of our State Fair, James Rutter, of Florin, having some very fine specimens of raisin Grapes on exhibition, packed a box of them and sent them by express to the fall meeting of the Nebraska State Horticultural Society. They were placed on exhibition, and were the leading attraction in the pavilion, being viewed and examined by upwards of 40,000 people. Yesterday Mr. Rutter received the following letter from J. T. Allen, president of the society:

"*Mr. Rutter—Dear Sir:* I am instructed by the society to inform you of a resolution passed at their annual meeting, March 1st, tendering you the thanks of the society, and that the society's silver medal will be sent to you for your splendid exhibit of Grapes sent. The medal will be sent as soon as engraved. Your exhibition of Grapes was the prominent feature of our Fair, and coming as it did unsolicited, merits the thanks of the society, and I personally thank you."

AN EXTENSIVE EUCALYPTUS PLANTATION.

—W. H. Mathews has, on the ranch of J. H. Byers, about ten miles south of the town of Colusa, on the west bank of the Sacramento River, about 50,000 Eucalyptus-trees of the *Victoria angustifolia*, or narrow-leaved iron-barked variety, which he intends planting on the ground in orchard form about ten feet apart, during the next sixty days. The reason for planting Iron-barks instead of Blue-gums, is that the former resist the severe frosts of the State better than the latter.

Mr. Mathews has come down to San Francisco to purchase 50,000 more trees of the same variety, which he also intends planting this spring. He says he will plant the last-named 50,000 trees

on a piece of rich never-broken land, containing about 100 acres, raising Cotton the first year between the rows of trees, and Sugar Beets the second year, as in two years the trees will probably throw too much shade for successful Cotton culture.

He has raised 50,000 trees to a height of from two to eight inches from two and a half pounds of seed, gathered from trees grown in Oakland. This certainly proves that California seeds will germinate as well as imported. In fact he used equal quantities of imported and California, and found the result so much in favor of that grown here that he used only those trees grown from California seed. Mr. Mathews has 225 acres of land in places within a radius of six or eight miles, on which he intends planting Eucalyptus-trees. He is a young man, and can afford to wait for his trees to attain a very respectable size before there will be any necessity for cutting them down for sale.

THE POTATO DISEASE. — The Royal Agricultural Society of London has, along with other investigations, been prosecuting inquiries into the cause and prevention of the Potato disease. Three years ago Earl Cathcart offered a prize of £100 for essays on the prevention of the disease. His offer resulted in eliciting no fresh information, and failed of direct benefit. But it stirred the society to active dealing with the subject, and prizes were offered for Potatoes reputed to be proof against disease. Two prizes were promised at the beginning of 1874, for Potatoes of existing varieties, and two more are to be awarded five years hence, for varieties that may be originated meantime. Six varieties competed for the first prizes. To subject these to a practical test, one hun-

dred pounds of each variety were sent to twelve stations in England, four in Scotland, and four in Ireland. During the summer a botanical inspector visited each station, and found disease affecting the Potatoes in every instance. Thus far, no progress has been made in the discovery of means for preventing the disease; but much valuable information has been acquired from the statistics collected that will bear upon the most important point. Above all, it has been ascertained what conditions of soil and moisture confine the disease to the narrowest limits. Prof. de Barry, who has been studying the disease from a scientific point of view, refers its origin to a fungus (*Peronospora infestans*) which first attacks the leaves, and after consuming the nutriment afforded by them, seizes upon the petiole, and so proceeds to the tubers. A further report of the Committee of Inquiry will be published soon.

EGYPTIAN CORN. — Some "Egyptian Corn," lately imported, is, we presume, the Durra, a cereal akin, botanically, to Broom Corn, but producing more seed—frequently 125 bushels to the acre. It is one of the chief articles of Arab diet, and well deserves a trial in California, especially in sandy soils supplied with irrigation, such as they have at Los Angeles and Anaheim. Dates and Durra are the two staves of life in the Levant, where the climate and soil are similar to those of our warmer valleys. The Dates it is impossible to have here yet, on account of the newness of our State, the high rate of interest, and the slow growth of the tree, which bears fruit for the grandchildren of the planter; but none of these objections can be made to the Durra.

TWO MARVELOUS FLOWERS.—The *Horticulturist* gives an account of two novelties among flowers which it is almost tempted to treat as fables until their verity is established by personal inspection. The following is a description of them:

“One is a black Lily in Santa Clara, California, which has three large blossoms, each nine inches long, and perfectly black outside of the green petals. The other is to be seen at Constantinople, and described by an eye-witness as belonging to the *Narcissus* genus of bulbs. The flower represents a perfect humming-bird. The breast, of a bright emerald green, is a complete copy of this bird, and the throat, head, beak, and eyes are perfect imitations. The hinder part of the body, and two outstretched wings, are of a bright rose color, one might almost say flesh-colored. These wonderful bulbs should have been sent to the Vienna exhibition. They will be in abundance by the time of our Centennial celebration in 1876. And yet they can hardly be greater curiosities than the strange and mysterious ‘*Sancta Spiritu*’ from South America, with its life-like representation of doves.”

CRANBERRIES are not grown in California. Most of those sold in this market come from Wisconsin, though a few of the small variety are brought from Oregon and Washington Territory. Cranberries can not be profitably raised except on fresh-water marshes especially prepared for the purpose. There is, probably, nothing in the climate of this State to prevent the successful cultivation of the fruit if a suitable location can be found. The seed of the berries sold in this market would doubtless grow, or plants could be ob-

tained by mail from the East for an experiment on a small scale.

CALIFORNIA ROSES.—Santa Barbara now puts in a plea for the largest Rose. Less than a year ago Dr. L. N. Dimmick placed in his grounds a Rose plant, the King of Noisettes, Maréchal Neil. This has extended over a trellis arching one of his garden walks. Within the last six days a shoot some three feet in length has grown from the foot of this trellis. On this stalk, surrounded by half a dozen vigorous buds, hangs to-day the champion Rose of the world in size and perfection. The Maréchal Neil is a cupped variety of rose, having a lemon tint and with a delicate and delightful perfume. This Rose is $16\frac{3}{4}$ inches in circumference; its shorter diameter five inches: the measurement in various directions from tip to top of petals is over six inches! The depth of the Rose is fully three inches. This we claim is the largest Rose on record. Another marvelous thing we noted before leaving the grounds of Dr. Dimmick—113 buds on a Rose truss of the La Marque variety. A common felt hat covered the space in which were counted the above number of buds.—*Santa Barbara Press*.

PLANTS FOR GREENHOUSES.—Persons in the habit of buying plants at greenhouses know how fresh and delicately green they look when they are taken out, and how apt they are to droop down afterward, from the effects of the change from the warm moist air of such houses to the dry atmosphere and draughts of the sitting-room. It is stated that if the plants are enveloped for a few days in thin soft paper, leaving an opening at the top, they will

become acclimated without feeling the change. Sprinkle the leaves daily, on both sides, with a small wisp-broom, with warm water.

AMERICAN AND EUROPEAN TREES. — A few years ago there appeared in the "Proceedings of the Philadelphia Academy of Natural Science" a paper on the identity of relative characters in numerous allied species of American and European trees, in which it was shown that American trees are comparatively dwarfed in their habit. They have smaller seeds, smaller buds, closer nodes, less regular and less twiggy heads, thinner leaves, deeper seratures, and higher autumnal coloring than their near European allies. A European observer has lately added to these notes the fact that American species cast their leaves earlier in the fall than their kindred species in Europe.

TREES ON THE ROAD-SIDE. — Continuous rows of stately trees along the road-side add much to the appearance of a farm or country. But it is urged that shaded roads remain wet and muddy much longer after heavy rains than those fully exposed to the sun. This is doubtless true, but as an offset we claim that they are less liable to become dusty, and between the two evils there is not much choice. Deciduous trees only should be planted along road-sides in cold climates, because they afford shade during the season when most needed if at all. Roadside trees may also interfere with the growth of crops in the fields adjoining by shading as well as by the absorption of moisture by their roots; but as we can scarcely secure anything of value without some loss, perhaps the pleasure derived from

passing over a shady road during the hot weather in summer, as well as the beautiful appearance of such highways, more than compensate for the slight losses which they entail.

ACTION OF LIGHTNING ON TREES. — In a tree which has been destroyed by lightning, the layers are not only shattered and separated into strips, but the wood also appears dry, hard and brittle, as though it had been through the process of curing in a kiln. This is attributed to the instantaneous reduction of the sap into steam. When the sap is abundant, as in May or early in June, the amount and force of the steam not only bursts and separates the layers and fibres, but rends the trunk in pieces or throws off a portion of it. When the amount of steam thus suddenly generated is small, owing to a dry condition of the stem from continual evaporation and self-exhalation, there may be no external trace of the lightning-stroke; yet the leaves will wither in a few days, showing that the stem has been rendered incapable of conveying supplies, and the tree will either partially or entirely die. Still lighter discharges may be conducted down the moist stem without any injury. — *Building News*.

THE Petaluma *Standard* reports that the Tar-weed makes better hay for neat cattle than Wild Oats or Clover. Cows like it, and give more milk than when fed on other hay. Half a dozen persons have tried it and all report favorably. Heretofore it has been regarded as a pernicious weed, but it deserves a careful investigation. It should be cultivated and studied with reference to its value as a regular crop. Its existence in our streets and commons indi-

icates hardiness and adaptation to our climate; and the thriftiness of its growth is basis for a hope that it will yield a large crop. California has yet to make its first valuable addition to the list of cultivated forage-plants.

SEMI-TROPICAL FRUIT-CULTURE IN CONTRA COSTA COUNTY.—There have been a great many objections raised of late to the Osage Orange for hedging purposes. Many of those who at one time had considerable faith in its adaptability are now, for some reason or other, very strongly opposed to it. But Dr. J. Strentzel, of Martinez, who has devoted many years to systematic experiments in Horticulture, is still very pronounced in its favor. As evidence of its adaptability to the soil of at least Contra Costa County, the doctor sends a huge specimen of the fruit. It is a lemon shaped mass, measuring six inches in length and fourteen and a half inches in circumference. He also forwards a magnificent specimen of the Mandarin Orange, and another of the common fruit, each of which is fresh plucked from the tree, "to demonstrate," so he writes, "that the bracing cold mornings (the thermometer once only twenty-nine degrees above zero) did not freeze out the life of anything, even our semi-tropical guests." Dr. Strentzel's indefatigable zeal in the prosecution of his favorite pastime has demonstrated beyond question that the zone in which semi-tropical fruits can be successfully cultivated in this State is much more extensive than most people are willing to admit.

TO PRESERVE A BOUQUET.—When you receive a bouquet, sprinkle it with fresh water; then put it into a vessel contain-

ing some soap-suds, which nourish the roots and keep the flowers as good as new. Take the bouquet out of the suds every morning, and lay it sideways in fresh water, the stock entering first into the water; keep it there a minute or two, then take it out and sprinkle the flowers lightly by the hand with pure water. Replace the bouquet in soapsuds, and the flowers will bloom as fresh as when gathered. The soapsuds need to be changed every third day. By observing these rules, a bouquet may be kept bright and beautiful for at least one month, and will last longer in a very passable state; but the attention to the fair but frail creatures, as directed above, must be strictly observed, or "the last Rose of summer" will not be "left blooming alone," but will perish.—*American Artisan.*

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING APRIL 30, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office.)

BAROMETER.

Mean height at 9 A. M.	30.15 in.
do 12 M.	30.14
do 3 P. M.	30.13
do 6 P. M.	30.12
Highest point on the 1st, at 12 M.	30.44
Lowest point on the 5th, at 3 P. M.	29.90

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	58°
do 12 M.	63°
do 3 P. M.	62°
do 6 P. M.	57°
Highest point on the 12th, at 3 P. M., and the 24th, at 12 M.	81°
Lowest point on the 5th, at 9 A. M.	44°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	49°
Highest point at sunrise on the 25th.	61°
Lowest point at sunrise on the 5th.	36°

WINDS.

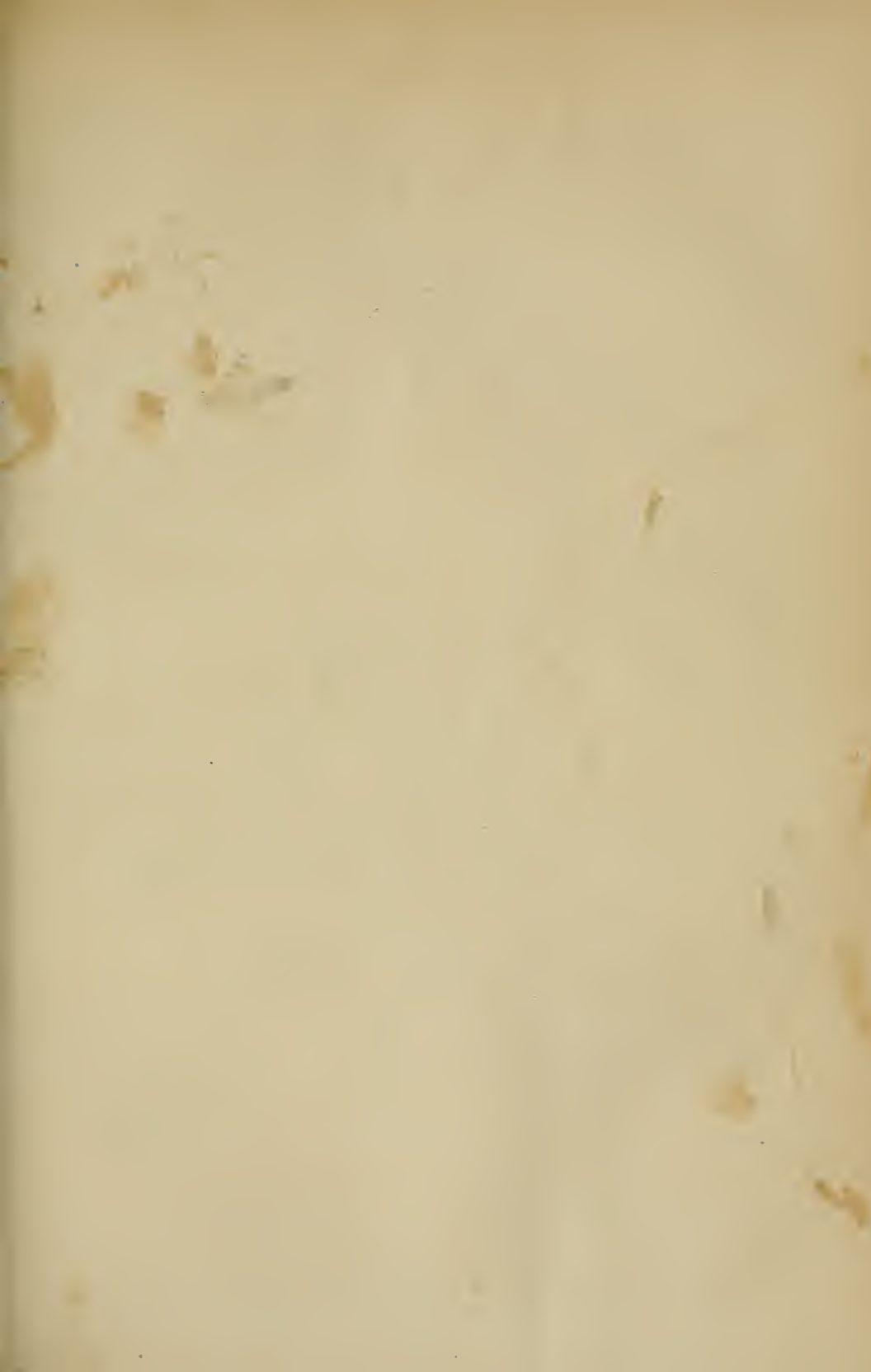
North and north-east on 5 days; north-west on 9 days; south-west on 2 days; west on 14 days.

WEATHER.

Clear on 12 days; cloudy on 5 days; variable on 11 days; rain on 1 day.

RAIN GAUGE.

5th.	0.02
Total Rain of the season to date.	17.28





RHODODENDRON CALIFORNICUM.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, JUNE, 1875.

No. 6.

THE AMARYLLIS.

BY F. A. MILLER.

The Amaryllis is a very extensive genus of flowering bulbs, and has gained great popularity of late on the strength of the many beautiful varieties which have been acquired. They are chiefly autumn-flowering, and as such form a most interesting and admirable class of plants. The genus consists of a large number of species, but I intend to mention only a few of them, which are really meritorious.

Amaryllis Belladonna, a native of the Cape of Good Hope, is one of the oldest varieties, and enjoys great popularity. Its showy funnel-shaped flowers are of a delicate rose color, and are borne in clusters upon a thick stem about eighteen inches in height. It owes its name to the color of the flower, "resembling the complexion of a beautiful woman." The flowers are produced before the leaves make their appearance. The flowers are nearly as large as those of the trumpet-shaped white Lily, are similar in form, and agreeably fragrant. As the root-stock increases, several stems will be thrown up, each of which produces from six to

ten flowers, making a gorgeous appearance. Several varieties are known.

Amaryllis vittata, a native of South America, is another very conspicuous species, producing fragrant white flowers with red stripes, from four to six upon a single stalk. From this many valuable varieties have been produced, but very few of which have found their way to our shores. From the fact that they are all perfectly hardy here in the open air, I must come to the conclusion that within a few years they will form a most important feature in our gardens. Their culture in pots seems not to be thoroughly understood here as yet, and but few flowers were produced by plants brought here during the past two or three years. This, however, is mostly due to the weakness of the bulbs imported. Only strong bulbs are apt to bloom freely, and they should not be treated by the "starving-out" method, but should receive a good supply of nourishing soil and water during their growing season.

Amaryllis formosissima, known popularly as "Jacob's Lily," is a very interesting species. Its rich claret-colored flowers are produced singly upon a stalk. The form of the flower is some-

what peculiar and odd; the upper segments being reflexed and the lower ones sloped downwards. Although this species is less hardy perhaps than any of the others, it has flowered well with us in the open air.

Amaryllis atamasko is a small-flowering species of North America, and is found rather plentifully in Virginia. Its pretty white flowers are abundantly produced singly upon a stalk. I would recommend it strongly as a border plant, for which purpose it seems admirably adapted, although as a flowering plant it is much inferior to the varieties enumerated before. I mention it chiefly because it appears in many of the American catalogues.

Amaryllis hippeastrum (a term not altogether correct, perhaps) comprises the most beautiful of the genus *Amaryllis*. But very few of these are as yet offered for sale by the nurserymen of this country; in fact, they are too expensive for the general trade. Some two years ago we imported about fourteen of the best varieties, most of which produced flowers last season, and all who have seen them pronounced the blooms most gorgeous. Apparently these *Hippeastrums* flower more fully than other species of the *Amaryllis*. I know I have often heard complaints that the *Amaryllis* does not produce flowers freely, and I am fully aware of the fact that there are some difficulties in their treatment; but I have not found such with the *Hippeastrums*; they have done extremely well under a very ordinary method of cultivation. All the varieties are excellent, and I will therefore omit to name any of them.

The cultivation of the *Amaryllis* is much more simple in this mild climate than in very cold climates. Much more attention is given to their treatment in Europe than is necessary here. They

are nearly all hardy here; but some require protection from our strong winds, while others should be screened from bright hot sunshine, at least partially.

A. atamasko will do well in any locality out of doors, and flowers freely by simply letting it alone.

Amaryllis formosissima will not do well if exposed to our strong winds, and should therefore be screened; it succeeds best under glass in a cool house or frame.

A. vittata blooms out of doors, but the flowers never attain such beauty as if grown in a frame or house.

A. Belladonna is the most hardy with us, and if screened from heavy winds will flower to perfection in any warm exposure; it will thrive well in a sunny locality.

A. hippeastrum attains its greatest beauty in a cold house or frame partially screened from the bright sun.

If the *Amaryllis* is grown in pots, it will now be time to house them; they begin to move with us about the 1st of March. Give them a good supply of water, rain-water if possible, and an occasional sprinkling of the foliage will be beneficial. As soon as they have filled the pots with roots, give them a shift into a larger-sized pot. Very good soil for them is a compost made of four equal parts of leaf-mold, loam, old decomposed cow-manure, and coarse sand. Good drainage must be provided. Never allow the soil to become dry. and if convenient give them a little manure-water once a week. As the plant develops itself, a partial sunny exposure may be given. They will bloom in July and August. When their flowering season is over they should be liberally treated under the same method as described before for at least another month, when they may be placed out of doors, and plunged in a cool and shady

place, where they should enjoy rest until almost the 1st of March. During their resting season they should never be allowed to dry out entirely, but the soil should be kept moderately moist.

Before leaving this subject, I should certainly make mention of another splendid species, the *Amaryllis purpurea*, better known here as *Vallota purpurea*, a native of the Cape, which has been under cultivation here for a number of years, and has become one of our most popular flowering bulbs. Indeed, its brilliant scarlet cup-shaped flowers are quite sufficient to make it a great favorite. Strong bulbs flower readily under the already-mentioned treatment. This plant should be in every collection, and it may now be obtained in most of our nurseries at a reasonable expense.

All varieties of the *Amaryllis* are propagated from offsets, which are produced abundantly. The *Hippeastrums*, however, do not make offsets as freely as other species, and their propagation seems to be a slow process. The *Amaryllis* may also be raised from seed, but the fact that it takes three years' growth before flowers may be expected, makes this method rather tedious.

THE CULTURE OF SEMI-TROPICAL FRUITS.

With the increased attention given to this subject, and the rapid settlement of Florida and the southern counties of California, it seems not improbable that before many years are past we may be drawing our supplies of fruit from within the limits of our own boundaries. With this in view the ratification of the proposed treaty of reciprocity with the Hawaiian kingdom threatens an injustice to our fruit-growers. Already the culturists of Los Angeles County have petitioned their representa-

tives in Congress, protesting against the admission of the fruits of Hawaii free of duty, and it seems but reasonable that the protection afforded by tariff to the iron-merchant, the wool-grower, and ship-builder, should be extended likewise to the horticulturist and the farmer.

Whatever the result, however, the occupation of fruit-growing, particularly when applied to the more uncommon and semi-tropical varieties, is of such a fascinating character, that duty or no duty, protection or free trade, will alike be ineffectual in checking or preventing the increasing interest in this pursuit.

It is not everyone, however, who has the patience to wait for the bearing of those trees which require from ten to fifteen years to mature; but if we may judge from the assertions of those who have reached this happy period, the truthfulness of which we have no reason to doubt, the profit is far in excess of anything which can be realized from any similar occupation. There must be, however, to this, as well as every other picture, two sides, and the beginner can not expect success without first meeting discouragement and partial failure. In southern California the culture of Oranges, Lemons, Limes, etc., is carried on only in certain localities, and such as can depend with certainty upon the means of artificial irrigation. In fact, the whole mode of culture, the country itself, and the people who follow it, are so different in character as to deserve if not actually require a separate description, and it is possible that the hints from actual experience gained in one locality may not be without value to some of those who are following the business in another.

In California, Los Angeles County and its county town of the same name, together with the neighboring valley of

San Gabriel, is the home of the Orange in that State. The proprietors of orchards, however, do not confine themselves to this fruit alone, and while in Florida we hear also of the Guáva, the Pawpaw, and the Banana, in California we have the Lemon, the Lime, the Fig, and the English Walnut growing side by side with the Apricot, the Peach, the Apple, and the Pear.

The finest Oranges are grown at San Gabriel on a soil of decomposed granite, where the Sierra Madre range gives protection from the north winds. We assert, and we say it boldly, that they are unsurpassed, even if equaled, in the world for size, and when allowed to remain sufficiently long on the tree, for sweetness and flavor. In the mission garden at this place there are trees planted by the *padres* from seed brought from Mexico, which now, at seventy years old, are in full bearing, and producing on an average 2,000 Oranges each year. Whether it is from a difference in the quality of seed, however, or from the extra care given to the cultivation, the fruit from the trees planted at a later period far surpasses them in size and quality.

Most of the Orange-trees in Los Angeles County have been grown from seed procured from Tahiti or the Sandwich Islands. As a rule the fruit comes true to the seed, with such modifications as may be caused by locality and care. It is somewhat common, however, to bud the Orange into a species of almost worthless fruit known as the "China Lemon," by which three years of growth are saved, but at an expense of longevity if not of quality. The Sicily Lemon, however, when thus propagated, is much easier to raise, as with the Lime it is, when in the earlier stages of growth, much more susceptible to the influence of frost than the Orange,

and less likely to recuperate after being cut down.

The Lime, the most difficult of all to bring to maturity, is also the most profitable. Unlike the other trees, they seem to be continually bearing, and we have heard of three trees in one garden producing each year the enormous sum of one hundred dollars each.

There are nurseries in Los Angeles, where immense quantities of semi-tropical fruit-trees are grown, to an extent, in fact, that were it not for the numbers destroyed after transplanting by carelessness and inexperience, the business would be overdone. These trees can be bought of all ages, from one to four years old, at prices varying from ten cents to two dollars and a half each. The greatest error and the most common is in planting both seed and young trees too deep; in the first instance preventing the young germ from breaking through the earth, and in the other depriving the roots of the air which seems necessary to their existence.

After the danger of frost, which is not past until the trees have assumed hard bark, the attacks of the gopher are the most to be dreaded. This destructive little pest, which is sometimes confounded with the ground squirrel, which he in no way resembles, is something between the mole and the rat, boring in the ground and gnawing at the roots of the trees, sometimes not giving evidence of his presence until the mischief is irreparable. He has been known to eat through a six-year old tree in a single night, so that the tree toppled over on being touched. His habits are so certain, however, that when his hole is found, by using a trap, his capture is almost sure. He is a most pugnacious little fellow, and the Mexican boys have a very ingenious way of catching him. A noose is placed over a hole, and when

Mr. Gopher shows himself at noon, as he invariably does, the concealed boy pulls the string and makes him prisoner. The string is then fastened to his tail and he is lowered into another hole. A fierce battle ensues, and both gophers, griping each other like bull-dogs, are brought to the surface.

For six months, or more frequently eight, not a drop of rain falls; the country becomes parched and burnt, and the trees can only be kept alive by artificial irrigation. The scarcity of water will keep the cultivation within certain limits, as in low wet lands which would not require irrigation, the Orange will not grow. At this season the squirrels, who honeycomb the ground in every direction, become almost desperate for food, as also do the rabbits and hares. Young vineyards and orchards, if not carefully watched, are completely destroyed. Away from these the excrements of horses or cattle are eagerly devoured, and we have known them to eat the bark from a tree fifteen years old, as high as they could reach.

The vitality of the Orange-tree, however, in congenial soil, is wonderful; by carefully covering the places where the bark has been removed, the trees seem to experience no harm. They can be transplanted after coming into full bearing by careful pruning and trimming off the bruised roots, and actually improve their fruit by removal from cold and damp soil to a richer and warmer one. Ten years is allowed a tree to bear from the seed, but from this time both yield and profit increase in rapid ratio. It is the disinclination to wait which has prevented many of the residents of Los Angeles from reaping fortunes similar to those acquired by their more farsighted neighbors; but the introduction of a different class, the patient, slow-plodding agriculturists of the East, is

awakening them, and the business of semi-tropical fruit-growing promises to assume an interest and importance second only to the production of Wheat and wine.—*Forest and Stream.*

A COMMON SENSE VIEW OF LANDSCAPE GARDENING AS AN ART.

BY HORTICULTURIST.

Ornamental gardening, it is fair to suppose, has its origin in that desire, common to all mankind above the nomadic tribes of the earth, to possess a home which should differ in some degree from and be superior to the common waste or wild uncultivated lands. The useful—the field or garden-patch—is the first step in civilization after a house for shelter. But no sooner are the necessities provided for, than æsthetic sentiment, which exists, although perhaps in a dormant state, in every mind however rough or savage, makes itself felt, and demands that something shall be done for its gratification.

Simple and uncouth indeed we may suppose the first attempt at ornamentation of grounds to have been. In his strolls through the surrounding woods, the improver's eye is struck with the gay color of some flower, or the beautiful foliage of some umbrageous shrub. He stops to admire it, and with his admiration springs the desire to possess the object. The flower is transplanted to the vicinity of his hut, where under his careful tending it thrives and repays him by its graceful bloom and grateful fragrance. But the very effect of taking care of his floral pet has developed and strengthened the feeling of admiration for some similar beautiful objects in nature, and it is not long ere he is induced to transplant another prize to his own home. Soon he has a

little collection of such, not harmoniously arranged, nor even judiciously chosen; yet, rough though it be, it is a garden, and more, it is a garden which, so far as it is a plan or principle at all, is formed upon what will be shown, a little farther on, to be the only true and correct principle in the art.

From the time when mankind arrived at such a forwardness in civilization that ornamental gardening became a necessary art, and was reduced to certain rules, up to the present time, two great systems may be said to have reigned in gardening.

The first of these, that which was adopted when first the nations emerged from barbarism, when the other arts of civilization were developed, had also the longest dominance, and ruled for many centuries, to the entire exclusion of the ideas which now prevail. The chief idea in this first system appears to have been to make all gardens as *distinct* as possible from similar pieces of ground in a state of nature. Mankind had but just thrown off the shackles of ignorance and barbarism—were not yet in fact quite released from their bonds—and naturally sought to make as clear a distinction as possible between the present and the but too recent past. They were the admirers of the false in art. By art they understood artificiality—by artistic, something labored, and consequently unnatural. Thus we read of the hanging gardens of Semiramis; of the vast spaces, divided into squares, circles, and other artistical figures, which formed the model gardens of Rome; and we meet even yet in Europe with specimens of these primeval barbarisms in gardening: trees trimmed to fanciful resemblances to animals or statues; flower-beds sown in names; sheets of water formed into grotesque shapes; and the still ruder device of en-

deavoring by means of a painting at some garden wall, to produce the illusion of an indefinite extension of the grounds. In this category must be reckoned, too, the host of sheared red Cedars, Junipers, and Arborvitæ, which, as the forlorn sentinels of the French and Dutch styles of gardening, disfigured but too many of our American residences.

All these, instead of producing the impression intended by their devotees, of a mature state of civilization and a refined taste, argue only a crude and indiscriminating mind, which, having just emerged from the one extreme, the state of nature, rushes at once to the other, and becomes of course unnatural; mistaking alteration for improvement, and hailing that as art which is only artifice.

Let us now look at the other system—that which, introduced by eminent men in England, has spread all over the European and American continents, and is now acknowledged to be the only exposition of the true æsthetic love of nature which prompts to the beautifying of grounds.

The design in this system is not to alter the whole face of nature. Taking for granted the fact, that in nature he must find all that he can possibly want of form or arrangement, and that all beauty for which he can not there find authority must be considered defective as being essentially false, the modern landscape gardener aims simply to *aïd* nature—to carry out to perfection her most charming designs.

What the painter aims at in transferring to canvas the beauteous conceptions of his mind; what the sculptor performs when he represents on marble those æsthetic fancies which we call the evidences of genius—this is also the landscape gardener's object. His

aim is, or should be, to be true to nature. Who would admire the most artistically executed painting, or the most finely finished sculpture, if the object represented was deformed? So in the creation of the garden, true taste refuses to acknowledge the legitimacy of that which has no prototype in nature. It is not expected, on the other hand, that the artist will be so mere a copyist of nature, as not to rise above her faults. It is his, so to arrange the various beauties found in different individuals of the genus to be represented, as to form one beautiful and harmonious whole.

With man nature has fallen from her original perfection. We meet nowhere with an object beautiful in all its parts and proportions. But neither is there anything, however homely or unpretending, if it is the product of nature, which has not about it some feature of beauty. It is the artist's mission to study these particles of perfection, and their proper relation to each other, in order that his mind may conceive and his skill execute that which, though viewed as a whole, may be impossible to nature, yet in every individual part adheres most faithfully to the examples set by her. And it is the realization of this conception which produces that agreeable sensation, by which we acknowledge perfection.

ORANGES AND LEMONS.

BY DR. A. KELLOGG.

It has occurred to me that to some of your patrons a brief note collated on this subject might be useful for reference. (See Baron Ferd. Von Mueller's Paper before the Acclimatization Society of Victoria).

CITRUS AURANTIUM.—The Orange (in

the widest sense of the word). A native of southern Asia. Attains to the age of 600 years or more. If ever any difference existed between this and *C. medica* they are now obliterated, through hybridization, at least in the cultivated forms.

The following varieties may be distinguished:

1. *Citrus bigaradea*, Duhamel (the "Bitter Orange"). This furnishes from its flowers the Neroli oil, so delicious and costly an odor. It is stated that Orange-flowers to the value of \$250 to the acre are obtained for a single year. The rind is used as candied Orange-peel. *Hesperidin* in the rind—*limonin* in the seed, besides a bitter principle.

2. *C. dulcis*, Volkamer (the "Sweet Orange"). Many kinds occur. The best bearer is the St. Michael Orange of the Azores; as high as 20,000 a year on one tree. Neroli oil is obtained from the flowers of this and allied varieties.

3. *C. Bergamium*, Risso (Bergamotte Orange"). From the fruit-rind of this variety bergamot oil is obtained, and also oil from the flowers. The "Mellarosa" variety furnishes a superior oil and exquisite comfitures.

4. *C. decumana*, Linn. (the "Shaddock" or "Pompelmos"). The fruit exceptionally will weigh twenty pounds. The fruit and rind can both be used for preserves.

5. *C. nobilis* (the "Mandarin Orange"). The thin rind separates readily from the deliciously-flavored sweet pulp. There are large and small-fruited Mandarin Oranges; the Tangerine variety is one of them.

CITRUS MEDICA, Linn. (the "Citron" in the widest sense of the word). Indigenous to southern Asia. For convenience sake it is placed here as distinct from *C. aurantium*. Prominent varieties of this may be distinguished:

1. *Citrus Cedra*, Guallesio (the real "Citron.") From the tubercular acid fruit essential oil and citric acid can be obtained, besides the ordinary culinary use of the fruit. A large variety with thick rind furnishes the candied "citronate" or "succade." The cedra oil comes from a particular variety.

2. *C. Limonium*, Risso (the real Lemon). From this is largely pressed the Lemon juice, while the thin smooth aromatic peel serves for the production of volatile oil or condiments. The juice of this fruit is particularly rich in citric acid. A large variety is the "Rosaline Lemon."

3. *C. Lumia*, Risso (the "Sweet Lemon.") This includes the "Pear Lemon," with large pear-shaped fruit. Rind thick and pale; pulp not acid. This variety serves for particular condiments.

4. *C. Limetta*, Risso (the real Lime.) The best Lime-juice is obtained from this variety, of which the "Perette" constitutes a form.

Citrus Australasica, F. von Mueller (shrub east coast Australia). Fruit oblong, subcylindric, two to four inches; tastes like a Lemon. Culture might improve it.

Citrus Planchoni, F. von Mueller. Forests near the southern coast of eastern Australia. A noble tree, forty feet. Fruit globular, size of Walnuts; called "Native Orange."

Citrus Japonica, Thunberg (the "Kumquat" of Japan). A shrubby "Citrus," with fruit of the size of Gooseberries. On account of their sweet peel and acid pulp they make excellent preserves.

SUCCULENTS are better adapted for window-gardening than are foliaged plants generally. The dry atmosphere is not so injurious to them.

GERMINATION OF FERNS FROM SPORES.

Professor Thistleton Dyer recently gave a lecture on this subject, before the Royal Horticultural Society, in which he traced the growth of the spore until the young Ferns made their appearance, and showed that after the growth commences a kind of fecundation or fertilization analogous to that of flowering plants takes place. "As this is singular, and doubtless a novel idea to many horticulturists, we will give," said he, "the facts of the case. A Fern-spore is a minute round body, with two elastic coats one within the other, and the hemispherical cavity inside the inner coat is filled with that peculiar living matter made familiar to us by Huxley and others under the name of protoplasm. When the spore falls upon a moist and suitable surface it swells and protrudes two or three tube-like cells, one of which elongates and develops into other cells; until a green, flat, liverwort-like expansion is formed called the prothallus, and familiar to every gardener who has sown Fern-spores, since the appearance indicates the growth he expected to call forth.

"Now we come to the interesting stage when fertilization takes place. If a well-developed prothallus be examined under a good lens a series of small, white, hair-like rootlets will be found protruding from its under surface, while around its margin will be found one or more notches or indentations. Among the rootlets, however, are two series of cysts or cells of a more or less hemispherical shape, and both containing organs of a different nature. In one series of cysts or receptacles we find round loose cells not unlike the parent spore in general appearance, but of a more delicate texture. When these are fully developed, the cyst in which they have been

generated becomes ruptured, and they fall or are projected out on the surface of the moist soil or prothallus.

“Now each of the little cells contains a minute quantity of fluid in which is confined a minute spiral body like a vinegar eel, but very much smaller, and as the cells soon burst, in water, these little eel-like bodies are set free, and possess the power of moving with incredible velocity in the water, while they are so minute that the most gentle dew on a leaf is sufficient to enable them to traverse it in all directions. These little bodies are called antherozoids, and possess a power analogous to that of pollen in flowering plants. These eel-like bodies are common to different forms of cryptogamic or flowerless vegetation, and are the very agents which enable the Potato disease (or *Peronospora infestans*) to increase so rapidly when once it gains a footing. Careful examination of the liverwort-like prothallus toward its margin, however, reveals another series of cysts (*archegonia*), and these contain a proembryonic cavity at their base, which may be likened to the ovary in flowering plants. Now if one or more of the male eel-like antherozoids in their movements come in contact with the cavity in the female cells, the result is a kind of fertilization similar to that which takes place when pollen is wafted on to the stigma of flowering plants, and as soon as this takes place the young fern begins its growth.”

The professor illustrated the different organs in succession on a blackboard, and remarked that gardeners often looked on the first growth or prothallus as analogous to the seed-leaves in flowering plants, but that in reality this was not the case, the prothallus representing in fact, an intermediate generation in the life history of many cryptogams.

Another singular fact explained is, that the male organs have as yet been detected only in *Osmunda*, while other Ferns produce male and female organs at different periods, as if to facilitate inter-crossing. As a practical deduction from the above facts it was suggested by the lecturer that a clever and careful manipulator might be able to produce hybrid Ferns by removing the antherozoids by means of a drop of water on the hair-like point of a sable brush, and applying this to the archegonia or female ovary-like cells of another species. In some cases this result is believed to have been effected accidentally in nature, especially among *Gymnogrammas*. In connection with the lecture there were exhibited rare specimens of *Pteris serrulata*, *Pteris tremula*, and a supposed natural hybrid between these species, which made its appearance in a batch of young Ferns raised at Chiswick a year or two ago.—*The London Gardener*.

ANGLING—ALLIED TO HORTICULTURE.

BY E. J. HOOPER.

The pleasures which fly-fishing and angling afford to the horticulturist and admirer of nature, if he should be fond of the art, as some of our readers probably are, may perhaps serve as an excuse for introducing the subject here. There is no other field-sport which affords more enjoyment to the lover of beautiful and varied scenery, for to him how many sources of amusement and study are opened out in connection with his pursuit! If he is fond of Botany an ample field lies before him; and his *Hortus Siccus* may be enriched by many fine and rare specimens, gathered as he wanders along the canyon's side, to or from or even during his fishing. Does

lakes San Andreas and Merced, the first belonging to the Spring Valley Water Company, and the fish in the last to the Acclimatizing Society. The chief, and this season the best method of catching them in these lakes, is by trolling or spinning from a boat a small spoon, to be allowed to float out some one or two hundred feet or more, the boat being rowed at a moderate rate.

Next in rank to fly-fishing as a lively and scientific mode of angling, in our estimation unquestionably stand minnow and spoon spinning, whether we regard them as an elegant pastime or a difficult or at least delicate art. And although our captures with them may by no means equal in number those taken with the fly or real bait in some waters, they will in general surpass them in size and quality.

To show how different are the dispositions of European and the Pacific slope or western American trout, or the "salmon-trout," the idea in Europe of these fish taking the spoon-bait in clear waters, of limited size, is ridiculed, and sportsmen say there that these fish must certainly be famishing of hunger, or seize it merely from motives of curiosity, before they would bite at anything so unnatural. We have often thought that a good imitation of the "Abbey," green or gray drake-flies, or the brown salmon-fly so successful here north, combined of any material which would keep them floating high and dry on the surface, like the natural insect, might be a valuable invention even on this coast.

The best sort of rods that we know of, adapted to all kinds of fishing, whether for fly-fishing for salmon or trout, boat-trolling, or bait-fishing from the bank, many salmon (*Salmo salar*), and all the fish there are now successfully taken by bait-fishing as well as the spoon.

is either the \$25 rod, all made of Lance-wood, with four or five spare joints or tops; or the \$12 rod, all the joints of Ash or Hickory, except the tops, which are formed of Lance-wood. These and all other sporting apparatus can be obtained of Liddle & Kaeding, Washington Street, San Francisco. For trolling in lake San Andreas or Merced a small spinning spoon-bait is necessary, to be fastened to a gut leader six or seven feet long, with a very small and light lead or sinker to cause the bait to sink about from four to six feet.

The trout in lakes San Andreas and Merced are either what are called "black trout" or "silvery trout." Lake Merced contains the larger fish of the two; they chiefly running from two to six pounds, while the San Andreas trout average about three-quarters of a pound. Lake Pilareitos, about twenty-three miles from the city, contains plenty of brook-trout, and is a free water.

IMPORTATIONS FROM AUSTRALIA. — For several years, or ever since the establishment of steam communication between this city and the Australian colonies, this market has been supplied with a Lemon of superior quality from Sydney. It is known in the colonies as the Lisbon Lemon, and has proved itself well adapted for transportation long distances by always arriving in good order. For the first time the trees are now obtainable here, a shipment by steamer "Mikado" having just been received by O'Connor & Co., 426 Sansome Street. The same firm have also received several hundred plants of the Norfolk Island Pine.

For a general mulch there is nothing equal to the soil itself. A thorough pulverization of the surface is the same as a coat of saw-dust, cut straw, etc.

SOME GOOD ROSES.

BY F. A. MILLER.

[Concluded.]

A most important point in the quality of a Rose is its form. We find that in all popular classes of flowering plants certain standards or rules have been established which make a variety worthy of cultivation. So it is with the Rose. A good flower should have a perfect outline, must be double to the centre, the petals should be substantial, and their position regular, independent of the general form of the flowers. Outside of these general qualities, certain terms are applied as to their form, viz: "globular," "cup-shaped," "shell-shaped," "compact," and "flat." Of these, the cup-shaped Roses are generally considered the most beautiful, and next to these may be considered the shell-shaped, although some very excellent Roses are neither cup-shaped nor shell-shaped.

While these forms apply more particularly to the flower when at its height of perfection, we must not lose sight of the fact that the bud of a Rose deserves our admiration equally as well. In fact the bud is the most desirable for a bouquet. Very few varieties, if any, combine excellence in bud with perfection in flower, and, generally speaking, the varieties which produce very fine buds, do not furnish very elegant flowers when in full bloom. I would favor therefore, as far as the general form of a Rose is concerned, the making up of two classes, of which the one produces the finest buds and the other the finest flowers.

All the Noisettes and all the Moss Roses are very handsome in bud, and particularly the latter are desirable only when in bud.

Of the Hybrid Perpetuals, compara-

tively few produce very fine buds: General Jacqueminot (popularly known as Pauline) is far ahead of any other in its class.

Of Tea Roses, we have quite a good number which furnish most exquisite buds. The well-known Safrano, Catharine Mermet, Isabella Sprunt, La Sylphide, Madame Blachet, Reine du Portugal, and Souvenir d'Elise Varden are all very beautiful.

Of the China (Bengal) Roses, Mrs. Bosanquet forms a most charming Rose when about half open; Madeline and Marjolin de Luxembourg are also very good in bud.

Of Bourbon Roses, the most exquisite bud is furnished by the old and well-known variety "Gloire de Rosamene."

Of beautiful Roses when in full bloom, we have many excellent varieties as to perfect form. I can only name a few of them here, which may be counted among the very best. These are mostly confined to the class of Hybrid Perpetuals: Alfred de Rotalier, Anna Alexieff, Charles Lefebvre, Jules Margottin, Mademoiselle Bonnaire, Géant de Batailles, Eugene Appert, Comtesse de Chabriliant, Beauty of Waltham, John Hopper, Victor Verdier, Lord Palmerston, and Ornament des Jardins, are all most exquisitely formed Roses.

Of Tea Roses, but few produce fine expanded flowers. La Pactole, Regulus, Bougere, Devoniensis, and Madame de Vetry may be classed as some of the best.

The following Bourbons are known to expand their flowers in very excellent shape; Catharine Guillot, Souvenir de la Malmaison, Louise Darzens, Acidalie, Louise Margottin, Model of Perfection, and George Peabody.

Undoubtedly there are Roses which are superior to those mentioned here under the various heads, and which

have not yet made their way to this country. After an absence of twenty-two years from Europe, the great field of competition and production of new varieties, I should not feel surprised at all to find there many valuable sorts of Roses, heretofore unknown to us here. As I intend to visit all the leading nurseries of the East, the present summer, I shall certainly keep a careful lookout for new and first-class Roses and bring them out here if possible.

CULTIVATION AND DROUGHT.

J. D., Blair County, Pa., says: "By very frequent stirring deeply plowed land no drought will prevent a crop." True—a very important truth, and one well worth repeating in your paper every week during the summer droughts. By the destruction of the weeds the fertility of the soil, is of course, secured for the growing crop: but besides this, such cultivation promotes the growth of plants in four ways:

1. It destroys the weeds, which exhale the moisture of the soil with great rapidity while they are growing, and to a greater depth than is dried by the rays of the sun. By placing a sash or a pane of glass upon growing weeds, the upper surface of their leaves will show the large amount of moisture they exhale, the evaporation of which is arrested by the glass, and which would be retained in the soil by the destruction of the weeds.

2. Ground thus often stirred, and loose, absorbs most of the water of occasional and brief showers, and retains it until much of it settles into the soil below; whereas much of the water thus falling runs off rapidly from a hard surface.

3. The mellowed surface becomes

more thoroughly warmed than a hard soil by the noonday sun, and gives off that warmth more gradually during the night, and the plants are thus surrounded by an atmosphere warmer and of more uniform temperature, during the whole twenty-four hours.

4. But the greatest advantage of frequent cultivation in our dry soil is, that the loosened soil acts as a mulch, arrests the ascent of the moisture by capillary attraction, and keeps the soil in which the roots are acting moist, and in good condition to imbibe and retain all the moisture that reaches it through the loosened and warmed soil upon the surface. To secure this benefit of cultivating the land, it ought to be done just as soon as the soil becomes friable, after every shower, whether there be any weeds to be eradicated or not.

It is a mistake to suppose that the roots of plants are benefited by direct contact with air in the mellowed soil. Air is always injurious to them, and especially so if it be hot and dry. While the plants are growing their roots should not be exposed to the air, nor should the soil in which they grow be disturbed. The full benefit of cultivation will be secured if it be only deep enough to furnish a few inches of fine and loose soil upon the surface. It is often said that the loosened soil absorbs moisture from the atmosphere, and thus aids the growth of plants; but everyone can see that the surface dries much more quickly for being stirred, and it is very clear that what little moisture is thus received in the night is quickly evaporated, and can not reach the roots, or the soil in which they work.—GEORGE HASKELL, *Ipswich, Mass.*

FOWLS are recommended to be kept in orchards, for destroying insects.

COLORS IN NATURE AND FLOWERS.

BY AN AMATEUR.

To cultivate the taste, to educate the mind to perceive and appreciate the beautiful in nature, is a duty which we owe to ourselves and to the fair world in which we are placed. To attain to this refinement of taste may certainly not be so indispensably necessary to us as to the poet or the painter, but it is eminently desirable that so pure and refined a pleasure should be ours, which may assist to wean us from inferior pursuits, elevate our groveling minds above the low level of passion and care, and help us to feel more reverence and love for Him who hath decked the earth with such numberless and diversified beauties.

In accordance with the invariable simplicity of nature, from the three primitive colors—blue, red, and yellow—are produced all the varied tints we behold. These, compounded in the wondrous kaleidoscope of nature, are amply sufficient to produce the varied beauties of flowers, and the splendor of the rainbow.

The coloring of the sky can scarcely fail to impress the least susceptible as being extremely beautiful, and well does the landscape painter know what pains it has cost him to imitate it with anything like success. The deep blue, so intense and yet so unsubstantial, and especially the graceful clouds that float along upon its surface, changing in their hues every moment, are to him a constant source of study and delight, which, while he increasingly admires, he despairs of adequately depicting. And then the glorious rainbow, his model of coloring, how distinct without harshness, and soft without confusion! How well defined is every tint, yet how imperceptibly blended. What gorgeous col-

ors are often seen in the west at sunset—what profusion of gold, and crimson, and purple, as though the clouds in their richest attire clustered around the couch of the king of day, determined that he who had run his race so brilliantly should repose in royal splendor! How sweetly and insensibly the yellow tints change into red, and these into purple, till the gray mantle of twilight falls around and closes the scene! Insensible, indeed, must he be who has not stopped and lingered to admire such beauties as these.

The coloring of the landscape varies very considerably, according as it is seen under the influence of light or shade; but whether contemplated in summer or winter, sunshine or storm, under all aspects it will be found to possess some special beauties. In the early morning the dazzling sun floods the landscape with his silver glories, and distant objects are crowded and indistinct, presenting to the eye only masses of gray, and the absence of all detail except in very near objects. How beautifully at noon, when the gorgeous clouds are slowly sailing along, do the shadows glide over the fields, while the sun in meridian splendor gilds the sparkling streams! How charmingly does a yellow harvest-field in the foreground, with its brown sheaves and busy reapers, contrast with the deep blue of the distance. At evening the gray twilight again masses the distant objects, and, as the last streaks of day linger in the west, the whole landscape assumes a subdued tone, and tall trees and lofty rocks appear with unwonted distinctness, yet still without harshness, against the sky. How insensibly the distant hills and mountains melt into the atmosphere. There again stretches away a continuity of wood, with its varied tints, and here a silvery stream or lake

reflects the placid sky and lends life and loveliness to the scene.

Now as to the coloring of flowers. No objects in nature have such brilliant coloring, especially in California. In them we have colors in the most delightful combinations, and tints modified by difference of surface and texture in endless variety. Perhaps yellow is the commonest color in flowers, and blue the rarest; red occupying the middle station. Of these the tints of the red flowers are more diversified than those either of yellow or blue. The many shades of color between the Nasturtium and the Sweet-william could not, we think, be paralleled by either of the other colors. It is interesting to observe how the flower of a plant invariably harmonizes in color with its green leaves, some by similarity and some by contrast. How finely does the snowy blossom of the Convolvulus of the canyon-side harmonize with its large, well-defined, empurpled leaves. How beautifully do the rich warm orange flowers of the Nasturtium contrast with the light-green leaves on which they repose. How becoming the cold-green leaves of the double Poppy to its blossom. How admirably do the little white stars of the Jasmine, or the elaborate Passion-flower, contrast with the dark leaves behind them. But if the blossoms of the Marigold were viewed in connection with the green leaf of the Passion-flower, even an unpracticed eye would quickly detect the want of harmony between the flower and the leaf. Some few plants, as the Marvel of Peru, strangely produce flowers of different colors from the same root, but this is of rare occurrence in the vegetable world.

It is also interesting to observe how exquisitely the various tints are blended in the individual petals, and how symmetrically these in their turn are

arranged so as to form a complete flower; as, for instance, in a well-developed Dahlia. How inimitably, in the delicate tints of the Rose, does the blue blend with the warm blushing red of the centre of the flower! In other flowers, the colors are not so softly blended, as the Nasturtium, in which the red is dashed as it were on the orange, yet without the least harshness. In some the petals are striped and variegated with a different color from the ground, as the Tulip and the Geranium; and in others each petal is of a different color at the inner part, as the Coreopsis. But, however fantastically the colors may be disposed, or however strangely they may contrast, there is always a harmony of coloring, and a softness of effect, which must be pronounced faultless even by the most fastidious.

TIMBER LANDS.

The House, February 23d, passed the bill providing for the sale of timber lands in the States of California, Oregon and the Territories. It is a bill that will meet with general approval. It provides, in brief, that any person or association of persons may purchase *not to exceed* 160 acres of any timber lands, "unfit for cultivation," at the minimum price of \$2.50 per acre. This, of course applies only to surveyed but "unoffered" lands. The application must be made through the local Land Office as with other public lands. The applicant must take a rigid oath that the entry is for his own use and benefit, not for the purpose of speculation; that is, "that he has not made any agreement or contract with any person whatever, by which the title which he might acquire from the Government should inure to the benefit of any person except himself, which statement shall be verified

by the oath of the applicant before the Register or Receiver of the Land Office within the district where the land is situated; and if any person on taking such oath shall swear falsely, he shall be subject to all the pains and penalties of perjury, and shall forfeit the money paid for said lands and all right and title to the same, and any conveyance which he may have made, except in the hands of *bona fide* purchasers, shall be null and void."

The bill furthermore requires that the notice of intention to apply for a patent to such lands must receive due publication as in case of a mining patent. After which, if there be no adverse claimants or rights filed, the patent must issue on payment of the price named.

CLOAK - CUP MORNING - GLORIES,

BY DR. A. KELLOGG.

A long time ago—during the last generation, 1860-62—we especially invited public attention to the rare grace and perennial verdure of a woody twiner common around the Bay of San Francisco, and in many parts of the State, even to the Mono side of the mountains east.

The native Cloak-cup Morning-glory (*Calystegia sepium*, L.) is one of the hardiest and freest growers known, particularly in moist localities, where it beautifully festoons trees and shrubs, climbing fifteen to twenty feet.

We challenge any gardener to show us a climber of more grace and beauty, *all the year round*, for adornment of verandas, summer-houses, rustic bowers, archways, garden-screens, etc.

The California form has several flowers on each flower-stem, instead of only one, as described. These open consecutively: in short, it is always in bloom

here. When first open they are white, or chiefly so, becoming purplish with age.

We have three or four species or good varieties, but they are much smaller, and of comparatively little importance.

The Chinese variety (*C. pubescens*) is double-flowered, pink-colored, and crimped up irregularly; quite as luxuriant as the native; thickening up and hiding angular and unsightly objects; covering as with a mantle of charity every natural defect of the landscape, rural retreat, or cotten's door. Why then do we not cultivate them?

REMEDY FOR MILDEW.

Some years ago I read, in a German periodical devoted to practical chemistry and chemical technology, edited by Dr. Elsner, that molasses, mixed with water, was a certain remedy for mildew on Gooseberries; but no proportions were stated. A few days afterwards I noticed that a Gooseberry-bush in my garden looked as though it had been sprinkled with flour, so much was it affected with mildew. I immediately mixed some molasses with an equal quantity of water and applied it to the bush with a common syringe, immersing some of the branches in the mixture. The next day the mildew had disappeared, the black spots only remaining on the leaves where the mildew had destroyed the epidermis. Since then I have repeated the application every year with the same result.

I find that it is better to take rather more water than molasses. The efficacy of the remedy is evidently based on the fact that it excludes the air from the leaves, forming a thin cuticle on them and thus suffocating the mildew. The first rain will dissolve it and carry it off. Several years ago a weak solu-

tion of common glue was recommended as a remedy against mildew on Grape-vines—the action and the effect being the same as with the molasses—but I found that it was much more convenient to use the molasses than the glue. Not having the opportunity to try either of these remedies on Grape-vines, I do not know whether it will destroy the mildew on them.

In the same work a Mr. Roberts proposed another remedy for mildew, which he called “sulphozone.” He found that precipitated sulphur had no effect on mildew; that common sulphur pulverized, was much better, but that the best was flour of sulphur. He has convinced himself that the flour of sulphur, which is produced by sublimation, retains a great deal of sulphurous acid (not sulphuric acid,) less of which is found in pulverized, and hardly any in precipitated sulphur. He added that flour of sulphur impregnated with more sulphurous acid than it naturally contains, is found, by physicians, to be a more powerful remedy for destroying the insects which produce the itch than the flour of sulphur in its natural state. He prepared a powder which contained a quantity of sulphurous acid four times that of the sulphur. In applying this he found that a comparatively small quantity was required to be as effective as the ordinary flour of sulphur.

His suggestions may be worthy of experiment on plants infested with mildew, but should be conducted cautiously for fear of injuring the plant. The flour of sulphur, as ordinarily used for checking this pest, should be moistened with some sulphurous acid, but in what proportion should be made a matter of experiment.—*Dr. Siedhoff, to the American Garden.*

PLANT FLOWERS—they will reward you.

VOL. V.—22.

NOTES ON MARANTA MAKOYANA AND
MESEMBRYANTHEMUM CORDIFOLIUM
VARIEGATUM.

BY J. H., SOUTH AMBOY, N. J.

Among the popular novelties of recent introduction, entitled to a prominent place, is this lovely Maranta. It is a fine addition to this splendid class of ornamental foliage plants, admirably adapted for planting in a Fern or Wardian case. The leaf-stalks are slender, erect, and of a reddish purple. The ground color on the upper surface of the leaf is a greenish yellow traversed by veins of dark green, beautifully ornamented on each side of the midrib by oblong blotches nearly two inches in length and of a deep full green. These blotches are very decided and well defined, showing handsomely on the under surface which is a wine red, giving to the whole plant a very distinct and attractive appearance, equal to if not surpassing the gorgeous splendor of *Maranta Veitchii* or *Lindenii*. There are also some novelties deserving attention, as being particularly suitable for carpet bedding, such as *Mesembryanthemum cordifolium variegatum*—a plant that has only to be seen to be admired and to become a universal favorite. It is undoubtedly the best variegated foliage bedding-plant that has yet been introduced. I do not make this statement upon the strength of what I have heard, read, or conjectured, but upon the result of a practical test,* under no very favorable auspices. I planted it out late in the season, in one of the hottest driest positions possible, along with a collection of other succulents. During the dry weather we had in the past summer in this locality, such excellent bedding succulents as *Echeveria pumilla*, *E. secunda*, and *E. secunda glauca*, shriveled and turned brown, and

finally had to be taken up. This gem remained in perfect health, its innumerable crystal-like specks glistening in the sunshine — an object replete with beauty. It has been proved that spring struck cuttings are very superior to those that are struck in autumn.

THE PROFITS OF FLAX CULTURE, AND ITS INFLUENCE ON THE SOIL.

It is commonly said that Flax exhausts the soil rapidly. This is true if the Flax is pulled; then nothing is returned to the ground. Flax sown for the fibre and lint, and not for seed, is the kind commonly used in Ireland, and it takes the strength of the land, so that for continued culture suitable manures must be applied.

But the Flax mostly sowed thus far in Oregon has been sown for the seed. It is shorter and more branching. Its fibre is strong and valuable for many purposes, but it is mostly thrown away. This Flax is cut with a reaper or header and thrashed like Wheat.

Colonel T. R. Cornelius states that he sowed this seed upon land that would have lain fallow, and gained a three-fold benefit. First, it grew so thick as to choke the weeds entirely; second, he got a crop of seed equal in value to the Wheat crop of the previous year; third, the Flax stubble plowed in enriched his land and put it in as good order for Wheat the next year as if it had lain fallow. Some of his neighbors failed of a good crop of seed that year because they sowed too late and upon too dry ground. It needs moist land. If these two conditions are regarded, there seems to be no reason to let ground lie fallow every other year. If this kind of Flax will kill the weeds, give a crop of seed of equal value to one of Wheat, and enrich the soil with

stubble, farmers can increase their permanent profits by its culture.

But a fourth benefit can be gained. Soil too wet for other crops can be used for this one.

A fifth and greater benefit than all can be gained by saving the Flax straw for the sake of the fibre. William Reid, Esq., who is doing so much to bring our north-west coast into proper notice, relates that a few years since the government of Australia offered a bounty of \$25,000 for 1,000 yards of linen, made of their Flax. The difficulty of the task was that the Flax raised there is filled with gum, which the weavers of Dundee could not extract. It injured their looms. The fibre was very strong and good for ropes and cables, if kept under water, but when dry they would crack and become worthless.

But the great bonus induced them to try the experiment. By much perseverance the 1,000 yards were made and the reward was paid, but the cloth was gummy and of poor quality. The chemist also who succeeded in extracting the gum spoiled the fibre, and that Flax had to be given up. While this trial was in process, a friend of Mr. Reid's sent him a hank of Flax, raised for Mr. Holman, of Salem, Oregon, for the seed. Mr. Reid was surprised at its softness, fineness, and strength of fibre. He showed it to some of the linen manufacturers of Dundee. They were more surprised. They doubted the story of its production in America, and thought that some one had deceived him. He asked what they would give per ton for such Flax. One man offered £55 or \$275 per ton, and another £60 or \$300 per ton, and pledged themselves ready to bargain for ten years, as the Flax supply in Ireland is failing every year.

Mr. Reid sent a sample to Belfast, the great linen manufactory of Europe.

That sample brought Mr. Smith and the Williamson Brothers from Belfast to Oregon last year. They introduced the Flax-seed which produces the long fibre, and raised over 200 acres of it. This lint has been sent to Belfast, received, and reported in their journals. The success is so remarkable that the most sanguine are surprised. The Messrs. Williamson have already hired 400 acres for next year's crop, at a rental of \$15 per acre.

Mr. Reid remarks that Flax will bring out Oregon and Washington, even if we had nothing else.

The papers report that Mr. Holman has engaged our farmers to sow 12,000 acres this year for the seed alone. The straw or fibre for the most part will probably be thrown away as in years past. Yet this Flax, prepared and sent to Dundee, is worth from \$200 to \$300 per ton. If not sent, at that price it will bear to be made into burlaps, twine, and cordage in Oregon as well as in California.—*Bulletin.*

THE STINGING TREE.

One of the torments which the traveler is subjected to in the North Australian scrubs is a stinging tree (*Urtica gigas*), which is very abundant, and ranges in size from a large scrub of thirty feet in height to a small plant measuring only a few inches. Its leaf is large, and peculiar from being covered with a short, silvery hair, which, when shaken, emits a fine pungent dust, most irritating to the skin and nostrils. If touched it causes most acute pain, which is felt for months afterward—a dull, gnawing pain, accompanied by a burning sensation, particularly in the shoulder and under the arm, where small lumps often arise. Even when the

sting has quite died away, the unwary bushman is forcibly reminded of his indiscretion each time that the affected part is brought into contact with water. The fruit is of a pink fleshy color, hanging in clusters, so inviting that a stranger is irresistibly tempted to pluck it, but seldom more than once, for, though the Raspberry-like berries are harmless in themselves, some contact with the leaves is almost unavoidable. The blacks are said to eat the fruit, but for this I can not vouch, though I have tasted one or two at odd times, and found them very pleasant. The worst of this nettle is the tendency it exhibits to shoot up wherever a clearing has been effected. In passing along the dray-tracks cut through the scrub, great caution was necessary to avoid the young plants that cropped up even in a few weeks. I have never known of a case of its being fatal to human beings, but I have seen people subjected by it to great suffering; notably a scientific gentleman, who plucked off a branch and carried it some distance as a curiosity, wondering the while what caused the pain and numbness in his arm. Horses I have seen die in agony from the sting, the wounded parts becoming paralyzed; but strange to say, it does not seem to injure cattle, who dash through the scrubs full of it without receiving any damage. This curious anomaly is well known to all bushmen.—*Cassell's Illustrated Travels.*

DON'T SHOOT THE SMALL BIRDS.

The classic Oaks of Berkeley are being devoured by caterpillars, and to the visitor who for the first time sees the place overrun by myriads of these indefatigable little crawlers it seems as if every green leaf and blade of grass must soon disappear. Apparently,

however, they are fastidious in regard to their diet, and avoid the strongly-scented and aromatic Blue Gums and Cypresses, for within the plantations of those trees not a caterpillar is to be seen. In all the other parts of the University grounds they swarm; colonies of them have spun gossamer nets in the boughs of the Live Oaks; they take possession of the paths, and one can not step without crushing them; they crawl over the sides of the students' cottages and even invade the sanctity of the professors' gardens and residences; they drop on the heads of the young people in the picnic grounds, and float wriggling and kicking in the waters of the brook. The students indeed bear the visitation with the composure of philosophers. Possibly the plague keeps their friends away and diminishes the distractions to which they are subjected by the visits of "the profane vulgar." Seriously, however, it is a pity to see the Oaks stripped by these voracious little creatures, and the students of the Agricultural Department might profitably exercise their ingenuity to rid the place of such pests: One of the lessons which the annoyance teaches is that the lads who shoot the small birds destroy the farmer's most efficient allies in his continual struggle with the insect hordes that ravage his fields and orchards. This truth has at last, after generations of ignorant prejudice and misapprehension, been recognized in England, and an act has been passed prohibiting the taking or shooting of about eighty varieties of wild birds, from the 16th of March to the 1st of August; although, for some reason or other, the blackbird, the skylark, and the thrush have not been placed under the protection of the law. The next legislature would do well to stop the destruction of small birds during

the breeding and rearing season, so that we may escape the possible danger of grasshopper and grub plagues in our hitherto favored State. The difficulty at Berkeley, perhaps, is due to the shyness of most of the wild birds, which rarely live near human habitations; but there is the sparrow, a sociable fellow, as little afraid of a student as a street *gamin* is of a policeman, and a dozen imported from New York would be as useful at Berkeley as they proved in the Central Park when imported from London. In conclusion, we would appeal to the good sense of our boys and young men, and ask them not to shoot the small birds.—*Call.*

ALDEN PROCESS OF FRUIT-DRYING.

Highly favorable reports come from all the Alden drying-houses; while the other methods of artificial dessication are either failures, successful in a minor degree, or not yet sufficiently tried to establish their value among people in their vicinity. The inventors usually claim high merits for their plans, but no method of artificial drying, save the Alden, has been extensively adopted or is generally known even by name in California. In reference to the Alden drier at Sonoma, the *Healdsburg Flag* says:

"It is the intention to start the factory this year by the first of April. The company have contracted with General Vallejo and others for large quantities of Green Peas at \$37.50 per ton, delivered at the factory. They will run on Peas until fruit is sufficiently ripe. They have also contracted for a large supply of Onions, and, if they find it practicable, will add Potatoes to the list of their products, hoping thereby to continue running the year round. The ruling price paid for Apples deliv-

ered at the factory, last year, was \$10 per ton; Pears, \$12; Plums \$12 to \$20. The factory now has three evaporators, and can cure six tons of Peas, four and one-half tons of Apples or Peaches, three and one-half tons of Pears, or three tons of Plums every twenty-four hours.

THE RESPIRATION OF LEAVES IN THE DARK.

An important paper by Deherain and Maissan, upon the respiration of leaves in the dark, has lately been published in *Comptes Rendus*. Among the more important conclusions reached by the authors in their researches are: First, that the quantity of carbonic acid which is thrown off by leaves in the dark increases with the increase of temperature; second, that the quantity of carbonic acid thrown off is comparable to that yielded by the cold-blooded animals; third, that leaves kept in the dark absorb more oxygen than they throw off carbonic acid; fourth, that leaves continue to throw out carbonic acid in an atmosphere deprived of oxygen.

The authors present the following hypothesis upon the physiological uses of this internal combustion which takes place in the leaves, as the result of their numerous experiments. The immediate constituents which are necessary to the growth of the plants, and to the formation of new organs, are in part formed in the leaves. This growth is especially favored by warmth in the dark; a principle well known to gardeners, who cover plants, the development of which they wish to accelerate, under glass, in which case a part of the light necessary for the composition of the carbonic acid is reflected, but an elevated temperature is secured. This

heat in the dark is especially favorable to an active respiration, as we find that the quantity of carbonic acid increases in proportion to the increase of temperature in the leaf, so that there seems to be a relation between the rapidity of growth and the energy of respiration.

This can easily be appreciated, when we assume that a certain portion of the heat must enter into action, in order to the formation of the intermediate principles. The internal combustion, which is indicated by the absorption of oxygen and the throwing off of carbonic acid, is probably the source of the heat necessary for the formation of the new immediate constituents.

AN ECCENTRIC PERUVIAN PLANT.—In speaking of the wonderful fertility of the soil in Peru, I have never spoken of a little plant, or leaf, they have here, which I never met with in any other place or country. I do not know the botanical name, and I hope that some botanist or *savant* can give me the name and species. The natives take a simple pale-green leaf, something like a Fern, and pin it to the wall with a common pin stuck through it—just pin it on to the plain adobe wall. Sometimes they fasten it up with a tack. The leaf itself is not so large as a Geranium leaf. Incredible as it may seem, from this leaf will spread out tiny tendrils and shoots, and delicate leaves will form, spread, run, and cover the whole wall. I had one in my own side-yard, or corral, that covered the entire side of the wall, and it grew from one small leaf, pinned on to the adobe to hold it in place. It becomes a thrifty running-vine. I would not believe it possible but that I have seen it repeatedly and successfully tried.—*Chicago Tribune*.

EUROPEAN SYSTEM OF BASKET-
PLANTING.

BY CHARLES MOHR.

This system, so popular among nurserymen in Europe, is as yet not adopted here; though its merits are so great, and, at the same time so cheap and easy, that certainly your nurserymen should avail themselves of it.

Gardeners in Italy and southern France do not make any use of greenhouses or sashes, but for tropical plants. Their manner of growing semi-tropical and other valuable evergreen trees and shrubs, as Oranges, Lemons, Magnolias, Camellias, Azaleas, Rhododendrons, Coniferas, etc., consists in planting them, instead of in pots or boxes, in plain-made baskets of Willows, sinking them into the ground in such localities as are most appropriate to the plants.

Naturally the larger roots will be confined in the basket, but the smaller roots, which penetrate through the small openings, will derive nourishment and moisture from the surrounding earth. This saves a great deal of time, which otherwise would be spent in irrigation, where the plants are potted or boxed. In fact, the plants treated in this manner have the same healthy and robust appearance as if they were planted in the open ground; and the facilities of moving and transporting them are so great, that no other system can equal it. All that is necessary to be done is to dig out the baskets carefully. In case of shipping, add an emballage of moss and cloth, and the plants will arrive safely at their place of destination.

In San Francisco, where baskets certainly would be too dear, boxes made of small open laths will answer the same purpose.

Editorial Portfolio.

RHODODENDRON CALIFORNICUM.

We give in this number of our journal a true representation of this beautiful California flowering shrub, which grows with great luxuriance in Santa Cruz County and a few other localities.

The *R. Californicum* belongs to a numerous family of evergreen flowering shrubs, which are considered in the East and in Europe valuable acquisitions for the gardens and conservatories. Here on the Pacific Coast they have until lately commanded but little attention; but we believe that there are at present a pretty good number of these plants in cultivation in this city and its vicinity. They do not, however, do so well here as in some other parts of the world, but inasmuch as the *R. Californicum* grows to such perfection within a few miles of San Francisco, we have every reason to suppose that some of the other sorts could also be grown with satisfaction in our gardens. The efforts which have been made by our gardeners and nurserymen without much success can be by no means considered final. We saw some good varieties of this plant at Mr. Harmon's place, Oakland, in his conservatory. *R. Californicum* is found growing in masses along the margin of creeks, and in hollows, in a damp sandy soil. It attains the height of from four to six feet, having a beautiful dark-green, glossy foliage, and clusters of flowers of a delicate rose color. Its flowers are developed during the early part of May, and remain in bloom for some time. The specimen from which our plate was taken was found growing at Waddell's Mills, Santa Cruz County. The original painting, from nature, was executed by A. W. Saxe, of San José,

through whose kind permission we are enabled to introduce it, and to furnish our readers with a representation of one of the many native floral beauties of California.

This genus of plants, by the attention of modern culturists, has been rendered truly splendid, and is now indispensable to every well-furnished garden. It contains about twenty hardy species at least, some of them being natives of the coldest mountain regions. They do not seem benefited by exposure to the direct rays of the sun. In a hot sunny place the foliage is often scorched, the growth stunted, and the flower-heads few and small. The soil usually prepared for them is a peaty or marsh soil, with an addition of sand or loam. The plants are more extensively raised from seed than by any other method, though both layers and cuttings may be employed.

INSECT PESTS IN CALIFORNIA.

We have strong reasons for believing that the different species of caterpillars that we find committing such ravages on fruit-trees, especially Apple, and also on the Oak and some other trees, are old inhabitants here, and it is quite possible their birth may have originated in this country, though until lately they have not been found very numerous. It seems our many newly planted orchards have attracted them, or their late rapid increase has caused them to spread out on all kinds of vegetation. During our visit to Napa Valley last summer, we observed millions of white moths, or the perfect insects, fitting up and through the Oaks there. They had been preceded, of course, by as many millions of caterpillars. We are informed that this year they are even more numerous than the last.

They have invaded the orchards terribly, and if they are not destroyed as soon as they appear as they do often in clusters, it is fearful to think to what an extent in future they may commit ravages. It is comparatively easy work to destroy these clusters in various ways early in the morning.

HORTICULTURAL DEPARTMENT AT THE MECHANICS' INSTITUTE FAIR.

Preparations for the Horticultural Hall at the great Fair to commence on the 17th of August are progressing quite favorably. The garden in the hall is being made with activity and energy, and the exhibition there promises to be effective. It will cover an area of 200 by 75 feet at the south-east corner of the Pavilion. Access to it will be gained at its south-east corner, through a broad and easy entrance from the Pavilion. Fifty feet of the south end will comprise a sort of plateau or terrace to be paved with varicolored tiles, and devoted especially to the use of exhibitors of plants, cut-flowers, etc.

THE PLAN OF THE GARDEN.

The remainder, which is 150 by 75 feet, and is reached from the terrace by a broad and handsome flight of descending steps, will constitute the horticultural garden proper; it has been laid out by A. P. Hall, the landscape artist, with curving walks neatly bordered, fountains, bowers, and other pleasant accessories. There will be a large fountain about the centre, a rockery north of it, and at the north end a real cataract. About the outside will be creeping plants, trailing vines, and trees planted in lines and clusters. Palms, Ferns, evergreens, and so forth, have been already set out and are growing finely. Grass was sown some months ago, and has come to such maturity as

to make its cutting necessary. It will form a fine sod by midsummer. The sides of the horticultural building will be covered with boards, and the roof with canvas, of which it will require 3,000 square yards. Medals, premiums, and diplomas will be awarded to exhibitors in this department as in all others. We trust our nurserymen and florists will be well and generally represented, and that their show will confer honorable reputation to the State and to themselves.

MARIN COUNTY—SAN RAFAEL, SAUCE-
LITO, ETC.

We have received a neat pamphlet, indeed almost a book, written by George W. Gift, containing an interesting, intelligent, and very fair description, not only of California in general, but of Marin County in particular, its climate, health, wealth, and resources; also, a series of carefully written and well considered articles describing the very healthy site of San Rafael, in which the mildness and equability of its climate are explained, and its exceedingly beautiful and romantic scenery portrayed. We can bear testimony to the truthful statements contained in these sketches of one of the most important and valuable of our coast districts, as we have had the pleasure of visiting it on several occasions, and inspecting some of the rich dairy establishments and other interests carried on there. The land is chiefly adapted for fine grazing, but some grain and many excellent fruits and vegetables are successfully raised. The climate of San Rafael for invalids is not surpassed, if equaled, by any in the State. This pamphlet should be read by everybody who is desirous of knowing anything about this San Rafael paradise.

PROPOSED NEW TOWN OF NEWARK.

Among the many choice and beautiful sites for towns and rural residences on the Pacific slope is the location for the above-named town. Here the land is about as rich as nature ever makes it, and the climate is favorable not only for all our common fruits, but for many of the semi-tropical. In our recent visit to this advantageous location for suburban places for our business men and small farmers, we saw Orange-trees in bearing about twelve feet in height (at the old San Jose mission, near by, they were eighteen feet), and whose stems were four inches in diameter. They were in perfect health, and with their blossoms, shining leaves, and their fine fruit, presented most lovely pictures. This valuable land can be reached either by rail or steamboat in a short time. Like Saucelito, San Rafael, and a few other choice spots for dwellings, gardens, and other country improvements, Newark is now about to take its well-deserved position among our bay-shore attractions.

WOODWARD'S GARDENS.

The march of improvements of many kinds is still onward at this well-arranged and well-kept public resort for amusement and recreation, and also instruction in several both animate and inanimate subjects of science—especially natural history. The botanical department, under the able management of Mr. Charles Mohr, is advancing as well as all lovers of Horticulture and Floriculture could desire. His group of rockeries in the conservatory is most tasteful and artistic, and adorned with a choice varied and rare selection of Ferns flourishing most luxuriantly. Overhead on the walls are many beau-

tiful and luxuriantly growing climbers. At one end of the conservatory there is another handsome and picturesque rockery, adorned with a fine collection of Cacti. But the very latest embellishment in the grounds, and designed by Mr. Mohr, is a romantic one-arched bridge of rock-work, thrown over the narrow passage-way between the two ponds, one of which contains the circular boat. Near the bridge is an octagon rustic summer-house of excellent workmanship, with a rock-work foundation. On advancing to these structures in the path from the main cabinet building they present themselves to the admiring gaze of the visitor with Weeping Willows and Australian Acacias forming a rich and graceful background; and the effect of the bridge is to enlarge the view, and add much to the beauty of the miniature lakes.

The orangery to the left of the rotunda, which was formerly the grapery, contains the finest varieties of this favorite fruit, together with the best species of Lemons. In the side borders are Palms. Altogether, the horticultural department of these popular gardens is greatly improved, both under glass and in the open air, and does much credit to Mr. Mohr's skill and management. The plant and tropical greenhouses are in the finest order, and are continually being added to by the rarest plants. The Fern-house, where once was the aviary, is filled with a splendid exhibition of this most interesting and elegant genus of plants. The museum of natural history, directly opposite the entrance gate, has lately undergone a thorough re-adjustment in all its compartments and cases. Under the able operations of Mr. C. Stephens and Professor F. Gruber, all the specimens have undergone a complete scientific classification and labeling.

The marine and fresh-water aquarium, under the superintendence of Professor C. Schuman, still upholds all its most interesting features. Both the sea and fresh-water fishes of many varieties are doing well, and some of them, especially the different species of trout, are much increasing in size.

Another lofty fence is being erected on the north-west side of the grounds, to act as an effective screen against our strong summer trade-winds, and to protect invalids, and persons in delicate health, when visiting and perambulating the gardens. Thus the public-spirited proprietor is evidently quite liberal in his expenditures in all these improvements in catering to the pleasures and enjoyments of his visitors.

ROBERTSON'S NURSERY.

Nearly opposite the long-established nurseries and plant-houses lately of Edw. L. Reimer, but now of W. Meyer, corner of Folsom and Nineteenth Streets, is the neat, well arranged and managed nursery and floral place of William Robertson. This business has been carried on for some years, and the stock turned out by the skill of Mr. Robertson, as to the growth and reliability of his trees, shrubs, and plants, has given general satisfaction to the public. His depot of sale is 106 California Market.

CATALOGUES RECEIVED.

From D. M. Ferry & Co. Detroit: "Descriptive Seed Annual for 1875." Certainly one of the handsomest catalogues in the United States. It contains a beautiful colored engraving of their Peerless Water-melon, and also a splendid colored plate of the Emperor William Pansy, a celebrated new vari-

ety of the most brilliant indigo blue shaded and penciled with black in the centre, with a white and yellow eye. The flowers are of immense size, most perfect form, very freely produced. It is one of the finest Pansies yet introduced.

From William Rennie, Toronto, Ont., Canada: "Descriptive Seed Catalogue for 1875, of Field, Garden, and Flower Seeds." Chiefly vegetable seeds, with some flower seeds, with neat plates of both, but mostly of vegetables.

From George F. Sylvester: "Annual Catalogue for 1875, of Garden, Flower, Tree, Agricultural, and Herb Seeds." 317 Washington Street, between Battery and Front, San Francisco, Cal.

From J. M. Thorburn & Co.: "Annual Descriptive Catalogue for 1875, of Vegetable and Agricultural Seeds; also, of Flower Seeds, Beautiful French Hybrid Gladiolus, and other Bulbs." No. 15 John Street, N. Y.

From William Bull: "A Retail List for 1875, of Select Flower, Vegetable, Agricultural Seeds, and New Plants." King's Road, Chelsea, London, S. W. This is the leading firm in England.

NEW AND RARE PLANTS.

Crisped Pelargonium, Queen Victoria.—As our readers know by this time, our botanists are unable to find any valid distinction between that class known in old times as the Horse-shoe or Fish Geraniums and the old Pelargoniums that were once the glory of every early summer show. They are all now Pelargoniums, and the other class instead of being bedding Geraniums are "Zonal" Pelargoniums—though large numbers have no "zones" or "horse-shoes" on their leaves. There is no blame to botanists—they have to follow the truth in all cases, no matter what

temporary inconvenience may be caused thereby. Yet it was so nice in practice to distinguish the two great classes in that way. We now have to explain always what we mean by a "Pelargonium." Those we refer to to-day are not of the old scarlet "Fish" or "Zonal" class, but of the "other." It promises to be of great interest as the founder of a new race of that class. Mr. Chitty, of the Bellevue Nurseries, thus describes it:

"This magnificent Pelargonium represents a new type of this valuable flower known as the frilled or crimped-edge type. To say that this variety is handsome conveys but a faint idea of its marvelous beauty. The flowers are not double, but from the peculiar crispy petals, their extra number, and great fullness of form, have the appearance of being so. The color is a rich vermilion, all the petals being broadly margined with pure white, and the upper ones blotched with maroon; the flowers are produced in immense trusses; the plants flower quite small and continue long in flower. This is the most valuable market variety ever introduced, as it is also one of the very best for general decorative purposes."—*Gardener's Monthly*.

NEW FRUITS.

The Peerless Water-melon, from D. M. Ferry & Co., at Detroit, Michigan, is considered one of the best Water-melons known. Messrs. Ferry & Co. consider this Melon unquestionably the finest in cultivation, and that it will probably supersede all others. The Casaba and Improved Nutmeg are among the best of the Musk varieties.

A MULCH of well-rotted manure is invaluable for plants at this season.

CULTIVATION OF FRUIT AND ITS PROTECTION, AND REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

Year by year in California, and indeed in all the States, the forests are being stripped off, exposing the hills, mountains, valleys, and plains more and more to the fierce winds of winter, and in California, in summer, to the powerful westerly trade-winds; and her fine spreading Oaks, in single trees, in groups, or in groves, are being speedily destroyed for fuel and other uses.

One of the things we most need in this State is shelter, independently of trees for fuel and manufacturing purposes. And this can readily be accomplished in a short time by the planting of deciduous and evergreen trees, especially the latter. While deciduous trees answer a good purpose for protection from winds in summer, evergreens, besides forming a good shelter, have the additional advantage in all seasons of the year of affording a delightful spectacle to the eye. The Monterey Cypress and the Eucalyptus are admirably adapted for this purpose, independent of the last tree furnishing useful wood for several economical uses; and if a single screen of the Cypress is not sufficient, then double belts of trees may be formed, by planting Eucalypti and Australian Acacias, as well. When trees are planted in belts or hedge-rows, evergreens of many varieties will be found preferable. Besides those we have named, Norway Spruce, Scotch Pine, Norway Pine, American Arborvitæ, and American Spruce may be used. The Scotch Larch, though not an evergreen, is a rapid grower, and will soon make a tree of considerable height. The red Cedar is also pretty good to mix in with the above-named sorts, though it is not

a rapid grower. The Hemlock, which is liable to injury when exposed, will do pretty well when planted in belts with other evergreen trees. The White Pine will bear the pruning-hook and shears well, and the trees which have attained too great height may be headed in. The Norway Spruce can be treated in the same way, and can be profitably employed for hedges of ordinary size. Objections are raised against thus planting trees about fields and orchards, to the effect that no crops can be raised in the shade of such timber; that fruit-trees can not be planted near them, that even on the exposed or sunny side the roots extend into the ground and exhaust the soil; and that ordinary field crops would suffer. We can not deny that this would be true to some extent, though not so far as may appear at first glance; but as the good far outweighs the evil, it should still be done.

There are other advantages besides shelter to gardens and orchards, and protection to buildings. Every man so planting will add very much to the value of his place by the additional beauty it receives from such groves and belts of trees. He is also raising wood and timber that will sometime be of great value when wood and timber become scarce and dear.

Horticultural and agricultural societies, as well as the Government, should offer liberal premiums to those who set out or raise from seed such groves or belts of trees, whether deciduous or evergreen. Every sensible man in the country mourns over the sad havoc that has been made by thoughtless men of the past or present generation, who have so ruthlessly destroyed the native growths of all kinds of timber. Let every thinking, careful man see what he can do to restore these trees, or at least furnish proper shelter to his own

grounds, and, indirectly, the grounds and fruit-orchards of his neighbors. Plant liberally, and take good care of the trees until they get well established, and they will soon gladden the eye of the owner, and accomplish the object for which they are designed.

When we lately visited San Leandro, a little beyond Oakland, we had the pleasure to see on Mr. Ford's place there some extensive fine and beautiful screens of the Monterey Cypress and some other suitable evergreens, as well as many of the larger timber-trees, flourishing in great perfection, and forming a capital shelter for his large orchards of various kinds of fruit. Mr. Ford has raised them all from the seed at a small expense, and no doubt he is amply repaid for his outlay and trouble of planting, care of them, etc.

About the 10th of last month (May) Apricots were in season, though neither ripe nor cheap, 50 cents per pound being asked for the few that were offered. Gooseberries were then selling at 5c. and 10c. per pound, but the demand was very limited. Cherries increased in supply, but were mostly of inferior character. There has been no season when so many poor Cherries and Strawberries, early in the season, were offered for sale. Tartarian, May Duke, and Governor Wood were the principal varieties of Cherries then in season. Tartarian ranged from 35c. to 50c. per lb., and May Duke and Governor Wood at from 25c. to 35c.

On the 15th of May no important shipments of Tomatoes had been received and prices were very high. New Potatoes were more plentiful, but the prices were kept up. An important reduction had taken place in the price of Onions, in consequence of free arrivals of new. The supply of Cherries was daily increasing, and prices were stead-

ily giving way. Strawberries became very plentiful about the latter part of May, and much cheaper. No prime lot of Apricots had yet been received, though several consignments, partly ripe, were sent forward. The indications were that there would be a fair abundance of all kinds of late fruit, at least, notwithstanding the reported damage by the April frosts. It is becoming more and more evident that the injury was greatly exaggerated.

The first ripe Currants and Raspberries made their appearance about the last week in May. The former sold at 25c. and the latter at 40c. to 50c. per lb. Apricots were a little more plentiful, but came forward rather slowly, and were generally very small and tolerably juicy. The supply of Strawberries was much lighter than is usual at this season, and the crop now appears to be somewhat deficient. The prices will be no doubt lower when the fruit becomes more abundant.

The last shipment of California Oranges has probably been received, and the dependence of the trade in this fruit must henceforward, this season, be upon the Tahiti variety. California Lemons were still in fair supply, and will continue to come forward a month or two longer.

Some English Gooseberries appeared in the stalls about the middle of last month, and retailed at 12½c. per lb.; common kinds, as the Houghton, commanded no more than 5c. Cherries were abundant, but they do not cheapen as rapidly as might be expected.

Cucumbers grown in the open air are beginning to come in, and sell at \$1 to \$1 50 per dozen. Some grown in hot-houses command \$2 a dozen by wholesale, but retailers do not keep many on hand—only enough to fill orders at about 30c. apiece. Strawberries come

into the city at the rate of two and a half tons daily, and as a consequence they are cheap—selling at the stands at 10c. to 25c. a pound by weight, and at 40c. to 50c. per 4-pound drawer for fresh; and where they have been in for a day, peddlers sell the fruit as low as 30c. a drawer. Cherries are plentiful, but the condition of most of them is not first-rate. The best retail at 50c. a pound, and common can be bought as low as 12½c. Currants are so green as to be unsalable. Gooseberries, 8c. to 15c. a pound, the latter figure for English, which are fairly ripe. Apricots are an addition to the fruit market, but are unripe, and being held at 50c. a pound, market men find but little sale for them. Oranges, Pineapples, and Bananas are unchanged. Mangoes, three for a quarter. The price of California Oranges ranges from 50c. to a dollar per dozen. Tahiti Oranges are not in the best condition, and can be had for 50c. a dozen, and even lower. Pears have nearly disappeared, though a few might yet be found. Apples have advanced in price, good to choice selling readily at 8c. to 15c. a pound. Early fruits will be somewhat backward this year on account of cold weather and frosts that came on some months ago. With the exception of Apricots, however, it is anticipated the yield of most kinds will be as great as last year.

The crop of Strawberries shows signs of weakening already. The supply is smaller and the quality inferior to past years. The frost played sad havoc with the crop in the early stages of its growth. It is expected that there will be a great improvement in the condition of the second crop. It is to be hoped so, otherwise this delicious fruit will lose much of its legitimate popularity. Cherries do not promise to be very cheap this season. The supply is very mod-

erate, and the high price asked for good descriptions keeps the demand within reasonable bounds. Tartarian are still selling at 35c. to 50c. per lb.; and other kinds at from 15c. to 30c. There is a fair supply of Apricots, and prices are now down to 12½c. @ 30c. Raspberries are unchanged at 50c. per short pound baskets, and Currants range from 15c. to 20c. Half-grown English Gooseberries retail at 12½c., and common at 5c. New Astrachan Apples are now in the market, and are quoted at 8c. to 10c. per lb. Tropical and semi-tropical fruit is selling at the usual figures.

The first Blackberries of the new crop were received recently from Alameda. The variety is the Aughinbaugh, and is the earliest known. The shipper says he could have had them in market twenty days earlier but for the April frost. Another small lot arrived, and brought \$1 per lb. A few wild Blackberries have also come to hand, and sell for 50c. per lb. Green Apples and Madeline Pears are plentiful, the former at \$1.25 to \$1.50, and the latter at \$1.50 to \$1.75 per basket. The Strawberry crop is turning out to be very short.

A few varieties of fruit were added to the market the first week in June—Apples, Pears, and Peaches—but none of them were ripe. Such as they were, however, they brought extremely high prices, the first Peaches selling at two bits apiece. About June the 4th they were all cheaper; Peaches (fairly ripe), 40c. to 50c. per lb.; Pears, green, at 6c. to 8c.; and green Apples, 4c. to 6c. Red Astrachan Apples were received and sold yesterday at 6c. to 8c. Blackberries were beginning to come in more plentifully, and Lawtons were selling at 30c. to 35c.; and the choicest from across the bay at 50c. per lb. The old

crop of Strawberries made a poor appearance, but sold at quite an advance over the last week, from 15c. to 20c. per lb.; second crop were in better condition and brought 25c.; the few Chile Strawberries that came in commanded 50c. to 60c. Raspberries now sell at 35c. per basket. Cherries and Gooseberries were unchanged. Currants were 8c. per lb., a heavy decline since the week before last, when they sold at 20c.; the quality has improved at the same time. Apricots of the common kind were cheap enough for anybody, and could be had as low as 6c. per lb. The better kinds of Royals and Moorpark were higher, and could not be had for less than 20c.

FORESTS AND RAIN-FALL.—As we have given what purports to be positive and exact figures that there is no influence on the general climate by trees, it is but fair that we give the positive and exact figures on the other side. Here are some:

MM. Fautrat and Sartiaux have lately presented to the French Academy the results of certain experiments to test the disputed question whether forests increase or diminish the rain-fall. Over the centre of the Halette Forest they fixed the pluviometer, psychrometer, etc.; a similar set of instruments under similar conditions being placed above clear ground, 300 metres distant. Between February and July the total rain-fall above the forest was 192 mm., above the clear ground 177 mm., or 15.5 mm. in favor of the forest. As regards degree of saturation, the psychrometer above the forest showed an excess of 1.3 per cent. over the other; thus confirming their conclusion that forests are vast apparatuses of condensation."

Editorial Cleanings.

A ROSE OF THE GARDEN.

A beauteous Rose was once my special care,
 In favored nook 'twas nursed; there, as it
 grew,
 I watched its op'ning beauties come to view;
 And its sweet fragrance filled the grateful air.
 The friendly foliage lent an added charm,
 For beauties, half concealed, are thus en-
 hanced,
 And through the flutt'ring leaves the sun but
 glanced,
 So now I thought my treasure safe from harm.
 But ah! I had not counted all the foes
 That blight a budding life, and so my Rose,
 Though sheltered from rude blasts and scorch-
 ing rays,
 Was plucked by a cruel hand ere half its days
 Were numbered, like some human flow'ret
 doomed
 To die neglected, when it scarce had bloomed.
 —Victoria Magazine.

CHOICE PELARGONIUMS FOR WINTER BLOOM.—The habits of some of the Zonal Pelargoniums are admirable for winter blooming, and the varieties to be chosen for this purpose are such as generally bloom the most freely. I always choose for myself those of a dwarf habit in preference to others, and can recommend them as best adapted for room and greenhouse culture. Among the best varieties, I would name among others equally suitable, the following, namely—Dwarf Glow, a bright scarlet and a very fine bloomer, literally covering itself with showy puffs of brilliant flowers; Vulcan, another scarlet of fine habits, and grown in trusses. Then I have grown with much satisfaction Vesuvius, a red rich scarlet. It is a dwarf among the dwarfs, blooming freely, and very easily cultivated. Then we have the old and well known Peony, whose rich salmon, shaded with pink, every one admires. This you will be

sure to place in your window-box, as it will almost take care of itself. Add two fine plants of pure white—the Bride and the White Swan—and you will have all the whites that you need. These two, I think, can not be surpassed for in-door bloomers, and, possessing all requisites of good, hardy flowers, you may have confidence in them. There are others we have seen well adapted for the purpose of window-gardening and room-culture, but we trust the above selection will give the best satisfaction to our lady gardeners, and having proved them ourselves we know whereof we speak.

THE BEST WAY OF PRUNING STANDARD ROSES.—A very successful Rose culturist says that in pruning standard Roses every shoot of last year's wood should be shortened to three or four buds. If not pruned in this severe manner, the head will become straggling, the shoots weakly, and the flowers small. Only as many shortened shoots should be left for blooming as will keep the head properly supplied without crowding; bearing in mind that each of the three or four buds left will produce a shoot. Attention must also be paid to have the head properly balanced. Where the head of a standard has been improperly treated, and, in consequence, the shoots of several years, now old wood, are too extended, then cut the shoots of the old wood back to within a few inches of their origin, and so form a new head. The portion of old wood retained will push shoots, which generally bloom the following season; and if they should not, they will not fail to do so every subsequent one, if properly treated. Severe but judicious pruning is essential to secure success in blooming the Rose.

An annual manure dressing on the surface of the bed should be given, to be washed in by the rains of winter and spring.

TREE-PLANTING.—Mr. Hodges, superintendent of tree-planting in Minnesota, has presented a forcible argument for encouraging the planting of trees by picturing the condition of Minnesota twenty-five years hence if some measures are not taken to make the growth of trees in that State exceed the consumption of timber. In an address to the State Agricultural Society, he says: "A million or more of population, our pineries exhausted, the Big Woods well thinned out, the Mississippi drying up, St. Paul and Minneapolis three or four hundred miles above the head of steamboat navigation, the mercury forty degrees below zero, and the wind blowing a hurricane, is not the idle reverie of a dreamer." The consumption of wood in the State is estimated to strip 150,000 acres annually. The St. Paul and Pacific First Railroad Company has planted four million young forest-trees, and Mr. Hodges says that a section of prairie land planted with forest-trees will within ten years exceed the profits from ten times as much ground in Wheat. This estimate of profit is probably based on the expectation of great scarcity of wood, which, however, should not occur, if Mr. Hodges' double argument to the farmers themselves and to their pocket-books is accepted by any great number of them.—*Public Ledger.*

AMPELOPSIS VEITCHII.—Mr. Donald G. Mitchell, in a recent essay on rural adornment, gives very high and just praise to *Ampelopsis Veitchii*, a lovely new vine which has come to us from Japan, and which is by no means so

well known yet as its merits deserve. It is smaller and of finer habit than our Virginia Creeper, clinging with much greater tenacity to either wood, brick, or stone, and carrying the greenness of its foliage well into November. Even then it yields to the cold with great reluctance, its leaves changing through a rich brown to a dark maroon, and dropping at last in flakes of deepest crimson. Were it only an evergreen, it would, Mr. Mitchell thinks, more than match the Ivy. The same vigorous creeper is also prominent in the plant-decorations of Wellesley, near Boston. In the latest volume of the Massachusetts Horticultural Society it is said that the unique and picturesque porter's lodge, at the entrance gateway to that magnificent estate, is completely overrun by *Ampelopsis Veitchii*, and the writer declares that "this hardy vine of rapid growth, fine foliage, and wonderfully adhesive power has perhaps no equal." He adds that "on some of the trees it has mounted to the highest branches." It is also used elsewhere on the grounds, and with noteworthy effect, especially in the draping of a Druidical arch of rude stone with rock-work connected.—*N. Y. Tribune.*

CRIMSON-FLOWERING CURRANT.—The double-flowering crimson Currant is an elegant small shrub of easy culture, and, although not so showy as some other kinds, still it is one of those plants that will repay a close and intimate acquaintance. The species with single flowers, from which the double sort was produced, is a native of the Rocky Mountains, in Oregon and in Washington Territory. The flowers are produced in long drooping racemes or clusters, and at a distance resemble a bunch of our common red Currants when fully ripe.

TREES ON BOUNDARY LINE.—The New York Court of Appeals not long since decided that a man has no right to the fruit growing upon branches of a tree overhanging his land where the trunk of the tree stands wholly upon the land of his neighbor. But the law regards the overhanging branches as a nuisance, and they may be removed as such; or the owner of the land shaded may remove them if he is careful not to commit any wanton or unnecessary destruction in so doing. Where the trunk of a tree stands on the line, the owners of the adjoining land have a joint ownership in the tree and fruit, and neither one has a right to remove it without the consent of the other.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING MAY 31, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.08 in.
do 12 M.....	30.03
do 3 P. M.....	30.07
do 6 P. M.....	30.07
Highest point on the 10th, at 9 A. M.....	30.25
Lowest point on the 7th, at 9 A. M.....	29.95

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	62°
do 12 M.....	66°
do 3 P. M.....	65°
do 6 P. M.....	61°
Highest point on the 24th, at 12 M.....	74°
Lowest point on the 20th, at 6 P. M.....	55°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	49°
Highest point at sunrise on the 24th.....	54°
Lowest point at sunrise on the 1st.....	45°

WINDS.

North and north-east on 5 days; north-west and west on 25 days; south-west on 1 day.

WEATHER.

Clear on 26 days; cloudy on 3 days; variable on 2 days; rain on 2 days.

RAIN GAUGE.

7th.....	0.07
14th.....	0.04
Total Rain of the season to date.....	17.39

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, JULY, 1875.

No. 7.

CORREA.

BY F. A. MILLER.

It is somewhat astonishing that this flowering shrub is not better known on this coast. It is very rarely met with, and I do not know of a specimen in any private collection.

Correa alba, a white flowering variety, has been cultivated at Woodward's Gardens in this city for a number of years, but even this variety I have never met anywhere else, and surely it deserves cultivation. There are other varieties which are much handsomer than *C. alba*. The latter is treated as a greenhouse shrub at Woodward's Gardens, and is always in bloom, in summer as well as in winter. We ought to give it a trial in our gardens. I am convinced that some of the varieties are perfectly hardy here, and if they are, they would be welcomed in every garden of any pretensions.

Correa cardinalis is a native of Australia; produces pendulous bell-shaped flowers of a bright scarlet.

C. rubra is another Australian species of great beauty; its pretty red flowers are produced in great abundance.

There are now a dozen or so of other

varieties under cultivation, all of which are spoken of as fine flowering shrubs of excellent habit. The peculiar character of the wood of the *Correas* makes their propagation somewhat difficult, and this may account partly for the tardiness in their introduction by our nurserymen. However, I think that *Correa alba* is easier propagated than the other varieties, and may be used as stock upon which the finer and rarer varieties may be grafted or inarched.

Certainly we expect to give these, as well as other shrubs heretofore unknown to this coast, a fair trial during the coming season, and we expect to succeed with the cultivation of some of them, at least.

Many kinds of beautiful shrubs and plants for the greenhouse as well as for the garden have not yet made their appearance here, and our climate and other conditions are in favor of most of them. We should not be satisfied with four or five varieties of *Ericas*, when a good number of more brilliant sorts may be grown just as successfully, as *Arborea*, *Mediterranea*, etc. The same I may say of *Epacris*, which promise fairly to become most favorite flowering shrubs. In these times of general prog-

ress, we must keep pace with other industries, and endeavor to make our collection of plants as complete as circumstances will allow. If nature has favored our coast with advantages not known to any other country, let us make use of them in domesticating every plant which promises to add to the beauty of our gardens.

THE PAPA W (ASINNIA TRILOBA).

This is the North American representative of a family that embraces the Sour-Sap of Jamaica, the Chevienoyer of Peru, the Sweet-Sap of the East and West Indies, and the Alligator Apple of Jamaica. It grows in western New York and southern Michigan, which may be reckoned its northern limits. Its range west of the Mississippi I have not seen given, but I presume it does not extend farther than eastern Nebraska and Kansas. Loudon states it is not found in the low maritime regions of the Atlantic States. On its northern limits it seldom bears fruit, and its cultivation would not usually be practicable north of 40°. In southern Ohio, Indiana, Illinois, and Missouri, in West Virginia, Kentucky, and Tennessee, I would expect to find its fruit develop by cultivation into something valuable. "The Custard Apples of the West Indies," says Dr. Gray, in his American Pomological Society essay, "give some idea of what might be made of our Papaw, when ameliorated by cultivation and close selection for several generations." But listen to a correspondent of the *American Journal of Horticulture*, as to what is actually attained in the wild state by this fruit:

"From one to seven fruits in a cluster, each measuring four, five, six, or even seven inches in length, and from two to three inches in diameter, and

very like a Banana in shape, depending (in their ripened state) from a leafless branch, so small that its burden surprises you; of the most delicate imaginable shade of green, with a bloom as sensitive as that upon a white Grape or Plum; as yellow within as the richest of cream, and softer than the ripest of Peaches; with a fruit odor that leads you as true, if not as far, as a blossoming Orange-tree; with a flavor which, if it were not all its own, you would liken to nectar, to ambrosia, to your highest ideal in the realm of taste—this is the Papaw."

Charlevoix, writing from Kaskasquias, October 20, 1721, gives the earliest description I have seen of this fruit: "The Acimine is a fruit of the length of a man's finger, and an inch in diameter. Its pulp is tender and sweetish, and full of a seed much resembling that of the Watermelon. The tree grows to no great height or thickness, all those that I have seen being nothing but shrubs, the wood of which is very tender: its leaves long and large, like those of the Chestnut, but of a deeper green." The description is not very accurate, considering that the Pere Charlevoix was in a region where the tree grows to the height of twenty to thirty feet, and the fruit to about the size mentioned by the authority just quoted from southern Ohio.

Du Pratz in his *Histoire de la Louisiane*, published at Paris in 1758, says:

"The Papaws (Asseminiers) are only to be found far up in higher Louisiana. These trees, it would seem, do not love heat; they do not grow so tall as the Plum-trees; their wood is very hard and flexible; for the lower branches are sometimes so loaded down with fruit that they hang perpendicularly downward; and if you unload them of their fruit in the evening, you will find them

next morning in their natural erect position. The fruit resembles a middle-sized Cucumber; the pulp is very agreeable and very wholesome; but the rind, which is easily stripped off, leaves on the fingers so sharp an acid, that if you touch your eye with them before you wash them, it will be immediately inflamed and itch most insupportably for twenty-four hours after."

Darley, in his "Louisiana in 1817," mentions the Papaw as found at the Opelousas, so that Du Pratz could have been but partly right in assigning the location of the plant to what was then upper Louisiana, as he seems to do.

As early as 1837, Dr. J. G. Kirtland suggested in the first Geological Report of Ohio, that "it is worthy of inquiry whether the Custard Apple or Papaw (*Asinnia triloba*) might not be made to break into rich and palatable varieties by artificial means." Whether Dr. Kirtland, an indefatigable amateur horticulturist, ever undertook the task I do not know.

J. G. Cooper, in a paper in the *Cincinnati*, 1860, states that the natural range of the Papaw "seems to have been entirely west of the Alleghanies, but it occurs in scattered localities east of them, at points where the Indians are known to have had villages, or which are likely to have been cultivated by them. Such occur most frequently to the south of the Potomac, where Bartram tells us he met with large fields deserted or still cultivated, in which several unusual trees were growing." From this it would seem that either by accident or design the Indians began the growth of this tree from seeds.

But there is little or no record of attempts at cultivating this tree for its fruit, and, as it disappears as settlement advances, the opportunity for the

selection and preservation of the best wild sorts grow yearly less and less. Those who have the opportunity should give the selection of the best varieties early attention. In my own observation I find considerable differences in size, quality, and time of ripening of the fruit, and these differences can be profitably used. I never remember to have seen a tree or grove remain alive many years in open ground, unshaded by other trees. This, however, may not prevent the trees being grown in open ground from the seed. Meehan, in fact, in his "Hand Book of Ornamental Trees," says that "to be grown to perfection it should be treated as a single specimen, in rich soil, in an open situation. Then the tree has a very pretty conical appearance. In stony soil it is liable to throw up suckers, but these are easily kept down. In Philadelphia it bears fruit freely in the autumn. The largest specimen at Bartram is thirty feet high, and two feet eight inches in circumference. There are some very healthy, luxuriant specimens in Marshall's Garden, Chester County, Pennsylvania. It is readily propagated from suckers or seeds."

CONCERNING CLIMATE AND CALIFORNIA WEATHER.

BY METEOROLOGIST.

The remarkable quantity of rain which fell about the middle of last month (June) has led us to reflect upon the interesting subject of climate and weather. Though we have a statement from meteorological records that for the last twenty-five years we have had generally every alternate year showers sometimes in the month of June, we have hardly ever experienced such an amount of rain as in June of this year—the fall being more than half an inch in this city.

It would appear that our climate is undergoing some change, due probably to the continually increasing cultivation of the earth in the various vegetable productions; and even the railroads and telegraph wires are considered by many to have some influence in these variations of the climate and weather. Climate, however, is a rather complex matter, and one dependent on great varieties of conditions. It includes the temperature of the air at various times and seasons, the range and variation of temperature, the direction and force of the winds that prevail, the liability to storm, the amount of humidity in the air at various seasons, the quantity of cloud, mist and rain, and the varieties of electrical condition. These, to some extent, affect and depend on each other, but all may ultimately be traced to certain general causes connected with physical geography. It can be readily understood that the position and extent of this slope, bordering on a vast ocean, its ranges of mountains running near to and parallel with the coast, their elevations above the sea, and its station in latitude, are all causes, with many others, which have much to do with our climate and weather.

California being on the extreme edge of a vast continent and a vast ocean, there is inevitably at different times in the year a great contest of opposing winds. One result of opposing winds is, that whenever warm and moist air comes in contact with other air colder and not extremely dry, the mixed air is unable to retain the whole of the moisture in an invisible form, and the water contained becomes visible in fog and mist, or falls in rain. Thus our shores are often enveloped in fog or rain during or at the commencement of the south or south-west winds of winter, spring, and summer.

In our warmer temperate zone, but more especially in the tropics, owing to the much higher temperature of the earth's air, the quantity of water carried up into and held in solution by the air is much greater than in the cooler temperate zones, and the rains are proportionably heavier.

Climate is greatly influenced not only by the rain-fall, but by the proportion of clouds in the atmosphere; and not only by the amount of rain, but by the number of days during the year on which it falls, the amount of rain that falls at a time, and the mode of distribution. The general conditions of the climate of California are not unfavorable in these respects, and notwithstanding that the sun shines so much here, and causes so much dry weather, it is probably not far from the truth to say that there is hardly a country where each day contains so fair a share of weather on which it is safe and pleasant to be exposed out of doors, as our own slope. Where can be found more uninterrupted sunshine, and where is there less suffering from long-continued unfavorable seasons? Rain seldom falls so heavily as to do much mischief; and it is only occasionally that we are injured seriously from floods, even in extraordinary seasons. Both animal and vegetable life are very favorably influenced by our coast as well as interior climates. Our winters are delightfully mild; our summer heat is tempered generally by refreshing and brisk breezes, and our nights by a cool temperature.

The electrical condition of the air is an element of climate, which, though not measured very satisfactorily, is too important here, now, to pass without notice. The condition of the air, recognized by meteorologists under the term *ozone*, has yet, no doubt, to be much more explained. According to Profes-

son Tyndall, ozone may be a peculiar aggregation of oxygen atoms. Heat dissolves this union and causes the ozone to vanish. However this may be, the air is certainly subject to very singular and important electrical changes, marked and measured by the methods used to determine the presence and quantity of ozone in the atmosphere. During certain seasons, and in certain places, the air is well known to become highly unfavorable to human constitutions; or, in other words, it so acts on the human frame as to induce fever and other diseases, apparently without reference to mechanical impurities contained in it. Assuming that this is owing to some determinable state, and combining observations, it would seem clear that the miasmatic condition is generally accompanied by a peculiar want of development of ozone. This may be understood to mean that the air is then in an exceptional electric state, within the power of observation to record. It may be said, we think, with perfect truth, that this electrical condition is quite uncommon in California; and therein consists its superior healthfulness of climate. It seems to abound in ozone. In California, the vicinity of the ocean, and the constant freshening of the air by mixture with other air that has passed over a large extent of ocean, seem favorable to life, while the influence of a large tract of land, as in some other countries, is unfavorable. Electric storms can hardly be said to influence climate very much, although they are generally regarded as leaving the atmosphere in a more healthy state than before the storm, as is experienced eastward of the Rocky Mountains.

So many matters combining to produce a certain kind of climate, it is clear, as exemplified in California, that even in a small tract of land there may

be many differences in this respect, and that in a very short distance. One thing, as we hinted before, is pretty certain: climate may and does change by the influence of man and cultivation. By the drainage of land and the removal of forests, groves, and trees, the conditions of a country are so far altered with respect to its rain-fall, and the moisture of the air, that the temperature becomes permanently affected. This seems now to be taking place on this coast, but time will better determine this. It is estimated at any rate that in this way the mean annual temperature of England is 20° Fahrenheit warmer than it was a century since; that the summer and winter temperature are both less extreme, and that the rain-fall is gradually but steadily diminishing.

This view is supported not only by general appearance and tradition, but by comparison of a large number of actual recorded observations.

THE CLEMATIS AS AN ORNAMENTAL FLOWER.

There is probably no form of plant life which can be applied to so many beautiful variations as the running vines, the various Honeysuckles and Clematis. How attractive are they when clustered around our rural homes. How beautiful and lasting are the lessons they impart. They were created for lessons of wisdom and instruction.

In many instances it may be said with truth that "fashion governs all things;" but plants we are sure to leave out of this classification. Years ago the Clematis, or Virgin's Bower, was called the reigning belle, or fashionable flower, in all the floral circles of Europe. Great prices were in those days esteemed light in exchange for the rich

cluster of the old Jackmannis with its wreath of crimson blossoms, or its varying violet and purple; it is indeed a rare old plant, reveling in many quaint old memories of the past. Among the stories told of the esteem in which this Jackmannis species was held in the olden times we have only to recall the common fact, that growing at the foot of a tower of Melrose Abbey was a remarkable vine of this plant, whose graceful tendrils completely covered the whole turret of the tower, throwing far and wide its fragrance and beauty. Says a pilgrim from afar: "I rode many miles to behold this wonderful plant. In mute admiration, I received anew a lesson of the wisdom of God, who maketh even the Lilies of the field glorious. To me this was a floral treat never to be forgotten."

Carrying out the idea, how shall we improve upon the suggestions of nature, so as to make more beautiful our own surroundings? First, we are to study the nature of the plants we are to use in our landscape. The place and its face of country, its capabilities from much or little water, natural and artificial. Having ascertained just the capabilities of our soil, we are to consider the nature of the vines and plants we are desirous of using as ornaments or embellishments about our dwellings.

The plants under discussion all belong in point of scientific classification to the *Crowfoot family*, an order containing the Buttercups, Peonies, Anemones, Columbines, Larkspurs, Hepticas, Meadowrues, Monkswood, and several other genera. These plants are either herbaceous or perennial. Of the herbaceous the tops live during the season and do not die down. Of the roots of the perennial they live from season to season, or they are what is called perennial, or woody.

In these climbing vines their slender leaf-stems are like delicate fingers, or tendrils, eagerly embracing and clinging for support to the most rugged surfaces. Thus supported it is no uncommon thing to see one of these plants making its way upward to a height surprising in itself, while it covers all space around it with glory and life. The using florally of this plant as a garden decoration will be found neither prosy nor uninteresting, as a few of these plants produce clusters of very fragrant small, white, sweet flowers. They are the Asiatics that throw out the magnificent trumpet-shaped and gorgeous flowers, over which the student of nature bends in rapt admiration as he carefully trains their delicate tendrils over the most rugged aspects. One of the finest places in which to grow these vines I have found to be a pile of rude rocks in a natural or wild state situated in a remote part of the grounds. By planting sundry shade-trees on the southern side, producing thereby a partial shade, you have just the situation for the Clematis-vine. Set out your vines at the foot or side of these rocks—in the base of good rotted sod, amid which also revel the Azalea and Rhododendron—and train them carefully over the supports, either natural or applied, you have provided for them.

Here you have from which to make your choice the following—all of which are good, and I can from trial recommend. One called *John Gould Veitch* is a lively, pleasant flower, of a lavender blue; of quite a large size, blossoms remaining upon stalk a long time.

Lanuginosa has a woody foliage, blue flowers; of this are also to be had fine white blossoms, and from it many fine shoots are obtained, as it breaks often in new and wonderful revelations. Do not omit this in your collection.

Another old favorite has reddish purple blossoms, and is called *viticello venosa*. This is a light-veined, beautiful and delicate plant. Among the numerous claimants for favor I name one from Florida, that has well sustained its home recommendation, even in our colder summers, and is called *Florida plena*, very double, creamy white with a delicate green rosette in the centre of the flower; it is a slender-growing vine and needs looking to once in three or four days.

Lady Bouville. Grayish blue, fine graceful foliage, deep green, hardy, every way desirable. This is one of the Jackmannis' seedlings.

Thomas Moore. One of the most magnificent of the varieties, very much resembling the Passion-flower; it is when in flower a most beautiful sight; has deep violet-colored flowers in great masses.

Two other seedlings from the Jackmannis deserve a place in this collection, for they are all three classed as hardy plants; once planted out they need but little care except to cover the roots with fine manure in the fall, and when spring comes manure the same and turn up, and tie up the vines.

Mrs. Moore is a plant of immense proportions; some of the flowers are from eight to nine inches in diameter, and almost pure white in color.

James Bateman is a new Clematis that blooms for a succession of weeks, flowers bright lilac.

THE Los Angeles *Express* thinks there is little need of irrigation in that section except for semi-tropical fruits. For all other crops it insists that deep plowing and summer fallowing are all that is required. A number of facts are cited to show that for cereals and Grapes irrigation is unnecessary and even injurious.

CARNIVOROUS PLANTS.

What's this I hear,
My Molly dear,
About the new Carnivora?
Can little plants
Eat bugs and ants,
And gnats and flies?
Why, bless my eyes!
Who is the great diskiverer?

Not Darwin, love,
For that would prove
A sort of retrograding;
Surely the fare
Of flowers is air,
Or sunshine sweet;
They shouldn't eat,
Or do aught so degrading.

Alas, 'twould be
Sad news to me,
To hear your own dear Fido pet,
Had lost his breath
In cruel death,
Because, one day,
In thoughtless play,
He went too near a Violet.

Or, horror! what
If, heeding not,
Some cruel plant carnivorous,
We ventured near—
Yes, we, my dear—
And swallowed were,
With no one there
To succor or deliver us?

And yet, to die
By blossoms, I
Would call a doom chromatic,
For one might wait
A harder fate
Than have a Rose
End all his woes
In pain called aromatic.

Ah, science knows
Each flower that blows
And all its wicked habits.
'Tis not for us
To make a fuss.
For aught we know,
The Lilies grow
From dining on Welsh rabbits!

—*Scribner's for April.*

ANGLING AND LOVE OF FLOWERS IN
HARMONY.

BY E. J. HOOPEE.

Fishing and flowers may at first sight appear rather incongruous. The two *penchants* may seem to be somewhat widely different at the first glance, yet not perhaps so widely apart from each other as some may think; for, in following the pursuit of angling in beautiful rural scenes, trees, flowering shrubs, and flowers—Californian ones, too, and in saying that it is saying a great deal—form a large and important share in its pleasant and happy associations. In these two recreations, also, may be included natural history, although the connection of hunting (riding to hounds) shooting, and fishing with this study will, in general opinion probably, be considered as equally remote and indirect. Now, as to the two former, people may to a certain extent be right; an attempt to join either hunting (on horseback) or shooting with natural history in the same way that fishing may be joined is perhaps fairly open to exception, as a union of two objects not of themselves sufficiently connected. But fishing to my mind occupies in that respect an entirely different position. Not only is an accurate knowledge of some branches of natural history essential to him who would excel in his art, but all the circumstances attending it—the grandeur of the scenery into which he is naturally led, with all its attractive accompaniments of

“Streamlets to whose shallow falls
Melodious birds sing madrigals”—

the soothing and thought-awakening influence of the waters, whether lake or river, themselves nature's store-houses in which she locks up her wonders—the numberless and varied forms of animal and vegetable life—can hardly fail to

arrest his attention and excite his interest; many of them, by reason of the silence and quiet necessary for his sport, being seen to an especial advantage. The book of nature is in fact opened before his eyes—nay, obtruded on his notice—written in such distinct and inviting characters, that he must indeed be blind of eye and dull of apprehension if he does not, to some extent at any rate, attain to a knowledge and love of her language. How keen and pure, for instance, is old Izaak Walton's appreciation of nature for nature's self. There is scarcely a page in his whole famous and interesting book which does not breathe forth his earnest and devoted love of her. Do not his descriptions almost lead away his readers in spite of themselves from the avowed subject of his book, and incite them to become anglers more for the sake of the accessories which he paints so graphically and invitingly—his “honeysuckle hedges,” his airy creatures, his “silver streams”—than for the actual fishing? I verily believe, in fact, that he has done as much to promote a genial and healthy love of nature as any man who ever lived.

I was born on the banks of a lovely and crystal stream in Old England—the New River—one of the many streams which supply London with water; where the happy days of my childhood passed serenely away in listening to its murmurs, and gathering wild-flowers on its banks; consequently the waters and all their varied tenants have ever since had for me peculiar charms. In the opening days of early spring, while the field Daisy, the Buttercup, and the Cowslip unfolded their modest petals to the sun, I used to listen with delighted ears to the first songs of the skylark, blackbird, linnet, and thrush. They breathed a tale of soft breezes, of green hills, green

fields, and rippling waters; they spoke eloquently of azure skies and sunset evenings, when the skimming swallow, the dace, and the speckled trout, sporting on the silvery stream, should contend for the tiny fly on my slender casting-line. With a contemplative disposition and a mind sensitive to all that is beautiful in nature, amid such scenes as these my early days were spent; and it is not to be wondered at that I soon contracted habits in which river, lake, and ocean inhabitants bore a prominent part, and angling became a leading employment.

Upon the merits of angling I need hardly descant. Every true angler well knows its charms. He, for the most part, feels internally at peace with himself, the world, and all mankind, and every object that meets his view, during his sport, seems to wear the same sunny smile that gilds his own happy reflections. He pities those who dwell entirely in pent-up cities, in a chaos of bricks and mortar and smoke, and fumes of many unsavory odors, surrounded by the wearing cares of life, and often bored to desperation by that demon whose imps are dollars and cents, in an everlasting and ceaseless contest about the sale and price of lots and houses, taxes, etc. To such, borne down by anxiety, irritation, and bursts of ruffled temper, the enjoyment of the glorious works of the Creator's hands—green hills and sunny slopes—are scarcely known. Let these care-worn and sadly troubled business men rise up at proper intervals, gird on their mantles, and follow generally a better and healthier course—become if they will initiated into the attractive mysteries of the "gentle art," or, at least, imbibe such a taste for rural entertainment as shall render the country ever dear to them and their recollections, and make

the inordinate pursuit of a plethoric purse in various anxious speculations so common on this coast, and too much coveted riches, hideous and detestable to them.

But suppose, readers, we now refer to more of matter-of-fact in this paper—more of the practical. Since my last article, mess after mess of trout (*salmo iridia*), and salmon (*salmo quinnat*, not *salmo salar* as some will have it), of good size, have fallen to the skill and perseverance, in Lake Merced, of our friend and prince of fishermen in these parts—Kaeding—and his companions, and other devoted anglers, among whom is your servant the writer. These fish have nearly all been taken by bait-fishing, the trolling from a boat becoming less and less successful, it would appear, as the season advances. Many more thousands of young trout-fry (38,000) and salmon-fry (2,000) have been set free in the cool and pellucid element of this lake by Mr. Williamson, of the Acclimatizing Society, to be ready, in their proper time, for furnishing sport to the ardent lovers of the rod and line. Mr. W. will also have ready half a million of eggs this fall. Lake San Andreas, too, I understand, is not at all to be neglected in this respect.

AMERICAN POMOLOGICAL SOCIETY.

The chairman of the Society has addressed the following letter to the chairmen of the Fruit Committees of the several States:

Dear Sir:—At the last meeting of the American Pomological Society, held in the city of Boston, September, 1873, you were elected chairman of the Fruit Committee of your State. The duties of this committee are thus defined in the by-laws of the Society:

“State Fruit Committees, consisting

of five members each, for every State, Territory, and province represented, and a general chairman over all, shall be appointed biennially; it shall be the duty of the several State Fruit Committees to forward to the general chairman, one month before every biennial meeting, State Pomological Reports, to be condensed by him for publication."

It has been customary for State Fruit Committees to appoint their associates, and you are now respectfully requested to organize your committee at the earliest moment practicable, by selecting the most competent and trustworthy persons, in different sections of your State, to aid in collecting information, which you will arrange in the form of a report, and transmit to me as early as the 20th of August next, if possible, that I may be able to present the report of the General Fruit Committee on the opening of the session, which is announced to be held in Chicago, Ill., on September 8th, 9th, and 10th, 1875.

The nature of the information sought for, in your report, can be ascertained by reference to the published transactions of the Society, and may be stated briefly as follows:

1. What *species* of fruit, as Apple, Pear, Peach, Plum, Cherry, etc., are grown in your State successfully?

2. What *varieties* of these fruits have proved to be best adapted to your State, and of the greatest value? The degrees of merit should be stated according to the scale adopted in arranging the Society's catalogue, viz: Those worthy of cultivation a *; those of great superiority and value, two * *; those recently introduced and promising, a †. In your report under this head you will note the changes, if any, that should be made in the catalogue, as it now stands, for your State.

3. Synonyms, or the various names

under which the same variety is known or cultivated in your State.

4. What insects and diseases are injurious to fruits and fruit-trees, and what remedies or preventives have been successfully applied?

5. The kinds of soil and situation best adapted to the different species of fruits. The best system of pruning and training; cultivation or treatment of the soil among fruit-trees; gathering, packing, keeping, and marketing fruits, and any interesting particulars on the subject within your reach.

The Society does not wish to impose great burdens on its committees, and therefore answers to the 4th and 5th series of questions may be omitted where circumstances may render it difficult or impossible to give them.

Answers to 1, 2, and 3 are necessary to enable the Society to extend and perfect its work.

If you find that you will be unable to discharge the duties of chairman of your State Fruit Committee, you will please notify me or the president as soon as possible after the receipt of this circular, and mention the name of the person, in your judgment, best qualified to perform the service.

Asking your kind co-operation in this important work,

I am truly yours,

P. BARRY,

*Chairman General Fruit Committee
American Pomological Society.*

ROCHESTER, N. Y., April 1, 1875.

THE LEAVES of Geranium are an excellent application for cuts, when the skin is rubbed off, and other wounds of the same kind. One or two leaves must be bruised and applied on linen to the part, and the wound will become cicatrized in a very short time.

USEFUL, AND ESPECIALLY ORNAMENTAL PLANTING.

BY AN AMATEUR.

There are many trees which, though incapable of or unsuitable for being cultivated in California for useful or economical purposes, for their wood or timber, yet produce striking and beautiful effects in gardens or landscape scenery, and are of especial value in the adornment of parks and pleasure-grounds. Many of them are to be found in our nurseries, yet the plentiful planting of them for ornamental effects is very much neglected in our State. The beauty of English park as well as Eastern scenery is admitted as the constant source of fresh admiration to visitors and of delight to every person, and it may be briefly described as the art of imitating, in a smaller compass, the most lovely scenes of external nature. In a pursuit so fascinating, the most elegant mind may find amusement, the most active benevolence room in which to dilate. In eliciting from crude materials new forms of beauty; in opening the valley; converting the barren hill-side into wood; in expanding the lake, and clothing a once naked district with luxuriance, the worth of an estate is increased, health improved, and charity the most useful dispensed.

Where, even in such fortunate and happy valleys as Napa and Sonoma, and a few others on this coast, the Oaks and other native trees and shrubs abound, they can not be much improved, yet some beauties of detail may be gained by a more frequent employment of foreign vegetation, besides handsome fruit-trees. Everyone is aware of the charming effect of the Weeping Willow: this is a case in point. The light ramifications of the Locust, or Australian Acacias, contrast beautifully with

the bolder form of the Oaks; the Hickory, or American Black Walnut, relieves the heavy masses of the Elm; the lucid green of the Spanish Chestnut is well opposed to the dinginess of the Beech; and the brilliant tints of many North American trees when shedding their leaves add a new and remarkable feature to the autumnal landscape. But the interest arising from the adoption of those foreign trees, suitable to our climate and soil, into domestic scenery, is not confined to their picturesque effects. They remind us of the climes whence they come, of the scenes with which they were associated. In exploring a well-selected arboretum, the eternal snows of the Himalaya, the savannahs of the Missouri, the untrodden forests of Patagonia, the valleys of Lebanon, pass in review before us: we seem to wander in other climes, to converse with other nations.

Although there are some foreign trees that can not become permanent with us, even in the accommodating and genial clime of this slope, yet a great number bear our climate well. The laws of nature forbid us to hope for the perfect naturalization of some trees of the eastern or other climes, owing to our long dry season in summer, yet many of them allow us to embellish our domains with the rich variety resulting from the elegance of their forms and diversity of their tints.

The coarse foliage of the Elm, in our own opinion, degrades it from the first class of ornamental trees, but in some situations, especially in deep and somewhat damp or irrigated soils, it succeeds better than many, and grows to a good size. Its varieties are curious. The Variegated-leaved Elm is not without merit; the Weeping Elm is sometimes picturesque; the small-leaved Elm is perhaps the most elegant. At

any rate, the stupendous stature of specimens of the *Ulmus Americana* around the neat villages of New England are very impressive. The Eastern Tulip-tree (*Liriodendron tulipifera*) of large stature, high beauty, and hardihood, unites the charm of abundant pale yellow flowers, bearing some resemblance to Tulips, with beautiful broad leaves, of very ornamental form and color. The Chinese and Japanese species of conifera are among the most remarkable characteristics of much of their beautiful vegetation. Of Evergreens, *Cupressus pendula*, or *funebria*, which equals the Weeping Willow in the charms of its pendent branches, is planted in China and Japan to hang over the tombs of the departed. Nothing can be better in unison with this purpose than the dark and weeping branches of this tree; but it is handsome in any situation, either singly, in groups, or as screens in single or double rows. Several species of *Thuja*, inhabitants of the same countries, are great *desiderata*. Among them *Thuja dolabrata* calls from us the most earnest praises. It is of evergreens one of the fairest. The Japanese forest-trees are now taking a prominent station in decorating our pleasure-grounds and lawns, and they ought to be adopted all over California.

The Italian Cypress (*Cupressus sempervirens*), so conspicuous, and so beautifully applied in the terraced scenery of Italian villas, will certainly attain its full vigor on our naturally highly favored coast. It is, at any rate, essentially one of the trees of architectural gardens, and ought never to be forgotten in a country like this, which so well admits of its application. A tree nearly allied to it, but deciduous (*Cupressus disticha*) now separated into a distinct genus, under the name *Taxo-*

dium distichum, is one of the largest and most ornamental trees which thrive in temperate climates. Nothing can well surpass the loveliness of its light and delicate-colored foliage. It should, however, have a deep and, if possible, humid soil. When we say that no pleasure-ground should be without it, we but faintly express our sense of its elegance.

But this article is not written so much to suggest what to plant, as to urge the principle of planting what may be desirable, profitable, and ornamental on this generally treeless coast. The facts and observations brought forward in evidence of public as well as of private necessity, for the extension of forest-tree planting, and the advantages accruing from it to individual estates, need not be here repeated; neither need it be recalled to mind that the perpetual consumption of timber from the natural groves and forests of California, without any aid being afforded in return to renovate or keep up a succession of trees by planting, will cause such a scarcity of timber for use and shade, that we shall be driven at last to the culture of trees as an article of profit, as they have been compelled to do in Europe, particularly in England, with such perfection and so much success. This important object ought to be forwarded with that zeal, energy, and skill which have been already displayed by some few individuals here, and which promises to be attended with so much profit and benefit.

A PROMINENT commercial company in Louisiana, a branch of a wealthy English company, has forwarded an order to a seed firm in this city for a large supply of Chinese tea-seeds and plants. The demand for Chinese seeds and plants is constantly increasing in the

South, as it has been demonstrated that they will thrive there. Orders have also been received from Florida for Litchi, Lo-quat and Wham-pee, Chinese fruit. The seed house in question has ordered 500 pounds of tea-seeds and 1,000 plants from China.

BLACK BLIGHT OF ORANGE AND OLIVE.

BY DR. A. KELLOGG.

A friend says: "You were on Mr. P.'s place, or So-and-so's, when south? What do you think is the cause of black blight and scale—or is it climatic, and incurable?"

Queries of such general scope, admit of a reply upon general principles. (See a somewhat empirical answer in a former number). Individuals—men and women—like their symbols, the trees, when wont to become deprived and enfeebled by excesses, or any violations of law, invite the minions of the pit, that ever dwell on the confines of destruction; these pests and plagues break forth from "the place for the breeding of nettles," as conditions favor, for "wheresoever the carcass is" thither are they gathered together. Most rules, however, are relative and qualified; it is certainly a general truth that blights and plagues infest the pre-disposed mainly, but thus begotten and born, like wild beasts, they prey upon the fatlings of the flock equally with the feeble. In general, individuals of vital vigor and abounding thrift throw off and overwhelm all invasions. Therefore this is the main point at issue; that attained, and the whole difficulty is overcome, and all questions, physiological, philosophical, and practical, solved.

Let us consider some, say a *few*, of the requisites of a healthy condition,

location, etc., for an orchard or grove. Tree health and human health are alike the great *desiderata* of life and prosperity. On our coast the grove must be well sheltered on the north-west by high mountains, or heavy but open and well-ventilated forests that shed their mild invisible mantle of evaporated sweet and pure moisture to refresh the breeze, moderate and qualify the ardor of the sun, and warm by its soothing breath the wintry winds and chilling frosts. Such a wind-break is even more reliable than a broad expanse of water, but above all to ward off the fearful few days' dry sirocco that rushes down from the north; one severe north-wester of three days' continuance—unless a flood of irrigation be poured on—is enough to blast forever the brightest prospects, sicken the sap, and invite the future foe. "The hosts of Amalek that fall on the feeble, and all that is infirm in thee." Besides, broad-canopied Oaks and magnanimous Sycamores, with beneficent outstretched arms, half-shading and sheltering from the smiting mid-day and post-meridian sun, must be left standing as the God of nature intended they should be, to draw up from His deep store-house the nutrient treasures and scatter them bounteously over a smiling land. Here we have, furnished to our hand, the light leaf-mulch and mold, annual tribute of the mighty cherishing monarchs of the land; friendly fathers and great guardians against frosts and storms, or deadly root-scalding and top-burning suns. If these conditions be lacking, or no adequate substitute furnished by man's impertinent self-assertion—the labor of his foot, beast, and plow, main strength and much muscle, like the strong ass bowing down to his burden—then woe to the luckless wight, orphan of the grove! Of course shallow surface-rooted and

drone trees and shrubs that have served their purpose must be thoroughly grubbed up—perhaps a few fine large trees should be thinned out in July and August or a little later. When the adjoining thicket or undergrowth shrub of the forest is too close, the cozy nook, garden, or grove, unduly heated by day, rapidly radiates at night, and fitful frosts invade. This would never occur to any injurious extent, if free circulation of freshening breezes laden with the forest evaporation—those vast invisible earth-clouds reaching miles away—tempered the sun by day, and by a genial unobstructed soothing under-breath at night softly mantled the grove, murmuring sweeter melodies as it died along the vale.

Frosts seldom occur, or if so, do little or no harm, on high north-west exposures of rich hill-sides, valleys, and sweet rolling lands not too poor. Oranges are raised in the mountains of California where deep snows fall and hard frosts are common; it must therefore be the sudden thaw or peculiar sun and atmosphere that does the main mischief. Indeed, lowlands, damp, cold, and flat, however rich, are utterly worthless; the growth will be sickly and sappy; always ill-matured in wood and juices, they never survive to purpose the pests and frosts. Poorer upland is far better; though, if too poor, the owner may find an elephant to feed freely with fertilizers. It may be replied, any field or grove that generously gives, must receive some grateful equivalent, as a fair exchange is forever the law; still, most of us prefer at least a good capital in the shape of soil, to start with.

Here again it is evident, that, if neglected, stunted, and starved, overstocked by trees, or excess of fruit thereon, or allowed precocious bearing before

proper maturity of wood and sap, the vital force is weakened; nay, the trees are often thus killed outright. No one can continue to draw long upon his bank beyond his capital.

Suppose the soil is shallow, sterile, and impervious beneath—such as rock, hard gravel, or conglomerate, and sickly clay—and you have cut off the tap-root to induce or force precocious spasmodic and expiring fruitfulness? Quick returns with a vengeance! Wind-shaken, drouth-imperiled, sickly, stunted, bark-bound, early exhausted—growth and vigor together gone, and ready to perish—the sooty aphid and the scale appear, advanced guards of lingering ruin, the black mantle of mourning anticipating death.

Root-grafted or budded? Then their death-sentence was read over them in the cradle! Transplanted too deep? In both cases the pith that belongs above-ground, buried beneath it, becomes sickened, soured, dark-brown, black, and decayed; the day of death is postponed to invite diseases and pests unnumbered.

As to practical cultural work, much of plant-health and longevity certainly depends upon judicious treatment. So much is said and written on these points, perhaps the subject might be allowed to rest for awhile, as we have had too much to say already. Perhaps the Philistines are even now preparing to blow the trump of convocation to war on opinions thus far expressed.

O Scissors! GREAT SCISSORS!! Go thy way; decapitate their natural conic heads, cut off their arms, spare not their legs—upon the old tyrannical Procrustean plan. Heed not free and rational republican trimmings upon the natural plan or type of the tree, leaving natural laws above-ground and beneath in some considerable freedom

to seek the surface or delve in depths for needful supplies. Would that thy reign, O Scissors, were doomed to dark oblivion! What havoc hath thy bright blades made among ultimate twigs and tendrils in which is all power of the glorious vegetable kingdom. Verily thou hast ruled with a rod of iron!—shorn Sampson of his locks. A servant of servants shalt thou be in the good time coming. Ask Nature, and she will tell thee. Follow her teachings—she is ever speaking, answering, when no one interrogates, and none listen.

[Conclusion next month.]

VIOLETS.

Violets are the sweetest flowers in Flora's garden, and are almost universally admired. There are three varieties now cultivated, viz.: the Neapolitan, the Russian, and the English, or *V. odorata*. The Neapolitan Violets are far more tender than all other species, and can not be brought to perfection without the aid of artificial heat or some protection to preserve them from frosts. In a cold frame or under hand-glasses they can be kept in bloom from November to May. During summer they will take care of themselves, with but little attention from the gardener; but as soon as cold nights approach, the glasses should be put over them; and during severe cold they must be protected by matting, and the frames banked up with stable litter. For window gardening these Violets are not a success, unless the plants are purchased when in full bloom and kept in a cool temperature. As pot-plants they require shifting into larger pots, as their roots spread, and should be liberally supplied with water while in bloom. In beds, to maintain a good succession, a new bed should be planted as soon as

the old plants cease to flower; but if this can not be easily done, let the old plants remain and cut away all the suckers they have made, and give the bed a top-dressing of rich loam and well-decayed manure, half and half. All through the summer the suckers should be kept cut away, and the plants will need water occasionally if the season is dry. By this method very strong plants can be had for winter flowering, and only one sash and frame be required.

The Russian Violets are much more hardy than the Neapolitan, but to blossom freely they need a rich soil, with plenty of water when in bloom; it must, however, be well drained, so that the water will not settle at their roots, as this will cause them to decay. Fresh beds made every year from the offsets will produce the greatest profusion of flowers, and the old beds can be renovated with a top-dressing after their flowering ceases. The suckers can be planted when the old beds are in full bud, but all suckers produced the first year should be removed, so that the plants can form compact crowns, which will produce flowers in great plenty. The Czar Violet is the most popular variety that is cultivated, but its flowers are of a pale blue and single, yet their delicious fragrance is always appreciated. It has, however, a tendency to run to leaf rather than to bud, and, therefore, should not have too rich a soil; sandy loam seems best adapted to its wants.

These Violets can be cultivated like Mignonette, so as to form a miniature tree. Take a strong, well-rooted sucker with a long stem, and plant it in a pot of light, rich mold. Put the plant where it can have bottom heat, and as soon as it seems to be growing well, nip off all the side branches with the exception of

two small shoots. Continue to do this, keeping only the middle and side shoots, and as the three-inch pot (which should be used at first) becomes filled with roots, shift it to the next size, and continue doing this as often as the roots touch the sides of the pot. Fresh soil and a supply of weak manure-water must be given to promote its growth, and every flower-bud picked off as soon as it is seen. In three years this course of treatment will have produced a stem at least half an inch in diameter, and a bell-shaped head, which may now be allowed to bud and bloom, and it will prove a charming basket-plant, or an ornament for the window-garden, or greenhouse. The sweetest-scented flowers are not always the most brilliant colored, for nature rarely bestows upon one plant so great perfection, although the Rose may claim this distinction; but Violets possess the pleasing tints of dark blue or purple, pure white, and pale blue, while the shape of the flowers is always lovely. No one who has a garden should be without a bed of them.

THE GREEN FLY.

It is well known that tobacco smoke, when properly applied, effectually clears the plants in a frame or greenhouse from the aphid; but the same agent when used in the open air is almost useless, for although a puff of smoke will dislodge the enemy, it does not kill it—it is only intoxicated for a time, and will speedily return to its predatory attacks. Having myself a collection of Roses scattered somewhat plentifully over about an acre of ground, and all much disfigured with the green fly, I therefore commenced operations with gas water. Having diluted it with six times its bulk of water, I plentifully

syringed some climbing Roses trained against a wall, but to my vexation the insects were unmoved either by the smell or the taste of the dose. What followed I relate as a warning. If the aphid was unaffected by the gas water, other things were not. Despairing of cleaning my trees by any solution or decoction, I resolved to have recourse to the labor of my hands, and recklessly to crush the bodies of those I could not poison. I went over the bushes, and drew my fingers up the shoots infested, thus slaying thousands in a minute. In this way I pressed to death all that I found on the Rose-buds. The operation is very disagreeable, but it is more effectual than any other I know. As the juices of the insects thus destroyed form a sort of gum on the branches, they must be well syringed with water as you proceed. By this mode I have brought the enemy under, although he is far from being destroyed. As the aphides begin to move when the branch is disturbed, I think the shoot which is covered with them should be held over a basin of water, and then gently and carefully brushed, so that the insects may fall into the basin. These modes of procedure may appear very tiresome, but it is to be understood that a well-regulated garden is only made so by tiresome processes.—*Cottage Gardener.*

A REMEDY FOR FLOWER THIEVES.—A lady residing on Bush Street, who has suffered extensively in the loss of choice plants from her front garden plat, recently substituted in place of the remnant a lot of the aggressive kind known as nettles, which flourish luxuriantly in the suburbs of Oakland. The thief made another visit to the premises, but only one of these precious plants was pulled up, and that not conveyed a dozen feet.

FLOWER CHAT.

I have just completed a new hanging-basket; it will be a beauty in a month or such a matter, but now looks almost scraggy. I shall tell you how it is made. While I was making soap I gathered some pieces of telegraph wire that had been lying in the tool-house for twenty years or more. I cut them into just the right length (43 inches), with an old axe, then after heating one end of each piece in my fire beneath the soap-kettle, until they were "red-hot," bent it into a hook with the pincers, and then put the other end through this hook or loop, heated again, and bent it back in the same manner. After allowing them to cool, I beat and pounded all the dents out, and succeeded in obtaining a very fair ring or hoop of each piece thus treated. Two of these were then taken, tied at equal distance apart with cord, then an old bucket-bail put in the upper one, and suspended by this means to the ceiling of the wash-house, allowing it to hang low enough to be convenient for working with; now old hoops from skeleton hoop-skirts were woven between the two rings up and down, backward and forward, across the bottom, and in all directions, always taking care to fasten the work well by bending them around the wire. Now it was ready for filling, but owing to other things insisting on being done first, and so much work hurrying us, several days elapsed ere enough leisure time could be gained to get our materials ready. At last there came a favorable moment, and Jessie and I seized it, took our baskets and went to the woods, coming back well laden with moss from the trunks of trees, the ground, old stumps, and all those places that it loves to cluster around—such lovely, velvety moss, of

every shade of green—and not forgetting some pretty branches of Fern.

Before putting our moss in we wound the wires with Spanish moss, or simply placed it in and out among the wires, leaving the long sprays hanging down; then placed the wood moss over the bottom of the basket, green side down. At the lower edge of the basket we put slips of *Tradescantia Zebrina*; then moss up the sides, taking care to place slips of *Tradescantia Zebrina* and *Tradescantia repens vittata* in the crevices between—far enough to allow their reaching the soil. After proceeding in this way until the sides were lined, we put in good, rich soil (for fear you may think this a small hanging-basket, let me tell you it held three gallons of soil); then placed the *Tradescantia* around the edge, planted the Fern in the centre, placed moss over the soil, and after dampening it all nicely, hung it in a cellar, near a window, and here we shall leave it for a few days—sprinkling it every morning—until it gets thoroughly established and starts to growing. Then we will remove it to the shade of a tree or suspend it in the north porch, and water every day; and I know it will be refreshing to feast one's eyes upon in the long, hot days of midsummer.

Nothing is lovelier, to my eyes at least, than a well-kept hanging-basket, and nothing is more pitiful looking than a half-watered, starving one. Such a one always makes me feel like dumping its contents out, underneath the cur-rants or some such suitable place, to regain their freshness.

There are so many women and girls imagine they must have them, and soon as the newness wears away forget to water them, consequently the poor plants are starved to death, and the cry is "no luck." We sprinkle ours every day with nice lukewarm water, and sev-

eral times through the week give them a "ducking"—plunging them in the water until they are real wet, then hang them up to drip. This method of plunging must not be resorted to until the plants are growing, and the soil is held together by the roots, or when the basket is lifted it will "wash out" in many places. I did think of giving a partial list of plants suitable for baskets, but I shall not attempt such a thing—I would utterly fail. There are so many, many lovely things suitable for this purpose, and each has a peculiar beauty of its own not obtainable by another. How well I would love to own one of those lovely hanging-baskets, filled to overflowing with beauty, that Lane & Bros. advertise in their catalogues, but we farmer folks must be content with "home manufacture" for awhile longer, especially now when everyone unites with everyone else in croaking hard times. I am going to keep hoping for the "good time coming" though, and I earnestly hope if I ever am permitted to "see my ship come in," I may see among the "gallant treasures that she bears for me" a pretty good stock of hanging-baskets and lovely flowers. "God's smiles," some one has called the flowers, and I love to call them this, too. Here I am, taking up too much space with my chat. Perhaps I shall tell you more about our hanging-baskets, and some about our flowers at a future time.—
Correspondence Cincinnati Times.

FUNGI.

Although all kinds of fungi are now duly and universally admitted as plants into the vegetable kingdom, there was at one time a doubt as to whether the order *Myxogastres* was of an animal or

vegetable nature. It is now known that there is no relationship between this or any other order and the lower forms of animal life. Another question concerning fungi is the probability of minute fungi being developed without the intervention of germs from certain solutions. Mr. Cook's opinion on this subject is, that it must ever "be matter of doubt that all germs were not excluded or destroyed, rather than one of belief that forms known to be developed day by day from germs should under other conditions originate spontaneously. Fungi are veritably and unmistakably plants, of low organization, it is true, but still plants, developed from germs somewhat analogous, but not wholly homologous, to the seeds of higher orders." The number of species of fungi is as great as their habits and places of growth are various. A large number thrive parasitically on many kinds of plants, distorting, and, in many cases, ultimately destroying, their host; burrowing within the tissues, and causing rust and smut in corn and grasses, or are even more injurious in such forms as the potato disease and its allies. A still larger number of fungi are developed from decayed or decaying vegetable matter. Some species are always found upon animal matter—leather, horn, bone, etc.—while some affect such unpromising substances as minerals, being found not only on hard gravel-stones and fragments of rock, but also on metals, such as iron and lead. Of the fungi found on animal substances, none are more extraordinary than those species which attack insects, such as the white mold which in autumn proves so destructive to the common house-fly, or the mold named *Isaria* in which moths, spiders, and butterflies become enveloped. In the case of the *Guepes*

vegetantes, the wasp is said to fly about with the fungus partially developed. Many of the molds are miniature representatives of higher plants, having roots, stems, and branches, and sporidia-bearing capsules which correspond to seeds. A tuft of mold is in miniature a forest of trees, and says Mr. Cook, "although such a definition may be deemed more poetic than accurate, more figurative than literal, yet few could believe in the marvelous beauty of a tuft of mold if they never saw it as exhibited under the microscope."
—*Overland Monthly*.

ASHES AND IRON FOR FLOWERS.

The observation of practical and experimental gardeners seems to confirm the fact that, to procure brilliant colors in flowers, it is necessary to supply the soil with an abundance of ferruginous constituents and silica. The latter supplies a material (says S. E. Todd, in one of our foreign exchanges) which is of vast importance in the production of that brilliancy of the petals and the dark green lustre of the leaves. Then, if potash be added, or the ground be dressed around about the growing flowers with unleached wood-ashes, an increased brilliancy will appear in every petal and leaf.

Any person who cultivates only a few flowers in pots, or between grassy lawns, or on spacious parterres, may readily satisfy himself of the exceedingly useful part that the foregoing materials play in the production of beautiful flowers. Even white flowers, or Roses that have petals nearly white, will be greatly improved in brilliancy by providing iron sand and unleached ashes for the roots of growing plants. Ferruginous material may be applied

to the soil where flowers are growing, or where they are to grow, by procuring a supply of oxide of iron, in the form of dark-colored scales that fall from the heated bars of iron when the metal is hammered by the blacksmiths.

Iron-turnings and iron-filings, which may be obtained for a trifle at most machine-shops, should be worked into the soil near the flowers; and in a few years it will be perceived that all the minute fragments will have been dissolved, thus furnishing the choicest material for painting the gayest colors of the flower-garden. When there is an excess of vegetable mold in a flower-bed, and a deficiency of silica or sand, the flowers will never be so rich in color, nor so brilliant, as they would be were a liberal dressing of sand, or sandy loam, worked down into the bed, where the growing roots could reach it. If wood-ashes can be obtained readily, let a dressing be spread over the surface of the ground, about half an inch deep, and be raked in.

A dressing of quick-lime will be found excellent for flowers of every description. It is also of eminent importance to improve the fertility of the soil where flowers are growing, in order to have mature, plump, ripe seed. Let the foregoing materials be spread around the flowers and raked in, at any convenient period of the year. When soil is prepared for flowers in pots, let some sand, some oxide of iron, and ashes be mingled thoroughly with the leaf mold.

HEALTH FROM FLOWERS.—It is reported that an Italian professor has discovered that perfumes from flowers have a chemical effect on the atmosphere, converting its oxygen into ozone, and thus increasing its health-imparting powers.

Editorial Portfolio.

VISIT TO THE UNIVERSITY OF CALIFORNIA.

We lately enjoyed the gratification of visiting this all-important institution for the benefit of our State. We were most kindly and hospitably received and entertained by R. E. C. Stearns, Secretary, and Superintendent of the Agricultural Grounds. This gentleman conducted us over them, the two propagating-houses, the work-rooms for potting and handling plants, tool-room, office for the gardener, etc., etc. We found the houses full of plants and cuttings in a forward state, intended for the illustration of Floriculture and Arboriculture. A great deal of work has been done in this department within less than one year, and many of the Eucalypti and Australian Acacias have been already planted out and are thriving finely. The Eucalypti especially have attained an extraordinary growth for so short a time. A standard orchard has been planted with great labor, as the soil there is stubborn and sour adobe, but sufficient of a kindly and fertile earth has been brought and utilized so as to insure the future welfare of the fruit-trees. In connection with the planting of all the varieties of fruits, especial attention will be had with regard to their correct nomenclature—a most important consideration for the successful pursuit of pomology everywhere.

We found the judicious laying out of the roads and paths in the graceful curvilinear style going on in all parts of the 200 acres belonging to the University domain. New and picturesque bridges are to be thrown over the creek in many places, to embellish the very attractive natural beauties of the location, so well furnished with beautiful

native trees, shrubs and flowers. Rough places in the grounds are being made smooth, and the noble and grotesque aspect of the old Oaks, the monarchs of the groves, are being enhanced by these improvements in their majestic character, by bringing them more fully out for the admiration of the visitor.

Last year the State Fish Commissioners erected here a propagating-house, and many thousands of young trout were hatched, and have been transferred and planted in our lakes and rivers. There is a portion of the grounds in front of the University buildings well adapted for the purpose of making fish-ponds. It is, therefore, proposed to build dams at favorable points in the creek, which will serve the double purpose of protecting the banks and furnishing sufficient water in the ponds for the fish.

Out of the 200 acres belonging to the University, some forty acres are reserved for agricultural purposes and experiments, and the remainder to illustrate the principles and methods of landscape ornamentation, forestry, botany, and allied studies.

There is no institution in the United States where so much pains is taken to carry out the agricultural, its kindred and every other science, in the most manual-labor and practical manner, as in this. Practical exercises here are closely united with theoretical ones.

We visited the museum of mineralogy and geology, where we found Mr. Hanks, the assayer, at work, cleaning, arranging, classifying, and labeling all the various and interesting specimens. The collections are very large and valuable, and we saw hundreds of cases piled up and yet unopened. We saw also the museum of economic and systematic botany, the chemical labora-

tories, the library, college of mechanics, the surveying instruments for engineering, philosophical apparatus, lecture-room, printing-office, etc., etc., and all in the most complete order and cleanliness, with airy apartments. Of course we took the most interest in the agricultural and horticultural departments of this noble institution, but the condition of, and the attention paid to, all the other educational sciences are an honor to our State, and may they long prosper under so worthy an establishment without any hindrance from too much or too short-sighted and narrow-minded legislation, often the sad and great bane of commonwealths and states.

MR. VICK'S TRIP TO THE PACIFIC.

We have taken much interest in reading of the visit of the great florist of the United States to the State of California. There is much pleasant humor mingled with instruction in his description of the grand scenery and floral novelties and beauties which he witnessed while in this State. Mr. Vick, of course, speaks of the climate, and does not fail to do it ample justice in stating that it is "all that could be desired," thereby admitting its greater coolness compared to the East in the summer months; but visiting California only in the summer, he could not say anything concerning the winter here, which also, in comparison with the East, constitutes its highest value for enjoyment, comfort, and happiness, on account of its mildness and genial temperature. As Mr. Hittell says in his excellent work on California: "In St. Louis, for instance, the winter months rarely have a day which is really comfortable in the open air; while at least half the season is so in California, the sky being clear,

the sun warm, and the breezes gentle, so that the weather bears a strong resemblance in temperature to the Indian summer in the upper Mississippi basin. Our coldest winter days at noon are as the warmest in Philadelphia." Mr. Vick observes: "Too much has not been said of some of the beautiful valleys of California, but we were surprised to find so much land that never can be cultivated, rocky, barren mountains, furnishing only a scanty growth of brush for cattle to browse." This is perfectly true, for probably no more than one acre in ten on this coast can be profitably tilled, and of this not more than one acre in four, owing to want of water for irrigation, will be tilled during this century; but the State is very extensive and there are great advantages in many other points. The climate in the valleys is so warm and the sky so clear through the winter, that vegetable life on moist ground is almost as active in January as in July; and trees and shrubs have nearly twice as much time to grow and mature as in the Eastern States, where frost reigns from October to May. The superiority of California productions is owing chiefly to the more favorable climate. The view that Mr. Vick takes with respect to the desirableness of the large ranches being divided up into small farms is very just, and it is to be hoped that the owners of these great tracts of land will be so taxed by the State as to oblige them, or make it to their interest, to sell. Mr. Vick advises all, who are able, to visit California, and recommends to those having an intention to settle here with their families, to first make a tour of the country, on account of the difference of climate and customs. With regard to climate, we believe that everything connected with that is in its favor; and with respect to customs, we do not think there is any

difference worth speaking of in them, compared with the rest of the Union—if anything, we consider that they are in favor of this State. Of course Mr. Vick could not fail to be enchanted with the native plants and flowers of this region. He relates that among other numerous beautiful and wonderful floral productions, he “knelt in wonder and delight before the beautiful Snow Plant, *Sarcodes sanguinea*—just trying to dig one up.” Mr. Vick gives an engraving of this curious plant in his *Floral Guide*, Number 3, for 1875. He visited the famous Yosemite Valley, the Big Trees, and the Geysers, and will reserve the description of the Yosemite for another number. The last two scenes he describes with enthusiasm in the present number of his *Guide*, already partially noticed.

MECHANICS' INSTITUTE FAIR.

The preparations for the horticultural department of our great exhibition is now in a forward state. The Horticultural Garden promises to be a credit to the managers of the Institute, and we trust, also, that it will prove a success and honor to the florists and nurserymen who may be induced to bring in their plants. The managers have concluded, this year, to award gold and silver medals as premiums for merit and rewards, instead of cash. Every precaution has been taken, at any rate as much perhaps as possible, to prevent injury to the plants to be exhibited. The canvas for covering the building is of unbleached muslin sheeting, saturated with an anti-combustible liquid, and well provided with proper ventilators. The plateau at the south end, and all the walks and standing room, will be covered with redwood flooring of the best quality. The entrance from the

main building will be handsomely decorated. The north end is to be ornamented with rustic work, and rustic rock-work will be erected in front of the main avenue at the north end. The inside walls of the garden will be gracefully covered with evergreens, and the hall lighted with fourteen reflectors, of ten burners each, on both sides, and one at each end, at a height of twenty-two feet above ground. The stair-way from the plateau will be twenty-four feet wide. In the grass-plot in the centre of the main avenue a grand fountain will be erected. Mr. J. Beggs, of Gilroy, intends to make a large and splendid exhibit of different specimens of varieties of woods on this coast. He has also been granted the privilege of constructing a pyramid of Pine cones, fifteen feet square and forty feet high, which will, no doubt, produce a very imposing, attractive, and unique effect.

We trust that all our florists, nurserymen, and fruitists will endeavor to come forward and exhibit their productions, to make this horticultural department of the Fair a satisfactory success, and promote at the same time their own and the public's interests and benefits.

AMERICAN POMOLOGICAL SOCIETY.

We learn, says the *Prairie Farmer*, that the Illinois State Horticultural Society are perfecting their plans for entertaining the American Pomological Society, and securing a grand exhibition of fruits on the 8th, 9th, and 10th of September. They have probably secured a hall for discussion at the corner of Clark and Washington streets, adjacent to the Court House Square and convenient to a number of the leading hotels. The exhibition it is expected will be held in the south end of the Exposit-

tion building, adjacent to the floral department, and occupying some 7,000 square feet of the main floor and gallery. The fruits will be arranged, first, according to States, Territories, and provinces. That is, all the fruits from the same State will be placed together in the space allotted to that State, without interfering with the integrity of individual collections.

This exhibition begins on the same day that the Inter-state Exposition commences, and will be kept up not only through the week of the American Pomological meeting, but during the four weeks of the exposition. This will be done by the State Society, aided by those exhibitors who choose to leave their contributions, and by new contributors who have promised to send in new fruits from week to week.

An attempt will be made to secure an exhibition of fruits from all parts of North America, and to make this eminently a national show of pomological products. We have a wide range of soil and climate, from that of tropical Key West to arctic Alaska, and can probably gather as wide a range of fruits, sheltered by the broad wings of the American eagle, as can be found in any nation on earth.

THE BLUE GUM-TREE, OR EUCALYPTUS GLOBULUS.

While we have no doubt that this now very popular tree is admirably adapted for plantations and timber from its rapid growth, and also probably to be esteemed on account of its hygienic virtues as an antidote to malaria and fevers, we are yet, from our observations of its characteristic growth, far from believing that it is well adapted for shade and ornament. As it advances in its growth the lower limbs seem

to shed naturally; and its habit is to grow very tall, which makes it desirable to cut off to a certain extent its top. When this is done, it then throws out three or four limbs, which extend up at a great length and almost perpendicularly in a straggling manner, and as single trees are not handsome nor attractive to the eye. This is no detriment to it for groves or forests, but does not make it suitable near dwellings or on road-sides. Although they are planting this Australian Gum-tree so much in the warmer countries of Europe (chiefly we suppose for its health-giving qualities), as well as in California, in promenades and public and private gardens—in fact, it seems making the tour of the world—we confess, as far as we have noticed it here as a single tree, we can not regard it as a beautiful one, except when quite young, or when it is about three or four years old.

BENEDICT ROEZL AND J. BEGG.

We lately had the pleasure of meeting and conversing with the eminent botanist and collector, Benedict Roezl. This gentleman has been a great traveler in many parts of the world for the last thirty-five years. In the *Gardener's Chronicle* of June, 1874, there is a very laudatory notice of him. In the course of his travels he makes colored pictures of many beautiful and rare plants and flowers, forming most interesting specimens for his portfolios. Mr. Roezl is now on his way to England, whither he has sent 30,000 orchids from South America. He was the first discoverer of the Ramie in the Island of Java, and invented a mill, for which he has a patent, to separate the fibre, which was completely successful, but, owing to his having most unfortunately lost his

left arm in New Orleans in operating with it, he has relinquished the undertaking—an event that may be considered a great loss to the arts and commerce.

We also met at the same time with Mr. J. Begg, of Gilroy, who is an enlightened and energetic collector of the Pine family, of the cones of which he has a fine and handsome display at R. J. Trumbull's, Sansome Street. Mr. B. has discovered some new species of Pines, the family of which has been hitherto much neglected on this coast. He intends making an exhibition of cones at our approaching Mechanics' Institute Fair, prior to one on a much larger scale at our Centennial next year at Philadelphia.

CATALOGUES RECEIVED.

From William Bull: "A Retail List of New, Beautiful, and Rare Plants," King's Road, Chelsea, London, S. W., for 1875. The greatest reliance may be placed on Mr. Bull's recommendations, as every possible care is taken that only gardeners of thorough ability, practical experience, steady habits, and whose integrity is unimpeachable, are entered on his register. These plants have been introduced from Madagascar, Peru, Java, Philippine Islands, New Caledonia, St. Catherine's, Rio Negro, Nicaragua, U. S. of Colombia, Costa Rica, Para, Natal, Japan, Ascension, South Sea, and Fiji Islands.

TALL TREES.—The subjoined extract may prove interesting to readers of the HORTICULTURIST, more especially as the Eucalyptus is a favorite in this State, and being extensively planted everywhere: "Some idea of the loftiness attained by trees of the genus Eucalyptus

may be formed when it is stated that some of the specimens of *E. amygdalinus*, measured by Baron von Mueller, the government botanist of Victoria, would overtop the cross on St. Paul's Cathedral."

R. J. TRUMBULL, removed to 419 and 421 Sansome Street, more commodious quarters for his increasing business, has just received a number of new and valuable seeds, among which may be mentioned *Pinus Russelliana*, *P. leiophylla*, *P. Montezuma*, *Picea religiosa*, *Brahea calcarata* (Palm), and the *Dahlia Maximiliana*.

WOMEN IN THE GARDEN. — HOWEVER aghast some "fine ladies" may regard the idea of working in the garden, I consider it one of the most wholesome means of exercise within our reach. Wholesome especially, because we have an object, and an interesting one, in this exercise, which is the growth of flowers and plants. Before commencing work in the garden, put on a pair of worn-out leather gloves, a broad-brimmed sun hat, and a pair of good stout boots; if not stout, then wear a pair of thingum overshoes. The dampness of the soil is very liable to produce a cold. Don't be afraid that the labor will hurt you, even if you should become very tired; on the contrary, it will strengthen you, give you rosy cheeks, and may add years to your life. There is not a spring that I do not spend two weeks at least at work in the garden, and I tell you that to me there is nothing so agreeable, I may say fascinating; and this feeling is doubled when I see the fine flowers and good vegetables growing and put upon the table from my own handiwork.—*Germantown Telegraph*.

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

Nature has so wisely and beneficently arranged it that fruits begin to be abundant in proportion as the summer heat seems to create a necessity for them—Strawberries, Currants, Gooseberries, and Cherries. These, of course, are all intended for our use and enjoyment, and we may add even the other animals; but man, particularly if living in cities, whose modes of life are so artificial, should use them with proper caution and prudence. We should shun those especially which are unripe. Many of the summer fruits in our markets are gathered before they are ripe. They are often brought to the cities in this condition, in order that being early they may command a good price. Of ripe fruits Strawberries are the best for May and June. Cherries are not quite so wholesome. Currants are not good unless fully ripe. Green Currants are to be avoided, even though cooked in pies, stewed, etc.; they are even then almost wholly unfit to be eaten. So also are green Gooseberries in the same way, unless the digestion is very powerful. Fruits, though ever so ripe and wholesome, should not be taken after a full meal, fashionable as it may be to serve them up as a dessert. Let them either form a part or the whole of a light meal, or let them be taken between meals, at the farthest distance from them. The stones of all fruits are more or less injurious, and should be avoided. So are the pods of Peas, Beans, etc., although cooked.

In regard to the use of tropical fruits, by people residing as we do in the warmer temperate zone, there are different opinions. Some suppose that we should be more healthy without them;

others think that the cooling juices of the Orange and Lemon, and the fine subacid of the Banana, especially in the great heat of summer, are not only quite harmless, but on the whole entirely beneficial. I am inclined to the latter opinion. I consider it probable that those especially whose employments subject them to much exposure to the heat must derive great advantage from the use of the Orange, and occasionally of the Lemon, and the Banana and Fig I believe are perfectly innocent food. If no person were so situated as to be obliged to overheat himself in the least degree, the case would be different. But the world is not as some would be glad to have it in every respect. Man is yet doomed to toil, and probably always will be; though I hope not always to a degree of it which is excessive and injurious. For very hard labor, in the great summer heat, produces a feverish state of the system, and often a relaxed and weakened and perhaps a deranged state of the stomach and bowels. Now, there is no doubt that a moderate use of cooling fruits of some sort, either foreign or domestic, taken under proper restrictions, will do much to counteract this tendency to disease. Great caution, however, is necessary both as to quality and quantity; and also to the manner and time of using them, and hence arises our doubt about the use of tropical fruits. In order to have the juices of fruits perfectly wholesome they should, as I said before concerning our own native fruits, be perfectly ripe; and should ripen, with the exception of most Pears and Peaches, in nature's own way. But the Oranges, and probably the Lemons, especially the earliest that reach us, are picked before they are ripe. Can they, therefore, be as wholesome as if they ripened on the trees?

May it not be possible, after all, that if we used no heating food or drinks or condiments during the hot season (although red pepper may be taken in small quantities with a morbid and inactive liver), no very salt and indigestible strong fibrous meat or fish, no strong coffee or tea or fermented liquors, no pepper, vinegar, mustard, etc.—our own cooling fruits and berries, coming as they providentially do just at the time when we want them for this very purpose, would be sufficient to counteract all tendency to fever, or any other disease? I am encouraged to put this question because I have known individuals—hard laborers, too—who have made the experiment, with the most entire success.

Referring again to the proper condition of the fruits for the table, it is not enough that Gooseberries or Currants have changed their color—there ought to be developed a certain sweetness before we touch them. There is a most surprising difference in a Currant that is merely red, and one which is dead ripe, although the color is not very different. Raspberries when ripe, especially the red and the white kinds, the fruits of which are almost the only ones raised in California, are exceedingly wholesome berries, and ought to be more extensively cultivated than the Currant or the Gooseberry. They are short lived, however; for there are only two or three days during which they are perfect. Eaten sooner, they are unripe; eaten later they have lost much of their flavor. This remark, to the truth of which almost anybody can attest in regard to Raspberries, is nearly as applicable to most other summer fruits. None of them are in perfection long at a time. One is ripe, and may be eaten moderately with perfect safety—nay, even with much advantage—for a few

days; then comes another in its stead; and so on through the summer. Many suppose they produce bowel complaints; but it is much more probable that if eaten in the way which Providence intended, they act as a preventive of disease. The Strawberry, in its perfection, lasts a little longer than the Raspberry, but not much. They lose their flavor, if fully ripe, a day after they are picked. One thing is to be remembered, in regard to all fruits whatever, that however ripe and excellent they may appear, they are never so good when raised in hot-houses (as they are in Europe sometimes), as when they ripen in the sun, as nature intended. Hot-houses for fruit, however, are not at all necessary in our California climate.

Now concerning the markets: About the 10th of last month (June) the following were the prices of fresh fruits, dried fruits, and vegetables:

Apples, Red Astrachan, \$1 50 @ \$2 per box; Early Harvest, 75c. per box. Pears, Madeline, 75c. @ \$1 00 per box; Cooking, 25c. per basket. Cherry Plums, 7c. @ 8c. per lb.; Cherries, choice, 15c. @ 25c.; common, 8c. @ 10c. per lb. Peaches, \$3 @ \$4 per box. Apricots, Royal, \$1 @ \$1.50 per box; ditto, \$1.50 @ \$2 per basket. Strawberries, \$12 @ \$15 per chest. Raspberries, 20c. @ 25c. per lb. Gooseberries; 4c. @ 5c. per lb. Blackberries, 20c. @ 40c. per lb. Currants, \$3.50 @ \$5 per chest. Figs, 25c. @ 50c. per lb. Oranges, Tahiti, \$30 per M. Lemons, Sicily, \$12 @ \$15 per box; Los Angeles, \$20 per M. Limes, \$20 per M. Bananas, \$2.50 @ \$3 per bunch. Pine Apples, \$6 per dozen. Cocoanuts, \$10 per 100. Dried Fruit—Apples per lb. 6c. @ 7c.; Peaches, 12½c.; Pears, 10c.; Plums, 5c. @ 6c.; pitted, 15c. @ 16c.; Prunes, 12½c.; Blackberries, 14c. @ 15c.; Figs, white, 12½c. @

15c.; black, 6c.@8c.; California Raisins, 8c.@12½c. Vegetables—Cabbages, 1¼c.@1¾c. per lb.; Cucumbers, 25c.@75c. per doz.; Asparagus, 4c.@5c. per lb.; Tomatoes, \$1.25 @ \$1.50 per box; Green Corn, 12c.@20c. per doz.; Summer Squash, 4c.@6c. per lb.; Rhubarb, scarce, 3c.@3½c. per lb.; Green Peas, 4½c. @ 5c. per lb.; Sweet Peas, 6c.; String Beans, 10c.@12½c.; Chile Peppers, 50c.; Garlic, 4c.@5c.

About the 13th of last month (June) the remarkable and, for the season, very unusual heavy rain (nearly an inch) interrupted the supply of many varieties of vegetables, and prices were higher in consequence. The derangement, however, was only temporary, and in the following week the market resumed its normal condition again.

The receipts of Strawberries have dwindled to a score of chests per day, and it is evident that the trade is virtually over for the season. The first were received on the 11th of March, and brought \$2 per lb. Last year the first came to hand April 9th, and sold for the same figures. A. Lusk & Co. have furnished the *Call* with the following statement of the receipts and prices for the season:

	<i>Chests.</i>	<i>Prices.</i>
March.....	2	50c@ \$2 00
April.....	1,930	10c@ \$1 50
May.....	10,860	5c@ 20c
June, to date.....	710	10c@ 22½c
Total.....	13,502	

Last season the receipts to date amounted to 19,705 chests, and the average of prices was considerably lower than this year. The decreased supply this season is greater than the above statement indicates, as nearly all the chests this year hold but 80 lbs., while last year the bulk of those used held 96 lbs. The falling off in the quantity is generally attributed to the heavy frost in April. The heaviest receipts for a

day were 704 chests, and the next heaviest 561 chests. Almost the entire crop arrived in May; still there was no actual glut of the market and no very cheap berries, the lowest figure being \$4 per chest. Almost the whole supply, as usual, came from Santa Clara Valley, and the cultivators have received for them not less than \$150,000.

Cherries, Apricots, and Currants were very plentiful, and lower than at any previous time during the season. June Plums were again in market, and retailed at 10c.@15c. The last of the Cherry Plums were received. The supply of Peaches was still light, and did not increase until the Hale's Early and Tillotson came in. Figs came forward regularly, but were too dear to come into general use. Early Harvest and Red Astrachan Apples were quite plentiful, and retailed at \$1.25 to \$2 per box, delivered.

About the 26th of last month (June) fruit was plentiful. Cherries were never more plentiful; Watermelons, Cantaloupes, Nectarines, and Bartlett Pears have been added to the many other seasonable fruits, but only in small quantities, and brought fancy prices. Rhubarb met with no favor, and was almost entirely unsalable, owing to the abundance of fruit. A few Grapes arrived during the last week of June, but being sour and of poor quality were not sought after. The display of Plums was much improved. The Peach Plum was the best, and sold for the highest price. The rain in June somewhat injured the Cherries, and they sold for low prices. Currants were very plentiful, and nearly as low as last year. The consumption by the canners is immense, but they can not take the whole surplus, and prices continue to weaken.

Alameda County has furnished the bulk of Cherries this season. It is re-

ported that Apricots, Peaches, and Almonds are about a total failure this year in Napa County, and the same applies to Alameda County. Prior to the heavy frosts, Mr. Meek, of Alameda, had fifty acres of Almonds, the trees all being loaded with nuts; but the crop will turn out miserably small. For a week past Alameda County has been turning in about forty chests of Cherries daily to the canning factories, until the latter have become surfeited. Pleasant Valley, Solano County, has thus far supplied this market with the bulk of Apricots, that section having the largest crop ever known here. A few Apricots have within the past week been received from the Sacramento River orchards. Apples are in abundance, and so are Currants.

The Strawberry crop was a great failure this year, owing to the nipping frosts. The opinion seems to prevail that the wells in Santa Clara County are gradually giving out, which necessarily interrupts irrigation. And the plants have been propagated so long that they are nearly worked out, and a new variety will have to be obtained. Seven years ago Longworth's variety was set out, and from that kind they have been propagating ever since. The land is giving out, because in irrigating it the nutriment is being continually washed away by the running streams which are distributed over it. This nutriment, the very life of the berry, is not replaced by any artificial stimulant, and, consequently, the fruit is sadly deteriorating. The early Peaches have been very good, and quite juicy this year. The earliest were Hale's Early. The supply the last of June was becoming plentiful.

It is stated that fowls kept in orchards will destroy every insect that can injure the fruit.

Editorial Gleanings.

FOREST CONSERVATORIES.—In a concluding chapter of *Woods and By-ways of New England*, Wilson Flagg advocates the reservation of tracts of three or four miles square in different parts of the country, on land not valuable for agricultural purposes, whose primitive wildness, with all its vegetable and animal life, should be preserved with as little invasion of art as possible, as perpetual conservatories of the wild animals and plants that to a great extent have disappeared before the invasion of civilized men and the clearings and cultivation of agriculture. It is an idea that seems to us worthy of more thought than has been bestowed upon it by the casual reader. The cost of purchasing waste lands of little value, and securing their protection by law and public opinion against the small-bird hunter and the not less destructive hunter of hoop-poles, axe-handle timber, etc., would be nearly all that would be necessary to success. It would require no costly fences, roads, drive-ways, or water-works, like the modern park. To let it alone and allow primeval nature to assert its sway would be the one thing needful. As a woodland haunt for school-children, for the naturalist and the lover of nature of all ages, such a place would make a most attractive resort, and would be useful in many ways.

AN ORNAMENTAL GOURD.—An exceedingly graceful plant is a miniature gourd, the seeds of which were brought from Africa to Europe by Sir Samuel Baker, who states that the plant when in a wild condition covers dwarf trees and shrubs with its slender climbing shoots, which in a young state are bright green striped and spotted with white, but which when

ripe change to scarlet, a color that sets off the white spots and pencilings to increased advantage. The fruits are in clusters of three or four together. The foliage, being of a distinct shade of green, renders the plant effective even when not in fruit. It has been grown in a melon-house, in which it quickly covered a large trellis, and became loaded with fruits which, were it not for their white marblings, might easily be mistaken for those of *Solanum capsicastrum*. Some of the African tribes use the long slender shoots of this gourd for garlands and head-dresses, purposes for which its habit of growth eminently fits it. Long festoons of it, laden with fruit, might be usefully employed for garnishing stands on the dinner-table, or the sprays of crimson fruit might be allowed to hang naturally and gracefully from the margins of ornamental vases. Gourds of this description, says a correspondent of the *English Garden*, well deserve more attention than they have hitherto had.

THE POTATO-BUG.—The French minister, alarmed at the progress of the Colorado beetle or Potato-bug, has followed in the footsteps of other foreign ministers, and asked a full description and how to kill it. The only remedy thus far found is Paris green, and the evidences all go to show that it kills the bug and does not injure the tubers or Potatoes. Several countries have prohibited the importation of Potatoes from the United States; but this is folly, for the bug clings to the vine, destroying the vitality of the plant, but does not go to the tuber. It would be exported in hay more quickly than in Potatoes. The insect has been known for over fifty years, and has been injurious to the cultivated Potato since 1860, when it

commenced its travels eastward from the base of the Rocky Mountains, and has been steadily progressing since at the rate of sixty to eighty miles a year. It is now reported as destructive in central New York, Pennsylvania, New Jersey, Maryland, District of Columbia, and eastern Virginia.

THE ROSE AND THE VINE.—California is the natural habitat of the Rose and the vine. In no part of the world do they make such a luxuriant growth. The amount of wood which each will annually produce exceeds many times over the original weight. To produce Grapes in perfection an annual system of pruning must be adopted. To produce the finest and most perfect Roses the knife must be applied freely every spring. To neglect this, even for a single season, is to ruin the crop, at least for a year. By close pruning a vine may be made to produce Grapes of enormous size, and the same treatment will also double the magnitude of Roses. This may be worth knowing, especially by those who wish to make a handsome display upon a limited plat of ground.

EXPERIMENTING WITH POTATOES.—Potatoes grown to perfection on the surface of the ground, without being covered with soil, may not have been introduced into other markets, but Captain R. K. Porter has placed us under obligations for a bag of large, smooth, red Potatoes raised on his place by simply planting on the top of the ground and covering to the thickness of a foot with straw. They are entirely free of all the diseases and imperfections found in most of the Potatoes sold in the markets for several years past, and, when boiled, they are white and mealy, and

have no strong taste whatever. Whether this experiment will prove successful on all other farms, we can not say; but it would be well for those who have abundance of straw to make the trial.—*San Diego Union*.

VALUE OF SUMAC.—*The Ohio Farmer* through a correspondent says: "An acre in full bearing will produce about three tons, and if well prepared, is worth \$80 to \$100 per ton. Curers pay about one cent per pound for green sumac. It is used in the manufacture of the finer kinds of leather—especially morocco and similar goods, and is also employed as a dye in coloring calicoes and delaines. Twenty thousand tons are used annually in the country, two-thirds of which comes from Sicily. Mr. W. Johnson, East Saginaw, Michigan, may furnish additional information, or any reader who can is invited to do so.

HOT WATER FOR INSECTS. *The Rural Carolinian* adds its testimony to that of the *Gardener's Monthly* in favor of the safety of the use of water at a temperature of 120° for killing insects on plants. The plants must be quickly immersed, and taken out again as speedily as possible, and the water must be no hotter than the temperature mentioned. Some insects would not care for this dipping, but many would be killed.

THE PAPAWE OR "forbidden fruit" grows to the weight of three pounds or more in Florida. It is of a light yellow color when ripe, and has a flavor similar to a Muskmelon. The juices of this tree tend to separate the fibres in meats when immersed therein, and the vapor of the tree answers the same purpose. The toughest joints of meat, poultry,

etc., are rendered tender by being hung among the branches. The milky juice is the best known vermifuge, and a single dose of the juice of the unripe fruit or of the powdered seeds of the ripe fruit will extirpate every worm from a patient.

THE GARDEN OF CHINA.—The Chinese—who walk over bridges built two thousand years ago, who cultivated the Cotton-plant centuries before this country was heard of, and who fed silkworms before King Solomon built his throne—have fifty thousand square miles around Shanghai which are called the Garden of China, and which have been tilled by countless generations. This area is as large as New York and Pennsylvania combined, and is all meadow, and raised but a few feet above the river—lakes, rivers, canals—a complete network of water communication; the land under the highest tith; three crops a year harvested; population so dense that wherever you look you see men and women in blue pants and blouses, so numerous that you fancy some fair or muster is coming off and all hands have turned out for a holiday.

RED THORNLESS RASPBERRY.—M. J. Stearns, in the *Gardener's Monthly*, says: "This berry has been tested beside all the popular varieties of the day, and found to have a decided advantage over all others; it is perfectly thornless; it is perfectly hardy; subject to no disease of any kind. It stands the cold of winter and the heat of summer better than any other. Bears indifferent culture better than any that I am acquainted with. A prolific bearer; berry very large, sweet, and delicious; in quality excelled by none, and a very vigorous grower.

A WHITE ROSE ON AN APPLE-TREE.—The Reading *Eagle* says: "On the premises of N. F. Bechtel, Perkiomen Avenue and Franklin Street, is to be seen one of the most remarkable curiosities ever heard of, of the kind. A large Crab Apple-tree is growing in the yard, and on the top of the tree is blooming a pure white Rose. The Rose-stem, which is growing from the Apple-branch, is over two years old, as it has already bloomed two years. The flower can be best seen from the second story of the house. Health Commissioner Miller says it is one of the greatest curiosities he has ever seen."

IMPROVED GUM ARABIC MUCILAGE.—A serious objection to the use of gum arabic as an adhesive, is found in its showing through unsized paper, and thus producing a semi-transparent blot. This is also attended with the still greater inconvenience that the two layers do not stick together satisfactorily. On this account gum arabic mucilage can not be used for attaching paper to pasteboard, nor wood to wood, nor one metallic substance to another, since the gum soon peels off. All this inconvenience may be remedied, it is said, by adding to the gum a solution of sulphate of alumina; two parts of crystalized sulphate of alumina answering for one hundred and twenty five parts of the concentrated solution of gum arabic, in the proportion of two parts of gum to five of water. The salt is to be dissolved in ten times its weight of water, and the solution mixed direct with that of the gum solution, which in this condition well deserves its name of vegetable glue. A solution of alum replaces the sulphate of alumina, but to a much less satisfactory degree.

THE SENSE OF SMELL IN INSECTS.—Entomologists maintain that scent is very delicate in most insects, and rely on plausible conjectures on this subject; but they do not as yet know what the seat of smell in insects is. When meat is exposed to the air in a few moments flies make their appearance in a place where none before had been seen. If refuse matter or bodies of animals are left on the ground, insects flock to them at once, feeding on such substances and depositing their eggs in them. Scent alone seems to guide them, exclusively of sight even, for, if the object of their desire is hidden, they easily manage to find it. A curious fact as to the scent of insects is furnished by those kinds that prefer decaying substances. A beautiful Arum is found in our woods, the Cuckoo-pintle, whose white flower diffuses a disgusting odor. Now, the inside of this flower is often filled with flies, snails, and plant lice, seeking the putrid source of this fetid smell. We may see the little creatures, in quest of their food or of a fit place to lay their eggs, move about in all directions, and quit most unwillingly the flower whose scent had misled them.—*Popular Science Monthly for December.*

CUTTING FLOWERS.—Never cut flowers during intense sunshine, nor keep them exposed to the sun or wind. Do not collect them in a large bundle, or tie them together, as this hastens their decay. Do not pull them, but cut them cleanly off the plant with a sharp knife—not with scissors. When taken indoors, place them in the shade, and reduce them to the required length of stalk with a knife, by which the tubes, through which they draw up water, remain smooth and open, and the water is permitted to ascend freely; whereas,

if the stems are bruised or lacerated, the pores are closed up. Use pure water to set them, or pure white sand in a state of saturation, sticking the ends of the stalks into it, but not in a crowded manner. If in water alone, it ought to be changed daily, and a thin slice should be cut off the ends of the stalks at every change of water.

FRUITING SEEDLINGS.—As testing seedling fruits in the West is growing in favor more and more every year, I will give my method of testing Apple-seedlings. Select the best specimens of any desirable variety, and plant the seed in a drill. Cultivate well one year; then take one graft from each seedling and insert in the head of an Apple-tree five or six years old, placing the grafts on the outer ends of the branches to give them an equal chance. In this way I have grafted fifty-three different varieties in one small tree. Never use Rawles' Janet for a stock, on account of blight. The seedlings, after using a portion of the tops for grafts, may be used as stocks on which to graft well-tested varieties. Other fruits may be tested in a similar way, some by budding and some by grafting.—*T. R., Mt. Carmel, Ill.*

TULE ROOTS AS FOOD.—The San Francisco *Chronicle* says: "A new California edible has been discovered by the patient gastronomic researches and fearless experiments of some of our Chinese population. The Colusa *Sun* says that two tons of tule roots were shipped from that place to San Francisco last week, the consignors and consignees being Chinamen. The Mongolians declare them excellent and nutritious as an article of food, and that

a good market can be found for them at six cents per pound. If this statement is reliable, a tule swamp will be a more valuable possession than a wheat field of similar dimensions, and the business of reclaiming swamp-lands may as well be given up."

A GIANT PELARGONIUM.—A short time previous to the death of Mr. F. Butler, of Brooklyn (Feb. 19, 1874), we noted one of the old red double Pelargoniums growing from the earth of his greenhouse, that was ten feet high, and measured between five and six inches in circumference at its base. It was five years old, perfectly healthy and vigorous, full of buds and blossoms, and seemed to aspire to rank ultimately among trees of the second class.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING JUNE 30, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.06 in.
do 12 M.....	30.07
do 3 P. M.....	30.06
do 6 P. M.....	30.06
Highest point on the 19th, at 12 M.....	30.22
Lowest point on the 15th, at 9 A. M.....	29.92

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	64°
do 12 M.....	68°
do 3 P. M.....	66°
do 6 P. M.....	63°
Highest point on the 4th, at 12 M.....	82°
Lowest point on the 29th, at 9 A. M.....	54°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	51°
Highest point at sunrise on the 15th.....	57°
Lowest point at sunrise on the 3d.....	46°

WINDS.

North and north-east on 6 days; north-west and west on 18 days; south-west on 6 days.

WEATHER.

Clear on 16 days; cloudy on 7 days; variable on 7 days; rain on 3 days.

RAIN GAUGE.

13th.....	0.10
15th.....	0.67
16th.....	0.24
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Total.....	1.01
Total Rain of the season to date.....	18.40
Sharp earthquake shock on the 18th at 3.35 A.M.; duration 3 seconds, direction south-east and north-west.	

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, AUGUST, 1875.

No. 8.

ROSE-CULTURE.

BY F. A. MILLER.

Certainly no garden is complete without a fair collection of the ever popular Roses, and no class of plants gives more general satisfaction than the Rose, wherever its cultivation is practicable. The fact that mildew in its worst form has for some years infested our Roses to an alarming extent, has disappointed the amateur as well as the nurseryman so severely, that the culture of this beautiful shrub has received quite a check. In view of this great evil, we should make it a particular point to look into the causes of this pest, and for remedies which may restore to us the most prominent feature in our gardens, healthy and vigorous Roses, such as we used to see in earlier days.

California is well known for its warm and genial climate during day-time, but also for its cool nights; and it is of frequent occurrence that the temperature changes from 80° or 100° in the day-time, to 40° or 50° at night, and on the immediate coast the temperature frequently falls to 35° during the night; the change taking place very suddenly. This, no doubt, is the main cause of

mildew. Our usual summer fogs, reducing sunshine often to but three or four hours during the day, encourages mildew amazingly, and sprinkling the foliage during bright sunshine delivers us up completely to our enemy.

Now, if the natural conditions of our climate are producing the evil we may consider ourselves always subject to it, and all we can do is to apply from time to time such remedies as have been suggested from experience, and also to confine ourselves more to the cultivation of such varieties as are least attacked by mildew. But it seems strange that young plants are much less affected than old and well-established plants, and cuttings of the present season seem to keep clear of the intruder. It is also a matter of fact that Roses in a very light and sandy soil have suffered far less than those grown in heavy soil. Light soils being warmer than heavy soils, the difference between the bottom temperature and the atmospheric temperature is much greater upon heavy soil than upon light soil during bright days. Evidently the activity of plant-life is greatly assisted if the bottom temperature is equal to or in excess of the atmospheric temperature; while under re-

verse conditions the activity is subject to a severe check, apt to be followed by an attack of mildew. I would suggest, therefore, that Roses be cultivated in light sandy soils so far as practicable, and when it does not exist in the natural condition, an effort be made to prepare the soil for Roses. And I would further suggest, to dig up old plants which have been most severely attacked by mildew, to give the roots a thorough cleaning with weak Tobacco-water, to cut back roots as well as top, and to remove the soil in which the plants were growing and replace it by fresh soil of the nature above referred to.

During my recent visit to the Eastern States I was very much pleased with the success florists have attained there in the culture of Roses under glass. Those most successful keep up a temperature of 60° to 70° during the winter season, give all the light and sun possible, avoid in particular ventilation which may be apt to produce draught or chill, and endeavor to equalize the temperature as much as artificial heating can do it. The best Roses and in the healthiest condition I observed were where the temperature was kept at 70°. For cut-flowers only a very few varieties are cultivated successfully, namely, Sofrano, Bon Silene, Isabella Sprunt, Bella, Maréchal Niel, and Lamarque. The buds produced under this treatment are exquisite and numerous, and ninety per cent. of the entire cut-flower trade seems to be made up of these Roses.

Some of our practical florists on this coast seem to think that the cultivation of Roses under glass in this climate is impracticable, and one of them has pronounced it impossible. For such an assertion there is no good reason. If we provide for the same conditions as the growers in the East have done, we will surely meet with the same result. I

can much easier keep mildew from Roses under glass, than from Roses grown in the open air. The climatic conditions of a greenhouse we can control, while those of the open air we can not.

[To be Continued.]

A CANNIBAL TREE.

If you can imagine a Pine-apple, eight feet high and thick in proportion, resting upon its base, and denuded of leaves, you will have a good idea of the trunk of the tree, which, however, was not the color of an Anana, but was a dark dingy brown, and apparently as hard as iron. From the apex of this frustated cone (at least two feet in diameter) eight huge leaves fall sheer to the ground, like doors swinging back on hinges. These leaves, which are joined at the top of the trees at regular intervals, were about eleven or twelve feet long, and shaped very much like the leaves of an American Agave or Century Plant. They are two feet through in their thickest part and three feet wide, tapering to a sharp point that looks very much like a cow's horn, very convex on the outer (but not under) surface, and on the under (now upper) surface slightly concave. This concave surface was thickly set with strong thorny hooks like those upon the head of a teazle. These leaves, hanging thus limp and lifeless, dead green in color, had in appearance the massive strength of oak fibre. The apex of the cone was a round concave figure like a smaller plate set within a larger one. This was not a flower, but a receptacle, and there exuded into it a clear treacly liquid, honey sweet and possessed of violent intoxicating and soporific properties. From underneath the rim (so to speak) of the undermost plate, a series of long, hairy,

green tendrils stretched out in every direction toward the horizon. These were seven or eight feet long, and tapered from four inches to half an inch in diameter, yet they stretched out stiffly as iron rods. Above these (from between the upper and under cup) six white almost transparent palpi reared themselves toward the sky, twirling and twisting with marvelous incessant motion, yet constantly reaching upward. Thin as reeds and frail as quills, apparently, they were five or six feet tall, and were so constantly and vigorously in motion, with such a subtle, sinuous, silent throbbing against the air that they gave suggestions of serpents flayed, yet dancing on their tails. My observations on this occasion were suddenly interrupted by the natives who had been shrieking around the tree with their shrill voices, and chanting what Hendrick told me were propitiatory hymns to the great tree-devil. With still wilder shrieks and chants they now surrounded one of the women, and urged her with the points of their javelins, until slowly and with despairing face she climbed up the stalk of the tree, and stood on the summit of the cone, the palpi swirling all about her. "Tsik! Tsik!" (Drink! Drink!) cried the men. Stooping, she drank of the viscid fluid in the cup, rising instantly again, with wild frenzy in her face, and convulsive cords in her limbs. But she did not jump down, as she seemed to intend to do. O, no! The atrocious cannibal-tree, that had been so inert and dead, came to sudden savage life. The delicate palpi, with the fury of starved serpents, quivered a moment over her head, and then, as if instinct with demoniac intelligence, fastened upon her in sudden coils round and round her neck and arms, and while her awful screams and yet more awful laughter rose wildly to

be instantly strangled down again into a gurgling moan, the tendrils, one after another, like great green serpents, with brutal energy and infernal rapidity, rose, protracted themselves, and wrapped her about in fold after fold, ever tightening with the swiftness and savage tenacity of anacondas fastening upon their prey.

It was the barbarity of the Laocoon without its beauty—this strange, horrible murder. And now the great leaves rose slowly and stiffly, like the arms of a derrick, erected themselves in the air, approached one another, and closed about the dead and hampered victim with the silent force of a hydraulic press and the ruthlessness of a thumb-screw. A moment more, and while I could see the bases of these great levers pressing more tightly toward each other, from their interstices there trickled down the stalk of the tree great streams of the viscid honey-like fluid, mingled horribly with the blood and oozing viscera of the victim. At sight of this the savage hordes around me, yelling madly, bounded forward, crowded to the tree, clasped it, and with cups, leaves, hands, or tongues, each one obtained enough of the liquid to send him mad and frantic.—*Dr. Jay, in the South Australian Register.*

CALIFORNIA consumes 10,000,000 Oranges per annum, or about eighteen apiece to each man, woman, and child in the State. There are of course some who far exceed that figure, and many who never taste an Orange from the 1st of January to the 31st of December; but eighteen is the average. Of the 10,000,000 Oranges consumed over fifty per cent. now come from Los Angeles and the other southern counties of the State; and the supply from that source is constantly increasing.

TROLLING FOR SALMON IN RIVERS OR LAKES, ETC.

BY E. J. HOOPER.

Next to the use of the artificial fly, trolling with the spinning spoon-bait is the most exciting, sportsmanlike, and successful method of killing salmon. Spoon trolling may be practiced the whole season, especially in early morning, and is capital exercise from the bank or rocks, both for body and arm, for the latter is kept in full play, and the former moving on at times, while the bait is in a continual spin or troll. The great advantage of trolling with the spoon is, that it may be very successfully practiced at those periods when the water from recent rains is unfit for the fly. This I found to be the case below the junction of the Butenor and Pescadero Creeks, about a mile from the ocean, last November. When the tide was running either in or out the strongest, I found it the best for the purpose. This I did with good effect when the water was quite dark after a flood, or when discolored from any other cause. It is not only a destructive bait in thick or discolored, but more so in clear water, and on the brightest days. At such times it is a very exciting sport, because you can often in clear water see your fish as he rises to take it, as well as sometimes others following him. I prefer one or two hooks only attached to the spoon, as when the salmon are on the feed this answers every purpose, and is the least likely to give trouble, because there are fewer hooks to get entangled in the meshes of the net, when landing a large fish, than the other plans where more hooks are used and consequently exposed. The leader to the main line should be of strong twisted gut about two and a half yards long, tied with water knots, either

wrapped with silk thread or not, according to fancy. In this should be fastened the swivels, the one about a foot and a half from the bait, the other three feet distant from it. Two, three, or more split shot should be fastened on half-way between the swivels, for angling in strong or discolored water, to keep the bait down; these are not requisite in clear-water fishing. The snoods for the spoon should be either double gut or strong gimp, or brass wire, or in very clear water single gut is better. The swivels are best fitted in by loops in the gut.

The trolling-rod for salmon-fishing should not be above fifteen feet in length, for if longer it becomes wearisome to the hand (this fishing from the bank is the most laborious of any), neither if longer is it manageable. Strength and stiffness should be combined with a fine even spring; and it should be proportionately stronger in the butt than the fly-rod, or you will not be able to cast with precision or troll either against or across a tide or stream, or strike your fish sharply and strongly; all of which should be done. The action in striking must be perpendicular or down stream, or you will run the risk of drawing the bait from the fish instead of killing him with it, should he rise short. When the fish is hooked the rod should be held upright as much as possible, by poking the butt of it, as it were, at him. Thus the line will have the full play of the rod to ease it, and will hold a heavier fish in this position than in any other.

To make your cast have your line and tackle about a yard longer than your rod, that it may be under full command. Take your spoon-bait in your left hand, having your rod in your right—the point turned to the left, and about a half a yard from the ground or

water—then raise your rod, passing it westward and upward as you let go the spoon, at the same time aiming the point of the rod to pass over the place, as it were, that you wish the bait to fall upon. When it is nearly out at full stretch, drop the point of your rod down again to a few inches of the water, and the bait will fall not far from the place you intend. Then sometimes by short and sudden jerks of the rod, sometimes by steadier and longer pulls, force your bait along, either up, down, or across the stream, etc., as you may deem likely for a fish. It is always good to troll downwards across the stream when the fish are shy. Drop in your bait gently, a little above any likely hold, let it sink a little, then keeping your rod close to the water, jerk it easily as above described, and be sure to keep it continually under the water and spinning as quickly as possible. Do not neglect to fish it well out to the edges of the water, because in colored water especially most fish are caught near the edges, these being the haunts of all small fish. You can scarcely fish too deep, if you only clear the ground. Never regret your bait being out of sight, though it is rather pleasanter to see it; you will feel the fish easily, or perhaps see the water agitated when he rises; lift your rod and strike as uprightly as you can, or a little with the water. If you strike in too great a hurry and horizontally, the way you are trolling, you will snatch the bait out of the fish's mouth, whether he will or not, supposing he has struck it clear of the hooks; but this he can scarcely do with the simplest tackle, much less with the more complicated.

Trout and salmon are frequently seen to follow the spoon, or a minnow for bait if you use one, yet hesitate to take it. When such is the case do not halt or stop in your trolling, but keep on at

the same speed. The next cast he will perhaps dash at it just as it is emerging from the water, even at the very edge. It sometimes happens that a fish, if either he has not risen when followed, or has risen and missed, will not rise if you continue to troll in the same direction. When this happens, troll past him in the opposite direction, and he is often tempted, particularly if you troll at a greater speed. That is, suppose you have been trolling against the stream, fetch it back past him like lightning. This has been frequently proved.

In all clear-water trolling it is best to wade up-stream and fish before you on either side, for the same reasons as you do the same in fly-fishing. Clear-water trolling requires finer tackle, a smaller spoon-bait, smaller fish if you fish with them, and less lead or sinkers; only keep your bait well under water. In the summer months, or from the middle of June to the end of August, trolling is not so successfully practiced in the daytime, though the water be clear and the weather dark and windy or foggy. The reason of this is, probably, that in the beginning and end of the season small fish or their imitation by spoon or otherwise, is a novelty, and they then take the bait best, while afterward, when they get cloyed and surfeited with small fish for food, and a greater variety of baits comes in, they wantonly forsake them and turn more readily to other food, as moths, butterflies, beetles, etc. Besides, windy weather causes a scarcity of flies, and consequently a dearth at the latter end of the season, when a more than ordinary appetite is raised, and they once more take to the spoon-bait or artificial minnow. The best season then for spoon-bait fishing is considered to be from the beginning of March to the 15th of June, and again in September.

As a general rule, when trolling keep the point of the rod below your elbow. The chief consideration and cause of success in trolling is undoubtedly the rapid spinning of the bait, whatever it may be; therefore, if your bait be deficient in this qualification, remedy it immediately, either by curving it more or putting on a fresh one. You should not at the same time pass over any place likely to hold fish.

The same rules as above apply to spoon-bait fishing from a boat, which is now successfully pursued in Lake San Andreas. Troll with a line out to the length of seventy-five to one hundred feet, rather slowly then, and with bait about three feet deep in those waters. The fish hook themselves, only lower the point of the rod when they leap.

THE VALUE OF ALFALFA.

John Shirley Ward, writing to the *Rural Press* from Arcadia ranch, near San Bernardino, says: "Much has been said and written in reference to the wonderful growth of Alfalfa, but as we have seen but little on the subject of its actual cash value as a crop, we propose to give a few items in regard to its cost and the profits of the crop. Our first experience was during last year. Arcadia ranch then had seven acres of Alfalfa. We then sowed sixty-three acres. From the seven acres of old Alfalfa we sold \$400 worth of hay, and saved, after paying toll, 1,204 pounds of seed, though only five of the seven were allowed to seed. After the seed crop was cut, we had a small crop which was grazed by sheep. The seed was worth here fourteen cents per pound, thus realizing \$168.56 for seed, and \$400 from hay, making \$568.56. The

entire expense of this crop was a little less than \$100.

"I have just put away nearly one hundred tons of well-cured hay at a cost of \$1.43 $\frac{2}{3}$ per ton. This includes the cost of cutting, hire of mower, raking and hauling, all of which was paid for at the highest prices for such labor. We sold our last year's crop at ten dollars per ton in the stack, and the price will not be less this year.

"Many persons writing of the marvelous yield of Alfalfa have drawn largely upon their imaginations. The yield is large enough if we tell the truth, and hence does not need any exaggeration. From our experience we believe forty dollars per acre can be realized, above the cost of the crop, on every acre well set in Alfalfa, where the land is adapted to its growth and water is plentiful.

"We believe we can cut on one hundred acres on this ranch at least five hundred tons of good hay this year, and one thousand dollars will pay the entire expenses. This will pay forty per cent. per annum on land at one hundred dollars per acre.

"One item in regard to the grazing capacity of Alfalfa. During last fall we kept 1,500 sheep on twenty-five acres for twenty-two days, and as fast as it was eaten off we turned on the water. By the time they had reached the lower end of the field the young Alfalfa was from eight to ten inches high where they began grazing.

"As a forage plant we think it excels any sown in this State."

An exchange says that the manufacture of caoutchouc from milk-weed (*asclepias*) has been undertaken by a company in Canada, with a capital of \$100,000. The milky juice yields about four per cent. of caoutchouc.

SOME OF MAN'S PHYSICAL AGENCY
ON THE EARTH AS REGARDS
PLANTING, ETC.

BY OBSERVER.

It is evident to the most careless observer that man exerts wonderful influence in the material world, as he does in the moral and intellectual, in various ways, both for good and evil. It may be remarked, for instance, that he destroys birds because they eat fruit. But these birds also feed upon the insects; and a worse evil is sometimes produced by the increase of insects than is corrected by the destruction of the feathered tribe. He destroys the wild animals, and introduces tamed and domesticated kinds, but some of them are occasionally multiplied into nuisances. He extirpates the earth and other worms, which might do him great benefit in some cases if left alive. His influence, when conscious, is often in a wrong direction; and when unconscious may turn either favorably or unfavorably for his interests, according to circumstances over which he has no control. Even in the case of food recognized as valuable, such as the salmon, the trout, and the oyster, he will often, with the most senseless and stupid carelessness, destroy the race for the sake of a few years' supply.

We need not refer particularly here to his destruction of forests and groves (without substituting plantations) which so much influence the rain-fall in a country, exhaling, too, so much oxygen, and carbonic acid, as rather a hackneyed subject, but will point to some of his other effects on the earth in many ways.

Irrigation, a most important subject for California, requires some special notice as a human agent. In the south and east of Europe, in Asia Minor, and

in many parts of Asia, this method is uniformly and systematically adopted to insure an increased production. It is needed there, as with us, partly from the nature of the summer climate, which is continuously dry, partly from the porous nature of the soil, either composed of sand or gravel or of porous and fractured rocks. But even this may be carried on in some places without a necessity, and may do more harm than good, and deep and thorough cultivation of the soil may be better for some places.

The draining of tule lands or marshes, and other low tracts of lands near the mouths of rivers, or on a coast-line, is another of the many works by which man largely influences nature.

As we may observe, on our city peninsula large deposits of loose fine sand occur. Fortunately these sand-dunes do not consist entirely of pure silica, which is always barren, and often destructive, but some plants flourish well in them. There are certain grasses, creeping plants, and shrubs that are admirably adapted by their habits and growth to bind together the shifting sands into a solid mass. As many as 234 species of sand-plants are known to botanists. A yellow Lupine seems to be a valuable plant with us for this purpose. In England of all this great number of sand-plants, the *Arundo arenaria*, known locally by various names—*Marram* being that used in some parts of England—is by far the most important and valuable. It thrives only in loose sands, and in a saline atmosphere. It rises only to a height of twenty-four inches, but sends strong roots and rootlets to a distance of forty feet. Its leaves shelter the surface, and the sand ceases to drift. The plant dies, but its decaying roots remain, fertilizing the soil. It is follow-

ed by a succession of other plants, gradually advancing until forest-trees can grow, or arable soil is obtained.

In our mines, where large excavations have been made for the removal of ores of gold, silver, and other minerals, the result in the course of time can not but be important, for way is thus made for the passage of water, and the subsequent deposit of more minerals, but these can only be useful or important when thousands of years shall have passed away.

Finally, it may seem difficult to imagine a limit to the effects produced by man's operations, after a lapse of centuries, for they are continually increasing with an ever-widening circle. But, after all, they must be recognized as a part of the very constitution of nature, and they should not be regarded as interrupting or interfering with nature. It is true that this view of the government of the universe does not accord with the feelings of those who desire to have their attention directed in a definite manner to the repeated and systematic personal intervention of a Divine Power, and who can not recognize this Power without being able to trace what is called the finger or the hand of the Creator in all His works. In a certain sense no doubt, every contrivance, or, in other words, every arrangement in the universe, may be made to yield evidence of this. But we would venture to suggest that the noble view of creation, and a knowledge of the real greatness of the Creator, can only be learnt by those who seek to discover the much higher and nobler intelligence that designed the whole system. That there should be an interfering hand is a mark of weakness in the original plan. If the structure be perfect, interference is not necessary. The laws of nature can only be binding

and unalterable because they can not be changed with advantage—in other words, because they are perfect as being instituted by One who is Himself perfect.

THE CLIMBING FERN (*Lygodium palmatum*).

This most beautiful of our native Ferns is so very peculiar in its form and general appearance, that not one person in ten would class it with the other Ferns of our woods. To the botanist it has its appropriate place as one of the most beautiful of the Ferns. It being comparatively a rare Fern adds to its value, and may be recorded as one of its peculiarities. I have found this lovely Fern in various localities; in Maine, in Massachusetts, in Connecticut, and many other places. It lives in Florida, and is scattered in small patches over several of the States. It was held in such great esteem in Connecticut that complete raids were made upon the locations in which it grew, and it was removed in such quantities as to become a source of disgust to many persons who loved and would cherish this lovely green Fern. Such were the quantities carried away that it became necessary to protect it from entire extinction, by causing a law to be passed by the State for its future protection from the vandalism of outsiders. The *Lygodium palmatum* has a very slender light-brown stalk, which in the wilder cultivation of its native haunts turns for support lovingly around small shrubs, running to a height of from two to four feet. From the main stem the small branches alternate, and in their turn also throw off branches and bear leaves or fronds at each and every division. These frond leaves are again divided into several lobes. By turning up the under side of the leaves or small lobes

will be seen the spore-cases or seed-vessels, which are arranged with much grace and beauty. In short this grace and beauty of the plant not only place it at the head of our beautiful Ferns, but render it a great and deserved favorite as a decorative or festive plant. With great care this plant can be safely and successfully transplanted and cultivated, although its great delicacy and impatience of rough handling has thus far prevented its cultivation to much extent.

BLACK BLIGHT OF ORANGE AND OLIVE.

BY DR. A. KELLOGG.

[Concluded.]

Speaking specially, the region of Santa Barbara is eminently favored by the high mountains that shelter it from the north-west winds, while those winds force and disperse dense fogs, already rarer as they rise, into a mild veil that shelters the valley from excess of sun, and at the same time it tempers the clime, also affords a moderate degree of moisture, so important to successful culture of subacid fruits. The subtropical Olive also requires this evenness of temperature.

According to Dr. L. N. Dimmick's table of temperature, kindly furnished me, I find the mean temperature, for example say at 7 A.M., is 60.90—a result truly marvelous. Still, if taken at the dew-fall, the data would be somewhat different, yet great equanimity is certainly preserved.

Sudden changes from excessive heat to cold, or extreme cold to heat, unless greatly qualified by open forests and half-shades, exhaustive dryness, or heavy rainy regions, are nearly all equally pernicious. A tempered and humid sea-breeze is also conducive to healthy growth in latitudes subject to long dry

seasons, so is a soil very light and free from clay; if otherwise, incessant and laborious stirring must supply this serious natural defect.

We have designedly avoided prescriptions or empirical remedies. They mostly tend to mischief, because they flatter and foster wrong views. We of course are all right, it is only the devil and all to pay, and nobody's fault. Only just have faith alone in the doctor's pills and medicines, and go on then h—wards. Now this will never do, it is decidedly wrong. Have the faith of life, that springs naturally and rightly from good doing all round, in the first, second, and third place. These remedies, so far as they contribute, even incidentally, to restore the general health of the grove, are all good. Books and recipes may be consulted, but let them play minor parts.

As a main point of reliance, your relief lies in ridding the roots of the aphides as well. Clean away the earth, expose the main stumps to mellow autumn's farewell smile for weeks together. Cast away the infested and impoverished soil, and prepare to begin life anew. Rotation is the law; if you can not rotate trees, then rotate good virgin soil instead, and tell me if ninety-nine times in a hundred the trees do not come out of the contest with flying colors. Go to the root of the difficulty, and there is no fear of anything but a triumphant result. No superstructure can stand where the foundation is sapped.

This properly done, the golden age of rejuvenation will return, laden with the luscious apples of Hesperides—emblems of the good of life, with the sweet oil of cherished age. Withal, be careful in your zeal not to heap up the soil above the natural air-line bark close against the trees, though raised some-

what a little way off; for if you do, it is all over with them, even were the soil as rich and rare as Eden. Indeed, in most cases the fault is in our overmanagement; but for all that we do not pretend, like "Dr. Positive de Snatch-away," to go into all the negatives besides.

In brief, upon a large scale, throwing off the soil with a plow, then carefully scraping and cleaning away with a hoe and stiff scrub-brush, or the like; washings are well with any strong saline, alkaline, soapy, or urinous fluids. In some cases where feasible, after replenishing with new soil (and perfectly prepared compost, if any be used), a mulch of movable rocks or cobbles after the trees have attained to a good majority, is the most valuable of all, furnishing virgin soluble salts, silicates, and varied earthy materials required, retaining, condensing, radiating, etc.

ROSES.

The Persians, compared to their neighbors, the Turks and Egyptians, are a lively people, but we would call them quiet, and even sad, because their gaiety is so different from ours, and their manners are more grave and dignified. But they are fond of amusements, and one of their yearly festivals is the "Feast of the Roses," which takes place during the Rose season, which is in June, July, and indeed the greater part of the summer. I will try to tell you something about it.

The climate being very warm, the people live much out of doors, and during this feast tents are pitched; everyone wears his or her prettiest dresses, and as all Eastern people are fond of bright colors, the scene is a very gay one.

During this festival everything betokens mirth and enjoyment. The cym-

bals and lute are heard from morning till night, the story-tellers recount their most beautiful tales, and the dancing-girls dance for hours at a time. Then, when night comes, and the moonlight covers everything like a silver cloud, the people stretch themselves on their soft carpets and listen to the songs of the nightingales and soft serenades on the women's lutes.

In some parts of Turkey, whole fields of Roses are cultivated, from which the Turks make the famous "attar of Roses," which is so fragrant that a vessel or anything touched with a drop of it seems never to lose the smell; and the Hindoos scatter Rose-leaves in the water they drink to give it a pleasant appearance.

There are more than two hundred kinds of Roses, and they are of all sizes, from the tiny "Picayune Rose," so-called because it is no larger than a five-cent piece—which in the South, is called a picayune—to the immense Cabbage Rose; of all shades of color, bright yellow, pink, red, and almost black. The Rose of Damascus, or Damask Rose, is the one first brought to this country, and is a very deep red, with a strong perfume. Then there are the Egyptian Sea Roses, Rock Roses which grow in dry rocky places where no other flower can live; and the Alpine Rose, growing by the eternal snow-drifts of the Alps.

Roses are hardy plants, and will live for a long time if properly cared for. There is a Rose-tree in Germany which is known to be eight hundred years old, and it is still blossoming.

We all know and love the pretty Moss Rose, with its mossy green veil, that gives it such a shy, modest air; and the Tea Rose, which, in the South and West, grows on large trees. The writer, had in her garden, in Arkansas, one

which grew to be seven feet high, and would bear as many as five hundred blossoms at once.

But there is one Rose more curious than all others—the Rose of Jericho. It has another name which botanists call it, that is, *Anastatica*, a Greek word, meaning resurrection; and the Arabs call it the symbol of immortality, because it comes to life again long after it has seemed to be dead. It lives in the hot sands of the Desert of Sahara, and when the dry season comes it withers, folds its leaves and draws up its roots, like little feet, into a light ball, and the winds of the desert carry it until it reaches a moist soil, and then, we are told, it drops, takes root, and its leaves become green, and its blossoms open, a delicate pink.

There is a flower in Mexico, known as the Resurrection Flower, which is very much the same. It may be carried about in your pocket for a year or more, and yet, when put into a saucer of water, in a few hours will blossom out as bright and fresh as if it had just come out of the garden.

When the Romans conquered Britain, more than eighteen hundred years ago, they introduced many curious customs into that country—among others, that of carving the figure of a Rose on the ceilings of their banqueting-halls, or sending a natural Rose over the dining-table, with the Latin motto, "*sub rosa*," written above it, to indicate that whatever is said there among friends, or *under the rose*—for that was the meaning of the words—should not be repeated, the white Rose being the symbol of silence.

The Rose is the national emblem of England, as the Thistle is of Scotland, and the Shamrock or Clover of Ireland. Every person who has studied history knows of the Wars of the Roses in En-

gland, when the two rival families of York and Lancaster fought for the English crown, the house of York having for its badge the white Rose, and the house of Lancaster the red.

Many of my young readers have heard of the language of flowers in which people can hold conversation with each other; for instance, a white Rose is the emblem of silence; a withered Rose of any color, "Let us forget;" and so on. A Rose handed to a person means one thing when handed upright, another when its position is reversed. With its thorns it has a certain meaning; without them, still another. Among these Eastern people—the Persians, Turks, and Hindoos—this language of flowers is so perfectly understood that, by means of a bunch of their favorite Roses, long conversations may be carried on without a word being spoken. This suits these people, who do not like to talk very much, but who are, nevertheless, a very romantic, dreamy, and poetic race.—*Lily de Sozia Wood, in St. Nicholas for July.*

RAISING EVERGREENS FROM SEED.

The following hints about raising evergreens from the seed, which will be found applicable to this State, we take from the Chicago *Inter-Ocean*.

The cones of the tree should be gathered as soon in the fall as they have become fully ripe, and placed where they will become sufficiently dry to shed the seed easily when handled. In most cases this can be easily done, the Pine being a notable exception, the cones of which should be placed in tepid water for a few hours before being dried. The seed should then be kept in a cool place until spring. In the spring the seed-beds are prepared. The nature of ever-

greens is so unlike that of ordinary forest-trees, that an altogether different method must be employed in planting and starting. The buds must be protected from the hot sun to prevent scorching, and from the dry winds to avoid withering. A light sandy soil is to be preferred, which should be made of moderate fertility. In the selection of any soil avoid one that when dry is hard and compact upon the surface, as it will retard the growth of the young plants. If the owner has only such soil, a loose one should be obtained at least sufficient to cover the seed to the depth of three inches. If a fertilizer is required, a well-rotted compost should be used and fresh manure avoided.

As soon as the ground is warm and dry enough in the spring to work, the seed may be sown in drills six or eight inches apart in the beds, and should be covered by sifting the earth carefully over them about half an inch deep. They then may be covered half an inch more with a hoe. Having been covered the bed should be watered. After being planted screens should be placed over the beds to protect the young and tender shoots when they make their appearance. For this purpose frames should be made four feet wide and twelve feet long. Any kind of boards will answer for the frames, but they should not be made so heavy as to be difficult to handle. This frame may be covered with laths placed about an inch and a half apart, and so secured that the wind may not blow them off. A good covering can be made of coarse cloth or evergreen boughs in place of the laths. When the screens are completed they should be placed over the beds about six inches from the ground, and should only be removed in cloudy days when the plants are hoed. In moist, "muggy" weather, care should

be taken that the plants do not mildew, which disease is in many portions of the country the most fatal for the young plants. To avoid this the bed should be thoroughly aired by raising the screen perhaps a foot from the bed to allow a more free circulation of the air. It may perhaps be needless to say that the tender shoots of most evergreens are considered an exceedingly dainty morsel by domestic fowls and many kinds of birds, and until they begin to be woody the young plants should be carefully guarded against their inroads.

THE GOLDEN CHAIN, OR LABURNUM.

BY E. J. HOOPER.

In this genus (*Cytisus* Linn.), Nat. Ord. *Leguminosæ*, we have several esteemed shrubs and low trees which I consider indispensable, at any rate, both for large gardens and ornamental planting. But the one at the head of this paper, and often called the Scotch Laburnum, is rather prettier, more showy and desirable than any. Its beautiful, pendulous, bright-yellow flowers present a lovely and most graceful appearance for about two or three weeks in the latter end of the month of May or in the beginning of June in California, and after the Scotch Broom flowers, and is far from being as yet common here. Upon them is sometimes worked the purple-flowering *Cytisus*, and when growing together these and the yellow flowers afford a striking contrast. They are usually raised from seed, which is plentifully produced, and in good soil form flowering specimens in four or five years. It will grow to be a large tree, and the wood of it is very hard, of a fine color, and will polish very well; it approaches near to green

ebony. In some of the old gardens in England and Scotland, where they have been permitted to stand, there are large trees of this kind, which are fit to cut down for the use of the timber. They grow very fast, and are extremely hardy, so may be well worth propagating, even upon poor shallow soils and in exposed situations, but in good soil they of course will do much better. This tree grows wild in the Alps in Europe. There is a fine specimen of it in the Bartram Botanical Gardens in Philadelphia, which is about twenty-five feet high by fifteen inches in circumference. It is certainly one of the most ornamental of our medium-sized trees. It is best raised from seed in preference to layers or cuttings. Sow as soon as ripe—if with the pods the better. They appear in a few weeks. In a year transplant into nursery-rows, one foot apart. The sooner they are permanently removed the better, as they get easily checked by being disturbed. There are several varieties, as the oak-leaved, variegated, etc. These, as before remarked, are propagated by grafting or budding on the common kind.

It is true we have many yellow-flowering trees and shrubs displaying their beauty early in the spring in this State, such as the Australian Acacias, Forsythia, Viridissima, etc., but the Laburnum forms a pleasing variety in the shape of its flowers.

A HUGE TREE. — An Australian paper publishes an account of "an enormous Fig-tree," exceeding in stoutness and grandeur the forest giants of California. Three feet from the ground it measured 150 feet in circumference; at fifty feet it sent forth giant branches, the trunk at that height being eighty feet in circumference.

THE HUGE TREES OF THE WORLD.

One-third of the land surface of our globe is covered with forests. The largest in the world is situated near Muscoli, at the foot of Mt. Ætna, and is called "The Chestnut Tree of a Hundred Horses," believed to be the oldest tree in the world. Its name arose from a report that Queen Jane of Aragon, with her principal nobility, took refuge from a violent storm under its branches. At one time it was supposed that it consisted of a clump of several trees united. But on digging away the earth the root was found entire, and at no great depth. Five enormous branches rise from the trunk 204 feet in circumference, the intervals between which are of various extent, one of them being sufficient to allow two carriages to drive abreast. A Fig-tree stands on the northerly bank of the River Johnstone, in East Australia, latitude 27°, longitude 151°, near Brisbane, measuring three feet from the ground 150 feet, and at 55 feet, where it sends off great branches, 80 feet in circumference. In Bouyouderch, near Constantinople, is a plane-tree measuring 149 feet in circumference. The "Giant Redwood Tree," in Nevada, latitude 38°, longitude 129°, is 119 feet in circumference. There are thirteen other trees standing near it, measuring from 72 to 96 feet in circumference. In Oaxaca is a Cypress-tree measuring 117 feet in circumference. The "Grizzly Giant," the monarch of the Mariposa Grove, measures 92 feet in circumference. The Tulare-Fresno Forest, so called from its being situated in those two counties (California), extending seventy miles in length, with a width in some places of ten miles, consists mainly of big trees with a multitude of smaller ones, measuring from six to 120 feet in circumference. In 1852 John

Dowd discovered in Calaveras County, California, a grove of 103 trees, covering a space of fifty acres, measuring from 70 to 96 feet in circumference. There is an Elm-tree in the south of England which measures 61 feet in circumference. In Norfolkshire there is a famous Lime-tree measuring 48 feet in circumference. On the Hubbard farm, in North Andover, stands a magnificent Elm-tree, which measures 27 feet in circumference. A Barberry bush has taken root in a notch 30 feet from the ground, which can be recollected by some of the oldest inhabitants during their boyhood. At Hingham, near the Old Colony House, is an Elm-tree measuring 26 feet in circumference. The Washington Elm, in Cambridge, measures 25 feet, and the big Elm on Boston Common measures 24 feet in circumference.

THE PHILOSOPHY OF DEW.

BY METEOROLOGIST.

From the manner in which we commonly hear the deposition of dew spoken of, we are led to think that the ideas of many people are vague and incorrect. Dew is spoken of as falling, as though it were formed in the clouds, or somewhere in the region above us, and showered down from thence like the rain which so abundantly waters and purifies the earth. But this is evidently incorrect; for if dew were formed in the clouds or showered down from the atmosphere, it is manifest that we should find it equally deposited on all substances; we should find it upon sand and slate roofs, and upon our side-walks and pavements it would lie plentifully. This hypothesis must therefore be abandoned. To those to whom the subject of the formation and deposition of dew may seem obscure, we

would beg leave to suggest the following ideas:

It is well known that the atmosphere, when apparently in a state of dryness, holds in solution by virtue of the caloric it contains a greater or less quantity of water. When the weather is warmest and driest the quantity of water or moisture then held in solution is greatest. It need not be said that this moisture is the result of evaporation carried on rapidly through the day. When the temperature of the air is low, and the moisture thus evaporated is in a state of imperfect solution, we feel sensibly the dampness of the weather; as in the winter, this moisture, not dissolved by the heat of the atmosphere, is frozen, and appears in the form of hoar-frost.

In the evening, when the heat of the sun declines, the earth radiates rapidly the heat it has acquired during the day; while the atmosphere, which is not a good radiator, brings its caloric in contact with every plant and blade of grass colder than itself; to which its caloric is imparted and the atmosphere deprived of it. The air having its solvent power thus reduced, becomes unable to retain in solution so much moisture, and consequently deposits or distills it upon those bodies and vegetation which are colder than itself.

It will be observed, then, that but little dew is deposited during cloudy evenings; as clouds not only prevent the rapid radiation from the earth which takes place at other times, but they do themselves impart their caloric to the earth. It is on fine clear nights that the dew is most perfect and unobstructed. We may observe, too, that the deposition of dew is most abundant toward morning, when the atmosphere has been almost deprived of its solvent power or caloric.

It will be observed, too, that dew is only deposited on those bodies which freely radiate caloric; since it is the radiation of heat which most readily reduces the earth to a temperature below that of the atmosphere. For this reason we find little or no dew upon sand or pavements, but a beautiful distribution of it upon those plants and vegetables which so greedily need it.

SIBERIAN COFFEE.—Numerous attempts have been made to grow Coffee in this State, but up to the present time with no very marked success. The common Coffee-plant, though not strictly tropical, is susceptible to injury from very slight frosts, and can not come into general cultivation in California for that reason, though there may be a few favored localities where it will succeed. If a variety can be obtained that will endure a few degrees more of cold than the common kind, there is no doubt that it can be successfully grown in this State. In the Siberian Coffee, if the published accounts of it be true, we have the required variety. This Coffee has recently been introduced into England, and is being propagated at the Kew Botanical Gardens. Plants have been sent to Jamaica, India, Ceylon, and other British colonies favorable to its growth, from some of which it may doubtless be obtained for experiment. An India paper says that "if this species of Coffee answers all expectations that have been formed of it, we may look for something akin to a revolution in the estates not only of South India, but of Ceylon also." It is said to possess a better flavor than the common Coffee, and to be far more prolific, and what is of more importance to this State, is remarkable hardy, and capable of being cultivated in regions where the old variety will not thrive at all.

THE VINE AND THE THYME-PLANT.

BY JOHN G. SAXE.

A Vine which flourished fair and tall
By clinging to a friendly wall,
Grew proud to hold her head so high,
(As claiming kindred with the sky)
And, looking down with pitying scorn
On humbler plants beside her born,
Thus to a Thyme-plant rudely said:
" 'Tis strange you never leave your bed,
Nor grow a foot above the earth.
Sure, life must be of little worth
To one who thus is always found
The merest groveler on the ground;
Where all the fragrance you may boast
On low society is lost;
Whereas (excuse me, Goody Thyme)
If you like me would only climb
Aloft, and take a higher range,
You'd own it for a charming change!"
The other answered: "Very true,
I do not grow so tall as you:
But then, your ladyship must own,
Unlike yourself, I grow alone!
For me, though but a humble Thyme
I pity you, who can not climb
A single inch without support,
And so (O fie!) are fain to court
An ugly wall to be your prop;
Take that away—and down you drop!

MORAL.

Whoever manages to rise
By native strength, may well despise
The man who owes his loftier state
To fawning on the rich and great.

TRANSPLANTING THE PHLOX.—By transplanting the Phlox in spring, early bloom will be obtained from the old plants, and late bloom from the shoots which spring from the bits of roots left in the old bed. When taken up the large stools should be carefully divided before transplanting. The finest blooms are obtained from young plants, or from old ones when thinned to two or three stems. Heavy loam is best adapted to growing the Phlox to perfection, as it gives richness to the foliage, and beauty to the flower.

FOREST CULTURE.

A reckless waste of our forests has been characteristic of our population from the earliest settlement of the country. We have made haste to cut them away in the most indiscriminate manner, as if they were the chief barriers to the progress of civilization; and not content with what the woodman's axe could do, they were, in the earlier days of western settlement, burned by the thousands of acres, without the least regard to any possible value which they might ever possess, or to any harm which their destruction might occasion to the material interests of the country. The history of this arboreal waste, could it be fully written, would show an immense national loss, occasioned by mere wanton recklessness. It is contended, nay, demonstrated, by scientific men that this prodigal destruction has wrought changes in the climate and rendered the soil less productive, in some places, than it otherwise would have been. In the newer regions of the country, and especially along the path pursued by the westward march of our population, the forests, next to the Indians, have been regarded as the chief enemies of civilized man. They have both been destroyed together, though as the trees outnumbered the red men we still have rather more of them left. In Illinois, within the last forty years, streams which once permitted the passage of light steamers are now for a considerable portion of the year dry, or nearly so; and such has been the change in the Hudson River that the Legislature a year ago made an appropriation for the purpose of enabling the Canal Commissioners to make surveys, maps, and plans for damming the outlets of lakes and constructing reservoirs on the head-waters of the Hudson. It has been

found feasible to divert from the St. Lawrence a volume of water five-fold greater than that which flows into the Hudson from its present source. The subject is important, and that not only as it relates to those navigable rivers, but to the agriculturist. Under the laws of the United States, any person may pre-empt 240 acres of land, upon condition of planting a certain area with trees. Already 20,000,000 trees have been planted under these provisions. There is no question that the trees will grow, none that they will prove profitable; the drawback is that they do not come to sufficient maturity for cutting in less than twenty years. But even so, the well-to-do agriculturist it might be supposed, would be willing to do something toward forest culture for the sake of those who come after him. At the last meeting of the State Agricultural Society of Minnesota, an interesting essay was read. The essayist painted a rather doleful picture of what Minnesota will be if her forests are destroyed in the future as they have been in the past, and he urged, as a remedy, forest culture, which had not thus far made satisfactory progress. It appears that 1,116 persons have applied for land in that State under the provisions of the law, by whom the required proportional part of 170,307.50 acres (partly estimated) have been planted with trees, or equal to the area of about one county. The fact, now pretty well authenticated, that the cutting down of forests is among the chief causes which have spread sterility and desolation over regions of Europe that were once productive of harvests and crowded with population, ought to be an admonition to us not only to arrest the wholesale destruction of our forests, but to use all possible efforts to increase their culture and growth.—*New York Shipping List.*

A FREAK IN THE FLOWER WORLD.

The flower of a Calla Lily has been sent to the office of the *Rural Press* as a curiosity. To all appearances, and as far as a careful investigation by good authorities goes, it is a freak of nature in the vegetable kingdom. It is kindly sent by W. T. Reilly, assistant assayer of the Mint, and as is understood, this Calla is from a plant at his house, 1519 Sacramento Street.

That the peculiarity of this flower may be fully understood, we will explain that the three principal parts of a flower like the Calla are called in botany the *stem*, the *spathe*, and the *spadix*. The spadix is the yellow, granulated column that rises from the base of the floral envelope. This envelope, or white flower-leaf, or bract, is technically called the spathe.

Now, according to all descriptions and engravings of numerous authorities consulted, and according to the experience of numerous persons of whom inquiry has been made, we find no account of any separate species of Calla which has a double spathe. Yet such is the case undoubtedly with the flower sent us. In the specimen under consideration there is but one spadix crowning the stem, but it has a definite and distinct spathe or white flower-leaf on each side of it, one curving to the right and the other to the left. Will not any florists who may have met with the same peculiarity in Callas, have sufficient interest in the subject to inform us if it is a common occurrence?

De Candolle merely hints at what may be a solution of the difficulty in his work on the "Philosophy of Plants." In describing a spathe in general he says it may consist of one or more *bractea* or bracts, but he does not assert there that the Calla Lily may have

the two bracts. Still his assertion may give the true solution without making it necessary to call the double form a separate species. To students of botany it may be of interest to know that the Calla belongs, according to Lindley, to the order *Orontiaceae*, or Orontiads. Its full botanical name is *Calla Ethiopica*, or Ethiopian Calla, and it was introduced into England from the Cape of Good Hope, in 1731, nearly one hundred and fifty years ago. It grows wild on the island of St. Helena.—*Pacific Rural Press*.

THE ORANGE-GROVES.

"Orange-groves are beautiful to behold, but hard to possess; and there are but two ways in which a man can get an Orange-grove. One is to have the money and buy it, if he can; and the other to find a favorable location—plenty of water and a good bank account to start in on—and then ten or twelve years of hard and patient industry and good management, and he may win the coveted prize. We, Mr. Editor, have made a small Orange-grove of some 200 trees just commencing to bear, a grove of Lime-trees in beautiful bearing of about the same number, a Lemon-grove also, besides a splendid vineyard, and many other kinds of fruit. We have as productive a property, for the number of years (and nine years ago our place was a desert) as is to be found in any place in the world, and we did it without any money to start in on, and have had the usual amount of bad luck and drawbacks. Our property is now worth for its present and prospective productive capacity, \$12,000; but it is not for sale at any price. And the question is at once asked, why can't anyone else do the same? Well, maybe they can;

but if they think so, just let them try. We happened to get a fine location and plenty of water, and these are the main requisites in that business."

The above is an extract from a letter written by an old settler to the Los Angeles *Herald*. The writer would try to discourage people from investing in Orange-groves because it takes time and capital (labor) to develop the bearing trees, and yet he admits that he started with nothing nine years ago in a desert, and now has a property worth \$12,000.

FOREST AND GRAPE CULTURE.

The San José *Mercury* of recent date, has the following article in reference to some experiments made by Hon. A. L. Barstow, in Grape and forest culture, at his place upon the Santa Cruz road, two miles from San José: "In March, 1873, Mr. Barstow planted 30,000 Grape-cuttings on forty acres of land. He planted a row of Monterey Cypress and two rows of Gums on three sides of the vineyard, and a row of Cypress and six rows of Gums on the north side—all twelve feet apart. The plants were in boxes containing from fifty to one hundred each, and were from three to six inches in height. No special pains were taken in planting. The ground had been plowed six weeks before to a depth of ten inches, and it was further loosened with a spade to a depth of perhaps eighteen or twenty inches in all. The plants were set deep in the ground, the tops of them coming an inch or so above the surface. No rain to speak of fell after they were planted, but about half of them were watered once from the reservoir; the other half received no water till the next winter. There is now no perceptible difference in size between those watered and those that were not. The average height of the

trees is now, twenty-six months from planting, over twenty feet, and they range from three to eight inches in diameter. His object in planting the trees was threefold: First—To protect the vines from the cool summer winds, and hasten the ripening of the Grapes before the early fall frosts which sometimes injure the vines. Second—To provide an abundant supply of fuel for domestic purposes. Third—To make the vineyard ornamental as well as useful. A result followed which he did not anticipate. When he plowed the vineyard this spring the gophers flocked in by thousands, till he became seriously alarmed. They did no apparent damage to the vines, but they worked on the roots of the trees, and quite a number of them were uprooted by the wind. It became a question how he should get rid of the pests, and he tried trapping and poison with but little success. It is a pretty heavy contract to fight gophers out of a forty-acre field, and he gave it up in disgust. What the traps and the poison failed to do has been accomplished by a colony of owls, who hide in the trees in the day and catch gophers in the night and early morning. So far as we could see, the owls have the best of it.

"The soil is light loam mixed largely with gravel, and it is between fifty and sixty feet to surface-water. On forty acres of land Mr. Barstow has thirty thousand vines, two thousand Gums, and four hundred Cypress-trees. The trees cost fifty dollars a thousand, but they can be had for less now, and can be raised for a quarter of that sum by the quantity. Mr. Barstow is confident that land which can now be purchased for twenty-five dollars an acre can be made worth a thousand dollars an acre in ten years by planting it over with Gum-trees."

Editorial Portfolio.

THE EUCALYPTUS GLOBULUS.

The *California Farmer* having made some comments on our remarks on this tree in our July number, we feel called upon to add a few more notes on its peculiar characteristics as they appear to us. Differences of opinion on all subjects are useful and proper, because truth may sometimes be elicited therefrom. The *Farmer* commences its no doubt well-intended criticism by stating: "We are quite astounded to read this in the *HORTICULTURIST*, for the editor or whoever prepared the article is ignorant of the great number of distinct varieties of this valuable tree, or they have never seen the best ornamental varieties growing." With all due respect to our contemporary the *Farmer* and his motives, we must, at any rate, here correct him in what may certainly be termed a thorough *non sequitur*, for we headed our article as he does his also, the Blue Gum, or *Eucalyptus globulus*, and it therefore necessarily follows that we had no reference whatever in our article to any other of the species of this genus or family of the Eucalyptus; we certainly had not, or we should of course have named them. Our brother editor then goes on to say: "It is true to a certain extent that the single variety, *globulus*, is not so finely formed as other species, but the great public would suppose all the Eucalypti to be embraced in this article in the *HORTICULTURIST*, and thus an injury would be done to the spread of its growth." This surely, brother Warren, is too forced a result to follow in the public mind, for all our observations were, it must be evident to everyone, strictly confined to the *E. globulus*.

Our good friend then concludes in

these words: "We know of no ornamental evergreen-tree more beautiful than the pendant species of the *Eucalyptus*; and even the Blue Gum can be made shapely by forming the tree at its early growth. Even the lofty *gigantea* and all rapid-growing kinds can be made ornamental, with broad, well-formed umbrageous heads, if proper attention is given at the right time. We advise our friends of the *HORTICULTURIST* to go into the country and examine the pendant varieties, and they will change their views." Now this our examination of the other varieties, pendant or otherwise, is not at all for us concerned in the question at issue, for we did not in one single word refer to any of the Eucalypti except the *globulus*, therefore it is with this species only we have to speak in reply to the *California Farmer*, and we may perhaps be allowed in all sincerity to add to the farmer's friend, for so we consider it to be in all the many years the *Farmer* has been published, or such at any rate has been its object.

Now with regard to the *E. globulus*, we wish to be entirely candid and truthful concerning its merits as an ornamental and shade tree; and although we can not, so far as we have had the opportunity of noticing it anywhere, regard it *par excellence* as entitled to be called either the one or the other, except when it is young (and we find Messrs. R. J. Trumbull and F. A. Miller, both seedsmen and florists, agree with us in that), yet we are willing to state that we can so far modify our opinion as to admit that if this tree is properly pruned, trained, and lopped when young, and this training, pruning, and lopping is perseveringly resorted to continually in its older growth, it may probably make it a handsome, symmetrical and umbrageous tree. But

at present we can not call to mind that we have seen any specimens of it to fully answer this description, nor can we find any of our friends who have, except our valued friend and contemporary, the *California Farmer*. And we may add, to show that we desire to do justice to the whole subject, and to all, that the agricultural editor of the *Alta*, in remarking upon our views of the Eucalyptus-tree, says that "in reference to its value for ornament, the judgment of the HORTICULTURIST differs from that of the multitude. Its tall and slender form and the plume-like droop of its foliage are generally admired, and it contrasts well with our other ornamental trees. *It attains its most beautiful development, however, in the interior, where the winds are not so high as in San Francisco.*" The italics are ours. The point arises here, whether, as in some other things, the multitude does not run this tree for ornament and shade too much into a *mania*, especially when we consider how few there are who plant the Blue Gum or *E. globulus* who understand how to prune and manage this species, or if they should know this, how few there are who will carry it into thorough and complete effect? But time proves all things. We may possibly have to rescind our opinion as to the *globulus* not becoming a beautiful shade-tree. If we should become certain of this, we will cheerfully make confession of our views upon the subject.

TEA-SEEDS.

We have been favored by Mr. B. F. Wellington, seedsman, 425 Washington Street, with a small package of the above seeds. They are freshly imported and will easily vegetate in about six weeks. As the cultivation of the Tea-

plant in California is very likely sooner or later, with the necessary experience and cheap labor, to be successful, we consider that the importation and trial of the seed here is likely to be highly interesting to many. Although some Tea-plants planted a few years ago near Calistoga failed to do well, as they came here in a perishing condition, yet some of our lands and climates we have no doubt may be all right for them, properly delivered, or, what would be still better, if they are raised from the seed. The culture of the plant and the manufacture of the Tea may be a much simpler and easier process than most persons think. Of the hardy nature of the plant we have abundant evidence in those planted in the gardens at Washington. In many climates of India, neither frost nor snow, drought nor rain, sunshine nor shadow, it is said, materially injure it. Nor is it subject to the visitation of any worm, bug, or disease. We hear that Tea cultivation is beginning to succeed in some of our Southern States, and hopes are entertained there that it will grow in some degree for home consumption. We see no reason whatever why it should not succeed in California, at any rate if most of the minute labor is performed by women and children. Mr. William Saunders, the able Superintendent of Experimental Gardens of the Department of Agriculture, recommends growing Tea-seeds in boxes filled with light soil, covering them to the depth of half an inch with the same. A sash-covered frame in very cold weather will afford the most favorable conditions of growth; but when this convenience is not available, the boxes or pots may be placed in a sheltered and somewhat shaded position in the open air, and the soil maintained in a damp, although not wet state. After one year's growth they may be trans-

planted to their permanent locations. As an ornamental shrub, a North Carolina lady states that she highly prizes it as an acquisition to her garden. It grows ten feet high with her, and is an evergreen. It has endured the severe cold of the winters there without injury. She also says she prepares from the leaves tea of a satisfactory quality.

OUR GERANIUM CHROMO.

By an unaccountable oversight we omitted to notice the above finely executed and beautiful picture, presented to our subscribers with the last (July) number of our magazine, for which we are much indebted to the kindness of Mr. Saul. The varieties illustrated are Eckford's Lady Edith and Coleshill, of the most brilliant crimson and pink colors. On this lovely variety of evergreen perennials much eloquence has been lavished by many writers, and justly so, for no plant better justifies the grower. No flower sells better in the market than the Geranium. This is sufficient proof that it is a general favorite. There are extensive catalogues containing many hundreds with names. There is a great sameness in the colors of many, yet nearly all are cultivated as choice florist's flowers. This is the bedding-plant, *par excellence*, and of the easiest propagation by cuttings. The varieties are endless, ranging in every shade of white, rose, crimson, scarlet, carmine, etc. At the present time there are thirty or more of double varieties, though as yet only of dark colors, but we are beginning to propagate double sorts of many of the shades we have in the single. The variegated-leaved Geraniums are divided into five classes, namely: "Golden-margined," "Silver-margined," "Golden tricolor,"

and "Bronzed." We have, also, the beautiful Ivy-leaved and various scented-leaved Geraniums.

MECHANICS' INSTITUTE FAIR.

A very attractive feature has been added to the Fair in the garden—which is 70 feet wide by 220 feet long, and laid out in admirable taste with green lawns, bordered by flowering plants—a rockery about 18 feet in diameter, having a basin of water, in the centre of which a thin sheet of water falls from a height, enveloping a series of colored lights. At the back of the rockery is a rustic house of quaint design, making an appropriate termination to the garden.

A plateau 70 by 50 feet is provided at the other end, and will contain the exhibits of Ferns, fruits, cut-flowers and kindred things.

The approach to the garden will be by a gate 20 by 20 feet, flanked on either side by garden ornamentations, rustic seats, summer-houses, etc. From the plateau there will be a descent by broad steps to the horticultural grounds. During the evening the garden will be lighted by suitable reflectors from the roof which will be covered by canvas. The general design of the garden, the work of Mr. Hammond Hall, is being well carried out by the superintendent of this department, Mr. Charles Shumann.

NATIVE TREES.

The Fresno *Expositor* has this tribute to native California trees: "It has long been a matter of wonder with us why the culture of our native trees was so much neglected by nurserymen and others engaged in tree culture in Cali-

fornia. Outside of a few varieties of the Pine and the common Cottonwood, we scarcely ever find any of the other varieties of native trees cultivated. Yet there are many really beautiful trees growing in the forests of this State. Among those we particularly think of at this time is the California Laurel; certainly no tree that is grown in this State can surpass it either in beauty of foliage or the stateliness of growth, and besides the tree is valuable for its wood. Another beautiful tree is the Wild Nutmeg. It makes a very pretty tree. The common Oak of California, though of slow growth, is well worthy of cultivation. Besides these, there are many other native trees that should be propagated. Gustaf Eisen, at the Vineyard Farm, informs us that he gathered a quantity of seeds from different species of trees, while journeying through the mountain forests of this State last season. These seeds have been planted on the farm this season, and are now growing finely. In a few years, with care, this splendid farm will be finely adorned with native trees. We wish the spirit for the cultivation of native trees was general with the householders of California."

NEW AND RARE PLANTS.

Pinguicula grandiflora.—This is a British plant. It is a charming Butterwort. For the simple and unaffected floral beauties which the plant develops, it deserves to be found in every good collection of hardy plants. The length of time the plant remains in flower depends upon the strength of the crowns, but the blooming period may extend to six weeks. It requires a cool shady place and to be liberally watered. It is one of the insectivorous plants.

Ornithogalum (Heliocharmos) Glaucophyllum.—A new species, of which bulbs were brought from Asia Minor last spring. It is one out of a very large number of closely allied species, which have exactly the general habit of the common *Ornithogalum umbellatum*.

Phalænopsis Ludermanniana Pulchra.—The flower is violet outside, with a white hue. The upper part of the sepals and petals is of a port-wine color. The inferior part of the sepals, petals, lip, and base of the column are of the most shining blue amethyst. The whole is very beautiful.

Adiantum gracillimum.—Plants of this most charming novelty have recently been introduced to the notice of English florists, no less a price than \$5 being charged for it. It is described as being of surpassing excellence for decorative purposes, and a beautiful contrast to the now well-known *A. Farleyense*. The extreme minuteness and durability of its fronds will make it popular with bouquet-makers, and it is said to retain its beauty, when cut, for a much longer period than the old *A. cucineatum*. Thomas Moore says of it:

"The genus *Adiantum* has probably contributed more beautiful plants to our Fern-houses than any other belonging to the order, and the species now offered for the first time is a sufficient proof that its forms of beauty are not yet exhausted. In the well-known *A. Farleyense* we have a massive grandeur found in no other species, and in *A. gracillimum* we have the most elegant and graceful form yet introduced, so that wherever these plants are grown, these two extreme forms will assuredly become great favorites. The fronds are about a foot long, and from eight to nine inches across. The texture of the frond is very thin and fragile, and its color is

a very pale yellowish-tinted olive-green. Its light and graceful fronds will render it simply invaluable to the bouquetist, while its hardiness will commend it to all Fern-growers for decorative purposes."

NEW FRUITS.

Amazon Red Raspberry.—Originated by J. and W. R. Judefind, Edesville, Kent County, Md.; said to be very productive, early, hardy, of very large size, firm for carriage, of fine flavor, and of beautiful color. It is best cultivated on the hill system. It bears as well on the new canes as the old. Should be allowed five or six canes on each hill.

Rea's Mammoth Quince.—A very large variety of the Orange Quince. A strong grower and productive.

Victoria Nectarine.—Very large; the finest of all the English varieties.

The Souvenir du Congress Pear.—A new splendid and remarkable variety; large fine form, of superior quality and earliness; larger than the Bartlett or Clapp's Favorite. It is strongly recommended by Ellwanger & Barry, Rochester, N. Y.

THE AMERICAN ERYTHRONIUM.—A correspondent of the *London Garden* says that when he planted the *Erythronium Americanum* (or "Dog's-tooth Violet") in common rich borders, he rarely had any flowers. He afterward placed the roots in the stone compartments of the rock garden, and had an abundance of bloom. The soil among the rocks was peat and loam. He also states that all the species of *Erythronium* succeed well in rough stone boxes.

THE AUGHINBAUGH BLACKBERRY.—Our frontispiece is a true representation of this new and excellent variety of Blackberry, which begins to ripen from the 1st to the 15th of May, and continues to produce berries until about the middle of July, about the time other varieties begin to ripen. In addition to the advantages of large size and early ripening, this is of excellent flavor, and does not contain so large a proportion of seeds and core as other varieties. Plants are now ready for transplanting, and for sale at Mr. Aughinbaugh's residence on Washington Avenue, west of Euclid Street, Alameda, and at Geo. F. Silvester's, 317 Washington Street, San Francisco. Price, \$25 per hundred plants.

IMMENSE SEEDLING APRICOTS.—We have just been shown a lot of magnificent Apricots from Mr. Aughinbaugh's orchard in Alameda. The average circumference of the lot is over eight inches, and the largest picked out at random measured eight and five-sixteenths of an inch, and weighed six ounces. This is the first bearing, and is valuable on account of size and flavor and late ripening.

The report that Treadwell & Co. of San Francisco are closed up is not true, says the *Rural Press*. They are selling harvesting machinery and other goods as usual, although much of their large stock is being sold at below cost.

POWDERED or crushed bones are useful for any crop. They add to the soil phosphate of lime chiefly, and this is a component part of nearly every vegetable valuable for food.

REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

We never think that a few remarks on fruit as a portion of our diet is ever out of place. There is often too great a want of knowledge on these points among the masses. Instead of standing in any fear of a generous consumption of ripe fruits, we regard them as positively conducive to health. The very maladies commonly assumed to have their origin in the free use of Apples, Peaches, Cherries, Melons, and all wild as well as domestic berries, have been quite as prevalent, if not equally destructive, in seasons of scarcity. This remark, however, is more applicable to the Eastern climate than to ours in California; for in the East, in the fruit season, they have conditions of hot and sultry weather which predispose to sickness, as bowel complaints, particularly among children, from a too free use of many sorts of fruits, while in our comparatively most healthy atmosphere the feasting of persons of all ages on our most generous and luscious gifts of Pomona is almost a harmless proceeding.

There are so many erroneous notions entertained of the bad effects of fruits, however, everywhere, that it is never out of order in our fruit article for the HORTICULTURIST to promulgate a counteracting impression, having its foundation in common sense, and based upon the observation of the intelligent. We have sometimes no patience in reading the endless rules to be observed in this particular department of physical welfare and comfort. No one, we imagine, lived longer or freer from the paroxysms of disease, by discarding the delicious fruits of the land where he dwells for a time only, or in which he finds a per-

manent home. On the contrary, they are necessary to the preservation of health, and it is therefore arranged they should make their appearance at the time when the condition of the body, operated upon by deteriorating causes not always understood, requires their grateful renovating influence.

We are not in favor of using fruit much in pies or puddings, particularly for children, but to use it with such things as slices of bread or some rice to eat with it. For this purpose it should be prepared by putting Apple slices, or Plums, Currants, ripe Gooseberries, etc., into a stone jar, and sprinkle among them as much sugar as necessary. Set the jar in an oven, on a hearth or a cooking-stove, with a teacupful of water to prevent the fruit from burning; or put the jar into a saucepan of water till its contents are perfectly done; then bread or rice may be put into the jar, to eat with the fruit, if preferred.

With respect to the right time of gathering fruits, their period of what is called by the French honification consists in the ripeness and flavor which fruits of all kinds acquire if plucked a few days before arriving at their first maturity, and preserved under a proper degree of temperature. Apples may acquire or arrive at this second degree of maturity upon the tree, but it too often happens that the flavor of the fruit is thus lost, for fruit overripe is always found to have parted with a portion of its flavor and juiciness.

Our fruit market now presents the most tempting and splendid appearance of any time of the year, because the greatest variety of fruits are found on the stalls, and where in any other land can such an assemblage of orchard or garden products be seen at this season? Their prices are generally rath-

er high, this year, on account of the frosts and drought in early spring.

About the middle of last month (July) common Pears were plentiful and cheap. The season for Gooseberries closed. Currants were getting a trifle overripe, and prices had reached the minimum point. Raspberries became scarcer, and they retailed at 30c. to 35c. Cherry Plums were quoted at 12½c., and Plums continued firm at 8c. to 12½c. The receipts of Bartlett Pears increased, but they were making slow progress toward ripeness, and were quoted at 12½c. per lb. Oregon Cherries were quotable at 25c. per lb.; Strawberries, 20c.; Apricots, 8c. to 12½c.; Grapes 10c. to 15c.; German Plums, 15c. to 20c. Crawford Peaches brought fancy prices. Blackberries declined in price. Winter Squash was coming in, and was offered at 2c. to 3c. per lb. Okra sold at 15c.; Green Corn, at 25c. to 35c. per doz.; Egg Plant, at 6c. to 8c. per lb.; Asparagus, at 10c. to 12½c.; Chile Peppers, 25c.; Shell Beans, 5c.; Artichokes, 25c. to 40c. per doz.; Sweet Potatoes, 8c. to 12½c. per lb.; Watermelons, 35c. to 50c. each; Canteloupes, 25c. to 50c. Figs were a drug in the market at low and nominal rates. Our people are not educated up to a knowledge of their excellencies. They should be peeled and sugared like Peaches, for dessert, and in that way are a great table delicacy. Of course some growers dry and cure the Fig, but many parties will not take that trouble, and thus the fruit is left to perish in large quantities.

About the 23d of last month (July) Grapes arrived in considerable quantities—Black Hamburg and Muscat being the varieties most to hand at that time. The former are quoted at 15c. per lb., and the latter at 20c. Sweetwater and other varieties in season,

not including the above named, retailed at 10c. per lb. Bartlett Pears were abundant at 10c.; Currants by the box, 25c. to 50c.; Raspberries, 30c. to 35c. per lb.; Blackberries, 10c. to 12½c.; Plums, 8c. to 12½c.; Cherry Plums, 10c.; German Prunes, 15c. to 25c.; Apricots, 10c.; Nectarines, 12½c. to 15c.; Crab Apples, 8c.; Bananas, 25c. to 75c. per doz.; Pine-apples, 50c. to \$1 each. Peaches arrived in large quantities, and their price was much diminished in consequence.

Green Lima Beans were quoted at 8c. per lb., and dry do. at 15c.; Winter Squash, 2c. to 3c.; Summer do. 6c.; Okra, 15c.; Green Corn, 25c. to 35c. per doz.; Asparagus, 10c. to 12½c. per lb.; Shell Beans, 5c.; Chile Peppers, 15c.; Sweet Potatoes, 6c. to 8c.; Artichokes, 25c. to 40c. per doz.; Watermelons, 35c. to 50c. each, and Canteloupes, 25c. to 50c.

Yellow Egg Plums are now in season and retailing at 10c. per lb. Green Gages are quoted at 6c. to 8c. Peaches are in abundant supply, and embrace Strawberry, Morris White, Crawford's Early, and Clingstone. Pears are coming in freely. There is a good supply of Bartletts in first-class order, which command 8c. per lb. The best of the Currant season is over, and prices have advanced to 6c. @ 8c. per lb., and 35c. to 50c. per box of 10 pounds. Black Hamburg, Rose of Peru, Muscat, and Muscatel Grapes are retailing at 12½c. to 15c.; Sweetwater and Native do. at 8c. to 10c. Raspberries are 30c. to 35c., but there is no demand for this fruit. The rush for Blackberries is also over, and they are slow of sale at 10c. to 12½c. The top price of German Prunes may be placed at 15c. per lb., and Cherry Plums do not bring more than 10c., and Nectarines are plentiful at 12½c. to 15c. Crab Apples are not in

so much demand at 8c. per lb., although one of the best of fruits for preserving. Tropical and semi-tropical fruits and nuts retail at the regular prices.

About the middle of this month (August) Huckleberries will come in from some particular localities, as Mendocino and Marin counties, etc. They are a rather different kind from those in the East, being coarser and more seedy and not considered generally so good in flavor, but they pass tolerably well in some persons' estimation who are fond of that kind of berries.

At the last of July most kinds of summer vegetables were abundant. Canteloupes were very plentiful and retailed for almost anything they would bring, the quotations ranging from 5c. to 25c. each, as we witnessed in some of the streets. We think that no part of the world can beat us as to quality in these Melons. There is no rain to rot them here, and the weather in the valleys around is warm enough for them. Watermelons were also in good supply, but prices were much firmer than in the case of the Canteloupes, retailing for 15c. to 25c. each. Green Corn was never cheaper, and the quality on the whole is good. They ranged from 15c. to 25c. per doz. An excellent quality of Sweet Potato has come to hand in liberal quantities. The price was however steady at 6c. to 8c. per lb. Asparagus was scarce at 10c. to 12½c. per lb. and there was very little demand for it. Shell Beans were quoted at 5c.; Chile Peppers at 15c.; Okra at 15c., and Egg Plant at 5c. to 6c. Horseradish was very scarce at 20c. to 25c.

THE ENGLISH SPARROW.—We have received the following from a correspondent at Irvington on the Hudson: "Your correspondent E. B. B., of German-

town, asks if the English sparrow will destroy the buds of Pear-trees? I remember being told by an observing friend two years ago, that he noticed from the windows of his house in Brooklyn, several sparrows in the top of a Pear-tree in his next-door neighbor's garden, very busy, and apparently picking off the buds which were just then forming. To be sure about it, he watched them carefully through a good opera-glass, and was convinced that they were destroying almost every bud upon the tree. Since that time I have waited in full expectation of hearing the very complaint now made by your correspondent, and I expect to hear many more, when we get better acquainted with this imported little pilferer. It is natural enough for a city man to consider a bird valuable that destroys the worms on his shade-trees; but we, who live in the country, have some other interests to cherish, and while we desire the destruction of insects, do not wish to associate it with the banishment of the blue-birds, wrens, and other house-living birds, nor with the destruction of our fruit, berry, and grain crops. I trust the agitation of this subject will continue until we all know exactly what is our duty—whether to shoot or to cherish this irrepressible foreigner."—*Eastern Ex.*

GOD ALMIGHTY first planted a garden, and indeed it is the purest of all human pleasures. It is the greatest refreshment to the spirits of man, without which buildings and palaces are but gross handiworks, and a man shall ever see that when ages grow to civility and elegance, men come to build stately sooner than to garden finely, as if gardening were the greater perfection.—*Lord Bacon.*

Editorial Gleanings.

EDIBLE FUNGI.—Very few specimens of fungi are popularly recognized as being edible, while prejudice in some cases, and fear of poison in others, will always prevent additions to the small number now used as food. Great caution is undoubtedly proper in the essay of the untried species; but prejudice and ignorance should not stand in the way and prevent the use of the many esculent species which are allowed to rot in untold thousands. Science will no doubt dissipate these fears and prejudices, and make to our food-crop a large and cheap addition.

Hills, plains, valleys, fields, and pastures all over the world are as alive with these nutritious fungi as the soil of Nebraska is with grasshoppers. Millions of tons of them are allowed to rot where they spring up, simply because ignorance or fear prevents their utilization as food. It is true that the distinction between the edible mushroom and some of its unpleasant cousins can not be easily understood by any but botanists, and yet this difficulty might be materially obviated if botanic writers would describe the distinctions in words that could be popularly understood, or that, at least, may be found in dictionaries. The botanical nomenclature may be as good as it is ingenious, but to non-botanists it is as incomprehensible as the inscriptions on the Elgin marbles. Let it be preserved for bookworms, if need must, but let it be also translated for common use.

Among the remarkable esculents of this class may be mentioned the "beef-steak fungus." It is juicy and fleshy, and its sections resemble beef in appearance. Dr. Badham, a student of fungi, found one of them five feet in circumference and weighing eight pounds, and

another was found by a Mr. Graves, nearly twenty feet in circumference and weighing thirty pounds. It grows in parts of Germany, where it is sliced and eaten with salad, and it is highly esteemed as nutritious food. A species of puff-ball, botanically known as *lycoperdon giganteum*, when young is of a cream-like consistence and an excellent addition to the breakfast menu. A single one is large enough to feed ten or twelve persons, and some members of the species are a good substitute for truffles. A specimen mentioned in the *Gardener's Chronicle* weighed ten pounds and was three feet four inches in circumference.

TO PRESERVE FLOWERS.—Choose some of the most perfect buds of the flowers you wish to preserve, such as are latest in bloom, and just before they are ready to open, cut them from the bush with a pair of scissors, leaving to each a stem at least three inches long, and see that you do not scar or break the skin of this stem. After you cut the flowers from the bush, seal the end of the stem with Spanish wax, lay the flowers away in a cool dry room, and when you notice the buds are a little shrunk, wrap each one up separately in clean white paper, being careful not to crush any part of the bud. Then lock up in a drawer so as to be separate. In mid-winter, or any time you wish to have the flowers bloom, take the buds early in the morning, cut off the stems of the buds, have a vase of cool but not cold water in which put a little nitre or salt, keep your vase in a warmish atmosphere, and the next evening you will have the pleasure of seeing the buds exactly as they would be on their native bushes, displaying their most lively colors and exhaling their most agreeable odors.

THE WILD FLOWERS OF CALIFORNIA.— Whosoever has seen a little of California will forgive us for loving our wild flowers. They are so many and so beautiful that we can not withhold the expression of our admiration. We used to love, and we love yet, the modest, shy little Violet that in the East was almost snow-born, and which timidly put forth its azure petals on the first touch of May. We loved it for associations broken up long ago. But how little is the whole sisterhood of flowers at the East compared with the glories of a Californian spring? We go out upon our hill-sides at that season and find miracles of beauty everywhere under our feet—not single flowers, but a wilderness of sweetness and beauty, never to be forgotten. We have counted in one morning twenty-nine varieties within less than the area of an acre, and some of them exquisitely pure in color and in symmetry. On all the foot-hills and mountain sides of California, even far into its arid summer, flowers burst up from among rocks which seem hardly able to give a foot-hold for aught so delicate and fragile, challenging your admiration and almost seeming to rejoice that the wandering feet of a stranger have led him where his eyes could feast upon their beauties, which else had never been seen by man. Our gardens are beautiful with the chosen flowers of every clime and country, but the retiring beauties of our hill-side canyons have a charm for us that no tricks of the gardener's skill can imitate or approach.

It is a matter of regret that so many boys and young men engage in the wanton destruction of birds. It is a barbarous "sport," in which no parent ought to allow a child to indulge. No

possible good is to be derived from the destruction of the birds. They are the friends, not the enemies of the farmer. They do some damage it is true, but they prevent a great deal more. While they are picking up a few kernels of grain they destroy a great many bugs and worms which would otherwise prey upon the crop. Even the crow, which is almost universally despised, does far more good than evil. By coating the seed with tar, or surrounding the piece with twine, he can be kept from molesting corn-fields, and during the warm season will busy himself in destroying the insect enemies of the farmer. The robins pick some Cherries, but they might as well have them as to allow them to fall a prey to their insect foes. Certainly birds are prettier, and they are to be chosen for company in preference to bugs and worms. One or the other we must have. If we drive away the birds the insects will overrun our premises. This being the case it would seem to be a prudent policy to allow the birds to remain.

SULPHUR THE GRAPES.— There is but one perfect and reliable remedy for mildew on the Grape-vines, and this is sulphur, as it is called by the druggists; sprinkled over the leaves and fruit-cones it will prevent mildew in any and every vineyard. This can be done very rapidly, and the sulphur costs but little. On vines growing on low-lands, as the river-bottoms, or where the vines have heretofore mildewed, we would recommend to make an application now and another say in two weeks. To apply it take a common tin can and punch holes in the bottom like the cover of a pepper-box. Filling the can partly full of sulphur, shake it over the vine so as to cover all the leaves, and particularly

the fruit cones or bunches. This should be done in the morning, when there is no wind and when the leaves are wet with dew. Sulphur is not only a preventive to mildew, but is one of the best manures for the vine. Applied to the leaves it is carried to the roots, and finally is worked into the fruit itself and gives the vine life and vigor.

SAVE YOUR SQUIRRELS.—Governor Pacheco received the following letter from Miles Brothers, manufacturers of brushes in Brooklyn, New York: "Some time since we saw in the papers that your State was overrun with squirrels. Now, these little animals enter largely into the manufacture of brushes. The hair on their tails is the so-called camel's-hair. The skins are imported from Germany and Russia by the hundred thousand. The price several years ago was \$10 per thousand, but it has advanced until they are now worth \$30 to \$40 per thousand, and it is still advancing. We do not believe they are bothered much with squirrels in the old country, and California need not be if it was suggested that the State offer so much a head (or tail) for them; or perhaps the farmers or their boys would take hold and kill them off. A market can be found for all that are killed. Should you think well of this you might have it published in some of the papers. No doubt many ways could be found for bringing the skins to market if this was generally known."—*Sacramento Record*.

THE LEMON AND ORANGE MALADY.—A malady which threatens great loss to owners of Lemon plantations has attacked the Lemon-plant. Its origin is believed to be forced cultivation of the fruit, which has taken place during the

last few years. The Lemon-tree was originally a native of the dry and hot soil of Persia, whence it has been transferred to various other countries, where under different circumstances of soil and climate it has been made largely to increase its yield. The disease is a dry rot, which seizes the extremities first and then gradually spreads through the whole tree, drying up the sap in its course. It is said that similar symptoms have been observed in Orange plantations. Some experienced growers have suggested the grafting of cuttings from the healthy Lemon-plant on the wild Orange-tree, that a new stock of plants may be obtained.

SWEET AND SOUR COMBINED IN ONE APPLE.—Doubts are entertained by some pomologists as regards the truth of the statement made that Apples have been grown in which two or more varieties were blended into one; that is, Apples having one section sweet and the other sour. We have seen such fruit, and therefore know that it has been produced. A tree bearing Apples of this nature formerly stood in a gentleman's garden in Georgetown, Mass. It was of large size, and some years produced several bushels of fruit. The owner sold the Apples as curiosities, and frequently individual specimens brought large prices. It was exceedingly interesting to examine the crop, as one Apple differed widely from another, and there was difficulty in finding two precisely alike. A few were found in which almost exactly one-half was sweet and the other sour, but a majority were made up differently. Sections, one-quarter or one-sixteenth, more or less, would be sweet or sour, and the remainder would be of the opposite kind. The line of demarcation

on the skin was distinctly defined, the sour portion having a reddish color, while the sweet was of a pale green. There was no mistaking the flavor; the sour portion was very sour, and the sweet very sweet. On the same tree Apples grew which were uniform in kind, some being entirely sweet and others entirely sour. This pomological freak was brought about by a careless process of budding, two buds of different varieties being divided, and one-half of each joined together, so as to adhere and grow in that condition. As none of this fruit has been seen of late years, we conclude that the tree has perished.—*Boston Journal of Chemistry.*

SUNFLOWERS FOR FEVERS.—Favorable mention continues to be made of the virtues of Sunflowers as preventives of bilious fever, chills and fever, etc. A correspondent writing from a place in Alabama, which he says was peculiarly subject to fevers, gives the results of his experience in the premises, and in not a single instance where he planted Sunflowers around his negro cabins did their inmates suffer from fevers, while his wife, two children and two house-servants all had fevers, he not having planted any of the Sunflowers around his dwelling, which, in his opinion, accounted for the difference in the results.

ON WASHING HOUSE PLANTS.—Have a large pail or tub filled with warm soap-suds; then spreading the fingers and palm of the left hand over the soil in the pot, turn the branches topsy-turvy into the warm soap-suds, swing the plant briskly in the water till every leaf has become completely saturated, then put it through a pail of clean water, and rub each leaf with the thumb and finger;

give it a good shake, and when dry return it to its place in the window. The leaves of a plant are its lungs, each leaf being furnished with hundreds of minute spores, whence the plants breathe in carbon and exhale oxygen. The perspiration of plants is said to be seventeen times that of the human body. Many plants never bloom on account of the accumulation of dust upon their leaves. A plant too large to be laid down in a tub, as above described, may be syringed, and each leaf rubbed clean with the finger and thumb, which are better for this purpose than a brush or cloth—*Land and Water.*

VINE CULTURE IN ALGERIA.—The *London Times* says: "The culture of the vine in Algeria is shown by a return to be steadily increasing. In 1858, 4,374 hectares only were planted with vines; now there are 26,000. In 1864, 63,000 hectolitres of wine were made; in 1860, 100,000 hectolitres; and in 1874, 400,000 hectolitres. The climate of Algeria is, moreover, specially suited to the vine, which two years after planting reaches a height of over four feet, and in the third year begins to bear. The soil is most favorable, and the dreaded phylloxera is as yet unknown. Even on the mountains the vines can be cultivated at a height of 2,100 feet, 2,400 feet, and even 3,000 feet. Under these circumstances hopes are confidently expressed that Algeria will soon be able to make enough wine not only for her own consumption, but also for exportation.

SHADE-TREES IN THE STREETS.—It is gratifying to observe that people residing in the Western Addition are actively engaged in planting shade-trees in the streets. The *Eucalyptus globulus*

(Australian Blue Gum) is the favorite, because of its sturdiness and rapid growth. If this practice of ornamenting the streets with trees continues to meet with favor, the entire community will be a great gainer. In this connection, we are informed that the Real Estate Associates will hereafter plant trees in front of all their houses.—*Call*.

VALUE OF EARTH-WORMS.—Mr. Josiah Parkes, the eminent English agricultural engineer, found that earth-worms were of great assistance in land-drainage. He says they love moist, but not wet soils, and will bore down to water, but not into it. In examining a field which he had deeply drained after long previous shallow drainage, he found that the worms had greatly increased in number, and their bores descended quite to the level of the pipes. Many of the worm-holes were large enough to receive the little finger, and it was evident that one worm had several bores, some of which are used in dry weather, and some as refuge from rain. A piece of land in Lincolnshire, over which the sea had broken and killed the worms, remained sterile until the worms again inhabited it. There was a piece of pasture land near his house in which the worms were in such numbers that he thought their casts interfered too much with the grass, and he had the field rolled at night in order to destroy them. The result was that the productiveness of the field declined, and was not restored until the worms had recruited their numbers, which was aided by collecting and transporting multitudes of worms from the fields adjoining. The great depth to which the worms will bore, and from which they cast up fine fertile soil to the surface, has been described by Mr. C.

Darwin, of Kent, who states that in a few years they have elevated the surface of fields by a layer of fine mold several inches thick, thus adding to the fertility of the soil.

SOUTHERN CALIFORNIA HONEY.—Mr. Lankershim informs us that Mr. Harbison, in a conversation had with him, stated that the honey product of San Diego County this year would be fully six hundred tons. Last year it was two hundred tons. One million two hundred thousand pounds of honey from a single county is prodigious for an industry only about three years old. At only ten cents a pound net, it would amount to one hundred and twenty thousand dollars. Los Angeles County, also, is making tremendous advances in the honey culture, and in a few years the two counties will supply the world. The honey of Southern California is without a rival in quality and flavor in any market. It is only during the last twenty years that bees have been known in California, and to-day the business of the apiarist promises to be one of the most important in the southern portions of our State.—*Los Angeles Express*.

SAVING AND SOWING FUCHSIA SEED.—There is no more ornamental plant for the parlor, greenhouse, or conservatory than the Fuchsia, and the manner of propagating it should be known to every lover of flowers. A florist writing to the *Cottage Gardener* says the berries should be left on the plant till they are quite black, and part readily from it. When gathered, the seeds should be squeezed in a basin of water until they become separated from the pulp. Drain off the water and pulp and set the basin

on its side, in a dry place, for the purpose of drying the seed. When dry, wrap them in a paper and keep them until spring. Sow in February or March, in pots or pans, well drained, and filled to within a quarter of an inch of the rim with a compost of two-thirds sandy fibrous loam, one-sixth leaf mold, and about one-sixth of silver sand. The compost should be sifted. Place unsifted compost from the sieve to the depth of an inch over the soil already in the pots, and over this sifted soil. Then press with the bottom of a flower-pot. Scatter the seeds evenly, then cover them lightly to the depth of about the thickness of the seed. Give a gentle watering, and place the pots in a house where there is a temperature of from 55° to 60° at night, and 70° to 80° by day, keeping the soil moist. When the plants appear, give plenty of light and air.

ACCORDING to Deherain, leaves kept in a confined atmosphere in darkness will absorb all of the oxygen and still continue to give off carbonic acid, the resistance to asphyxia varying with the species. The rapidity of growth and energy of respiration of plants are both favored by obscure heat; and it is shown that the internal combustion, by the absorption of oxygen and the emission of carbonic acid, is the origin of the part of the heat necessary to the elaboration of new proximate principles in the plant.

DWARF APPLES. — G. Ellwanger, of Rochester, whose views are worthy of entire confidence, gives the following list of Apples best adapted for dwarfs: *Summer* — Astrachan, Early Harvest, Keswick Codlin, Sweet Bough. *Autumn* — Gravenstein, Oldenburgh, St. Lawrence, Chenango Strawberry. *Win-*

ter — Wagener, Baldwin, Melon, Northern Spy, Twenty Ounce, Red Canada, Yellow Bellflower, Esopus Spitzenberg, Lady Apple.

FRESIA LEICHTLINI. — “A beautiful and sweet-scented bulbous plant,” says the *Gardener’s Chronicle*, “with crowded lanceolate, glabrous leaves, sheathing at the base, and a central spathe bearing a one-sided curved spike. The flowers are funnel-shaped, white when they first open, buff-colored subsequently. It is said to be hardy.”

WINDOW FOLIAGE PLANTS. — Taking it for granted that something very easy to grow and to procure is desired, we should say—variegated *Veronica speciosa*, or some of the variegated varieties of the shrubby Australian species—variegated *Agapanthus umbellatus*; *Abutilon Thompsonii*; *Epiphyllum truncatum*, grafted — *Tradescantia discolor*, and *Aralia papyrifera*.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING JULY 31, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office.)

BAROMETER.

Mean height at 9 A. M.....	30.06 in.
do 12 M.....	30.06
do 3 P. M.....	30.05
do 6 P. M.....	30.04
Highest point on the 17th, at 12 M.....	30.13
Lowest point on the 3d, at 12 M.....	29.95

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	63°
do 12 M.....	65°
do 3 P. M.....	65°
do 6 P. M.....	61°
Highest point on the 2d, at 12 M.....	76°
Lowest point on the 12th, at 6 P. M.....	56°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	52°
Highest point at sunrise on the 5th.....	57°
Lowest point at sunrise on the 13th, 14th, 23d, 30th.	50°

WINDS.

North-west and west on 31 days.

WEATHER.

Clear on 4 days; the remainder of the month, cloudy mornings, with clear weather and sea breeze in the afternoons, and foggy evenings.



NEW HYBRID GLADIOLUS.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, SEPTEMBER, 1875.

No. 9.

ROSE - CULTURE.

BY F. A. MILLER.

[Continued.]

A very essential point in the cultivation of Roses is to produce young and vigorous growth, and this can be obtained only by cutting back the old wood after the flowering season and when sufficiently matured. I am frequently told that the Hybrid Perpetual Roses will scarcely produce a flower after the month of June. This is due to the fact that too much wood is allowed to grow and weaken the plants. We usually cut back our Roses after their first flowering season as severely as we do during the winter months, and the consequence is that we obtain a new and vigorous growth, followed by a good crop of flowers during midsummer. As soon as the wood is sufficiently hardened, we cut back again, and secure a third crop of good flowers during autumn, and sufficient growth to insure some flowers during the early winter months.

This method does not apply to all Roses. Most of the Bourbon, Tea, and China Roses continue to flower very well throughout the summer months

and the early part of winter without the cutting-back process; and such as Madame Bosanquet, Hermosa, Agrippina, and others, seem to do best if let alone. But in all cases it is very essential that the ground be thoroughly cultivated and kept moist. Roses will not do well if kept dry; and when dryness of soil and atmosphere is coupled with chilly winds such as we have on the immediate coast, no one need be surprised that our Roses are in a very bad state during the summer months.

Roses should also be allowed plenty of room, and a light sunny exposure. In shady places, or crowded in between stronger-growing shrubs, we can not expect a very healthy growth.

Roses are the most desirable cut-flowers, and, as I said before, they form the most important item in the bouquet trade of the East and Europe. But our Roses are not what they should be, on account of deficiency in cultivation and proper attention. Growing of Roses for the market, I think, should be done under glass, at least during our winter seasons; but to do this successfully requires a system different from our present one. As I have already stated, a certain temperature must be

kept up by artificial heat, which can be done at much less expense here than in colder climates. On this subject, however, I will say a few words at some future time.

In the growing of Roses in the open air, I would again refer to my remarks upon the subject in the last number of the HORTICULTURIST, and would only add that florists and nurserymen ought to be more particular in selecting for propagation healthy wood, free from mildew; and where budding is practiced, to work upon stock least subject to mildew, and also to discard entirely those varieties which have been most affected by mildew. If it is a difficult matter to procure healthy and clean wood for propagation, then I would certainly be in favor of importing clean stock from the East or Europe for that purpose, at least for two or three years.

With all these precautions we may not be able to check the ravages of mildew entirely, but we may be enabled to confine the evil to certain limits, and with the assistance of some simple remedy, such as tobacco-water, a weak dilution of sulphurous acid, or simply warm water, applied to the roots as well as foliage, keep our Roses free from the effect of this plague.

[To be Continued.]

SUCKERS IN THE ORCHARDS.—All through the growing season we should look after suckers starting at the roots of orchard trees, and remove them while they are yet young and tender. It takes much of the tree's power to grow and harden a large sucker, so the sooner the young sprout is removed, the more we make by the operation. We go for them with our hands, rubbing or jerking them off—it don't hurt the tree; there is no danger of that.

THE PHYLLOXERA VASTATRIX IN AUSTRIA.

The following account of the appearance of the *Phylloxera vastatrix* in Austria is condensed from a late official publication of the Austrian Minister of Agriculture:

In France, in 1865, at Pujaut, near Roquemaure, Department du Gard, for the first time an insect was observed injuring the roots of grape-vines so that they died. The occurrence excited chiefly the interest of scientists, and it was believed to be the same insect found in galls on grape-leaves by A. Fitch in North America, and by him called *Pemphigus vitifolia*. The newly-discovered insect, first scientifically described by Planchon, evidently belonged to the *Phylloxera** family, and on account of the extraordinary damage its increasing numbers inflicted on the vineyards, it was termed *vastatrix*.

In 1868 France awoke to the necessity of adopting energetic measures for the suppression of this scourge, which, almost unnoticed, has assumed fearful dimensions. The question was asked (and it is not yet answered), is this insect of native or foreign origin? In some places, as Bordeaux, they believe in its introduction on American vines, which nevertheless withstand its attacks much better than their own. Then there is the fact that, except in a few instances in France, it is only found on the roots in Europe, which renders it possible we have two species of insects to deal with. A French scientist, Loarer, thinks the phylloxera was introduced from the East Indies by

* The name *Phylloxera*, from *phyllon*, a leaf, and *zerain*, to dry, a name given by Fouscolombe in 1834 to the species found on oak trees. Four species of *Phylloxera* are now known, viz: *P. quercus* on summer oak, *Quercus robur*, L.; *P. quercus*, on white oak, *Q. alba*; *P. Lichtensteinii* on *Q. coccifera*; *P. vastatrix* on *Q. vitis*. The first three are probably harmless.

eggs brought to Marseilles* in bales of merchandise. But after all there is nothing to hinder the presumption that the insect has always accompanied the vine, † though formerly unnoticed, and that favorable conditions of weather, etc., have enabled it to increase at the present time with such alarming rapidity.

The number of remedies which have been proposed and tried is enormous. The Herault commission alone experimented with 124 in the domain of Las Sorres from January to June, 1873, including the following substances: Verdigris, phenic acid, sulphuric acid, garlic, aloes, alum, ammonia, nitrate of silver, potters' clay, arsenious acid, arsenic sulphide, asafetida, gypsum, calomel, camphor, carbonate of lime, carbonate of potash, wood-ashes, charcoal in powder, bone-meal, chlorate of potassa, corrosive sublimate, chrome, sealing-wax, decoction of poppies, leather-scrap, blue vitriol and other salts of copper, sea-water, compost, turpentine, sulphate of iron, horse-dung, wood-tar, Peruvian guano, bran, sulphur, oil of juniper, olive oil, naphtha, petroleum, potassic permanganate, mercuric sulphate, saltpetre, bone-charcoal, nuxvomica, walnut-leaves, benzine, ground apatite, goat-hair, sulphate of potash,

pine sawdust, poudrette, Peruvian bark, sea-sand, white and black soap, slate-meal, flowers of sulphur, and sulphur in various forms and combinations, soot, tobacco, oak-bark, rape-seed cake, pignuts, sesame, castor-oil, urine, vinegar, creosote, carbolic acid, suds, etc. Some of these are used in mixtures the composition of which is unknown. To these remedies must be added various modes of treatment, such as boring the trunk of the vine and impregnating the sap, the planting of certain herbs near the stalk, as hoarhound, garden cress, chamomile, pyrethrum, etc.; also the introduction of natural enemies of the phylloxera, as lady-bugs, pselaphus, chrysopa, ants, and spiders. None of these have proved completely successful remedies. Many of them certainly destroy the insects, but the difficulty lies in obtaining the necessary contact, which it is often impossible to accomplish.

In 1869 Louis Fauçon proposed to flood the grape vineyards, and the remedy proved successful. It can, however, only be applied on level grounds, where the necessary supply of water can be obtained. Recently it has been said only to prove effectual on sandy soil with clay sub-soil, a condition not always to be obtained. Perhaps in some cases the water destroys the insect, but not its eggs.

Lichtenstein observes the insect is not found in sandy soil, and proposes dressing the vine-roots with sand by raising them as far as possible and placing a layer of sand in the hole before relaying them.

Thenard, in 1873, found that the carbon disulphide penetrated the soil to a considerable distance from the place in which the liquid was deposited, killing the insect and its eggs; but it also destroyed the vines, so that it can

* Drouyn de l'Huys, in his address before the grape-growers' congress [at Montpellier, October 26, 1874, appeared to agree with this opinion. In the East Indies proper there are, however, no grape-vines, these being grown only in Afghanistan and Nepal.

† Experienced gardeners in Klosterneburg have stated that the vineyards in which the phylloxera first appeared were destroyed about a hundred years ago by some cause which was never satisfactorily explained. And it is said that in Hungary, near Szegedin and There-seinopel, between sixty and one hundred years ago, an insect appeared on the roots of the vine as destructive as the phylloxera now is. It was finally extirpated by the use of ashes and lime. In the neighborhood of Gorz, fifty to sixty years ago, a vine-root louse appeared that was checked by a wet season; and it is to be observed that a special prayer in the Talmud includes the vine-louse. But these allusions may refer to something different from the phylloxera.

only be applied when necessity arises for the extermination of the pest.

In the report of Dumas to the Paris Academy of Science, June 4, 1874, the following summary remedial measures are recommended: As preventive, when the plague first appears, all infected stocks should be dug up and burned, and the soil thoroughly poisoned with carbonic disulphide or some of its alkaline salts. Heavy manuring and the application of poisons is recommended when the evil has obtained such foothold as to render its extirpation doubtful. New vineyards should only be planted on sandy ground, or ground that may be flooded.

So little has been accomplished by way of remedy, that, in consideration of the frightful loss resulting in 1874 from the rapid spread of the phylloxera, the French government offered a prize of 300,000 francs for a successful cure. The insect has totally destroyed 200,000 hectares of vineyards in the valley of the Rhone, and has attacked nearly a million. It was observed in the forcing-houses of England and Ireland, by Westwood, in 1863. The Austrian department of agriculture was informed of the advent of the phylloxera in France by the zoological-botanical society of Vienna, in 1869. The managers of the crown-lands and the agricultural societies in vine-growing districts were immediately requested to carefully watch for symptoms of the scourge, and the import of vines from France to the school at Klosterneuburg was prohibited. But early in the summer of 1872 Dr. L. Rosler discovered the insect in the experimental garden of pomology at Klosterneuburg, on some unhealthy-looking Clavner stocks, whose backwardness had been attributed by the working gardeners to the want of the usual protection of snow the pre-

ceding winter. About three klafters distant were a number of American vines of the Clinton variety, partly from Baden and partly from North Hoboken, in New Jersey, planted before any suspicion had arisen that the phylloxera was introduced from North America. But notwithstanding these and all other American varieties grew with wonderful luxuriance, an examination of their roots proved them to be completely colonized with phylloxera. Baron von Babo, director of the school, considers this fact as establishing a strong probability that the insect was introduced by the American vines, but of course it is impossible to assert it as a positive fact.

During 1873 no perceptible increase of the malady in the experimental gardens was observed. Every conceivable method of combating the pest was adopted, and Dr. Rosler reported that vines which in 1872 were evidently attacked appeared to be freed from it, and were pushing vigorous young roots, especially where manure was dug in deeply.

But in 1874 a mild winter was followed by a notable increase of the insects. Cold winters and wet summers are hence considered as detrimental to its extension. Also, this year, the appearance of the winged form gave rise to dread of its rapid extension; examination with the microscope proving that at least a part of the flying insects were females laden with eggs. Notwithstanding the persistent efforts to unveil its life-history, it is only recently we are enabled to present a detailed account.

The vine-louse, *Phylloxera vastatrix*, Planchon, belongs to the class *Insecta*, order *Heniptera*, sub-order *Homoptera*, family of plant-lice *Phytophthires*, tribe of leaf-lice *Aphides*, in which are nu-

merous genera, as *Rhizobius*, *Eriosoma*, *Chermes*, *Lachnus*, *Aphis*, etc. The vine-louse appears to belong to this last, though Cornu places it between *Aphis* and *Coccus*. It is small, as scarcely to be distinguished by the naked eye, oval, with a thick body, and blunt abdomen composed of seven rings, six slender legs with short feet, a small, beak-shaped, incurved head, with a proboscis composed of four sucking-tubes, that usually lie on its breast. Full-grown insects are somewhat warty, and are a bright yellow.

Like other leaf-lice they increase parthenogenetically; the males first appear just before winter in small numbers in the last brood of the season, and after impregnation the females lay eggs which develop the following spring. These eggs produce only females, called nurces, who, without further commerce, lay eggs, and are also, to some extent, said to be viviparous. This last fact has rarely been observed in the phylloxera, and is doubted by the French Academy. This method of propagation continues until the power of a sexual increase is exhausted, when males, usually winged, are again developed. At the same time the so-called "nurces" become nymphs or dark-colored, winged, and perfect insects. By this alternation of generation the increase of numbers is enormously rapid. Reaumur places it at 6,000,000,000 from one female in a summer, but this is too low; for if a nurce phylloxera lays 30 eggs, which produce perfect insects, their descendants in the twelfth generation will number 17,714,700,000,000,000 individuals. The injury caused by a single puncture such as they make in the bark of the roots, or even several, is very slight, but when multiplied by such immense numbers, is ample cause for the serious damages which have

been inflicted on the European vineyards.

The food of this class of insects is the sap of plants, which they usually obtain from the leaves, on which they form galls. Some of the species change their host-plant with each change of form, the perfect insect feeding on a different form than that on which its nurse-mother fed; and this fact is said by Lichtenstein to have been observed with regard to the phylloxera, but it can not be considered as fully established.

The vine-louse differs from the rest of its kind in living under the ground, though in America it is said to form galls on the leaves. They have only been observed in Europe by Planchon, Signoret, and Lalman, and the insects were not entirely identical with those on the roots.

The full-grown insect sits motionless on the roots, having inserted its sucking-tubes, of which, according to Rösler, it uses two to withdraw the sap, and the other two to pour into the wound a liquid excrement, which, perhaps, is more injurious than the wound itself. The resulting semi-transparent swellings are the most certain indication of the presence of the phylloxera, and they speedily decay. The insect first attacks the surface-roots, and, when these are exhausted, migrates to those which are larger and deeper seated. They prefer the angles formed by branching roots, and lay their eggs in curved lines by swinging round their abdomens. Planchon saw one lay 30, Rösler 42, and Signoret 200, which hatched in from two to three days. Unlike the parent, the young phylloxera is very active, and runs about till it finds a suitable spot on which to begin sap-sucking. It now rapidly changes its skin; how many times is uncertain. But the oak phylloxera, its nearest relation, changes four times.

They begin to lay eggs when from eight to fifteen days old, different observers not agreeing as to the exact time. The yellow color of the insect changes when dead to a light brown, as also the eggs, and when destroyed by carbon disulphide it becomes a dark gray, almost black. By the loss of sap, perhaps also by the effect of a poisonous excretion introduced into the wound made by the trunk of the phylloxera, the vine is injured. If but few are present, or if it is endowed with strong powers of resistance, like the American vines, the presence of the enemy will hardly be noticed. But if they increase, as usual, by the second year the vine will show that it is diseased. The leaves turn yellow, the stock becomes spindling, the shoots wither, the berries shrivel, and, finally, the whole plant dies. Oftentimes the insects will be found to have abandoned the exhausted roots of the dead vine for the more juicy ones of surrounding vines, which have not yet shown decided symptoms of attack. When one locality is exhausted, the insect removes to another, partly by the cracks in the ground,* and partly by running over the surface, and also in the winged form. According to observations made at Klosterneuburg, it seems possible that this change may be brought about by want of sufficient food. When winged, the wind is an efficient agent for their distribution. Of course, the wingless form may be transported in cuttings, stakes, straw, &c., and even in the clothes of vine-dressers. Most energetic measures have been taken to prevent the spread of the insect from Klosterneuburg and vicinity. All the vines have been dug up, and, with the roots, carefully burned, and the ground fully impregnated with carbon disul-

* The absence of such cracks in sandy ground is probably the reason why the insect is not found therein.

phide by means of holes bored three feet deep and six feet apart, in which fifty-five to one hundred grams of the disinfectant was placed. It was found, on examination, that roots lying six feet deep in loamy soil were infested with the insect. The penetrating character of the carbon disulphide is shown by the fact that vines six feet deep from the holes in which it was applied died immediately. April is the best time for operations, as the insect is then soft and tender; but from August to October the winged form must be guarded against. Experience shows that, once cleared of the pest, ground may be again planted with vines, which grow luxuriantly without danger until it is re-introduced from a foreign source.

Since the destruction of the vines entails great loss, efforts have been made to discover some other method of getting rid of the insect.

Of all the substances hitherto employed which do not injure the vines, phosphureted hydrogen and ammonia, liberated in the soil, have been most successful. To use the first, a hole is bored in the ground and filled with lime, on which water impregnated with phosphorus is thrown, and immediately covered with earth, all openings near being also closed in the same way as soon as steam is seen to issue from them. Among other experiments, the effect of dynamite in loosening a refractory subsoil was tried, and proved, unexpectedly, successful. Dynamite cartridges exploded in holes four to six feet deep, loosened the soil so that it would absorb twenty large pails of water where previously one would stand a long time. Numerous substances have acquired some reputation in France, of which sulpho-carbonate of potassium dissolved in water is, according to Dumas, the most successful. Of the dry salt, forty to

fifty grams are required for a large vine, the solution to be poured around the stalk.

Of all the weapons yet used, water is the only one completely to be relied on. It is not likely the phylloxera will become entirely extinct, but it is probable we shall find means to render it comparatively harmless, and by high cultivation give our vines sufficient vigor to withstand its attacks. In sandy soil, with heavy manuring, the phylloxera is even now not to be dreaded.

With regard to fruit-trees, decisive experiments have been made at Klosterneuberg that prove they are not subject to its attacks.

Conformable to analogy with similar phenomena, we may hope that possibly the scourge may vanish some time as suddenly as it has arrived. As human intelligence has triumphed over the oidium, the potato-disease, the silk-worm disease, etc., it is probable that science will one day conquer the phylloxera.

ANGLING, AND ITS PLEASANT AND PROFITABLE ASSOCIATIONS WITH NATURE AND SOCIAL GOOD.

BY E. J. HOOPER.

Besides the exciting amusement and recreation in fishing, and the opportunity it affords of observing and examining the operations and beauties of nature, there exists among the fraternity of anglers a kindness of feeling toward each other which usually accompanies a kindred taste in all pursuits, yet more particularly observable in that of the contemplative angler. But even a holier feeling often takes possession of his thoughts; and how can it be otherwise? Once having felt he never can renounce "the boundless joys that nature to its votary yields." He is cheered by the ra-

diance of the rising sun; he breathes the balmy air of morning, and is soothed by the humming stillness which prevails at noon; the feathered songsters greet his ear, mixed with the brawling brook "that down the distant rock hoarse murmuring falls." He contemplates with wonder all the scenes of the insect tribes; he hears, he sees, he feels, that nothing is made in vain. In short, he "looks from nature up to nature's God."

This is the romance of fishing; but we will now endeavor to illustrate this, and afterward its reality, as experienced by us in brook-trouting two years since at Napa Soda Springs, Napa County, in this State. One fine morning we found ourselves by the brookside, more intent at first to enjoy this same romance with its associations in the recreation of angling, than with any ambition to fill our creel with the lovely denizens of the baby stream that was cradled among the mountains, and whose play-grounds were some sloping flower-enameled meadows and lovely embowering shrubbery before our enraptured vision. Instead, then, of immediately (as was our wont) casting our line and fly, eager to capture in a matter-of-fact way those speckled beauties of the pellucid element, we were noticing how it was dancing, partly over rocks and partly through the greensward. We were hearkening how it sung; we were listening also to other choristers. The pleasant treble of the meadow-lark, the sharp notes of gossiping blackbirds, the sonorous twang of the bullfrog, and the semitones of clouds of scarlet or green or blue dragon-flies, mingled with the refrain of the rivulet at our feet, and the *olla podrida* of the whole, in which blended many other interesting attractions of the scene, were cheerful and exhilarating,

if not harmonious, and sufficient to hold us, refraining from the more prosy slaughter of the innocent inhabitants of the babbling waters so temptingly convenient to our hook. Even those shapeless creatures, clouded with purple and orange and centre-lined with crimson, lying *perdu* under the ripples of this running water, waiting for what Providence might send them in the way of provender, could not then induce us to deceive them with our artificial bait. We could not, at the moment, propose to be their evil genius, and use the implements with us to betray them to their ruin. No—those self-same denizens of this silvery stream should not in these romantic moments of scenic enjoyments of earth, sky, and waters, be manipulated to their destruction, while sporting so beautifully and enjoyingly in the cool and crystal waters—their native element; nor should the anticipation of their preparation for the *cuisine* at home tickle our imaginative palate while some of them were reposing so stilly, but yet so watchfully, in the midst of umbrageous foliage or rocky cover. We stood there undecided, or at least pausing what to do. Nature seemed in one of her best moods; the early sun-god was bestowing a warm flush on her cheeks, and we were having a very pleasant time together. Heaven's health commissioners—gentle breezes, vitalized with the fresh breathings of tender grass and shrubs and flowers, unfolding blossoms—are very potent to preserve body and soul in their full vigor, and were fanning our face deliciously. We seemed to be standing in the highways and by-ways of nature's green and gorgeous sanitarium; so pure and gentle and invigorating is the air in these mountains and valleys of California.

But, presto, change! an alteration

is "passing o'er the spirit of our dreams." Our fishing instinct, which seems to belong to our very birth, came over us; our romantic feelings fled from us like the morning mists. It takes not the accustomed fingers of the angler long to prepare his tackle. At the end of the transparent leader dangles a "brown hackle"—a killing fly when the sun is shining softly through the commencing golden mists of a summer's morning like that; and now for a cast. Seest thou, reader, that bit of ruffled water, this side of the gnarled, hump-backed old witch of a Willow that is stooping to catch a glimpse of her ungainly shape in the stream, quite different from the young and beautiful Narcissus of old? Right for the centre of that eddy shall our feather-fly make wing. Deftly done, by all that is entomological! Had the line been alive it could not have dropped into the ripple more naturally. Aha! credulity in a brilliantly brodered vestment (or scales) snaps as quick as lightning at the irresistible temptation. A noble trout-prince of the brook, and hooked past all redemption! Whir-r-r-r! how he makes the reel spin. See him leap from the surface, mad for freedom. Alas! little acrobat, thy last flip-flap is at hand. Thou'rt e'en a-drowning; for fish may have too much air or water in their gills. It is mere folly to fight with destiny; beguiled, come ashore, and die peaceably on the greensward. We'll land him gently, "as if we loved him," as old Izaak says of the worm.

In spite of our late romantic mood we continue to beguile the fishes. One after another, from pool and rapid and from the foam of a little Minnehaha, (ha-ha!) we "gather them in." The sun, beginning to slope on his downward course, is frescoing with prismatic hues the western wall of heaven, and

the wicker basket at our belt is full of fish as rarely tinted; and in spite of our romance, when we reach home we hesitate not to consign them all to the tender and culinary mercies of our good cook, Mrs. Gross.

INDIA-RUBBER FROM MILKWEED.

I have heard people advocate that there was nothing which grew that could not be put to some practical use—that every herb and weed “had money in it,” if we only knew what application to make of it, so as to extract the money. They quote the flowers, for example, which we are in the habit of considering merely ornamental, but the culture of which, for the manufacture of perfumes, has become an extensive industry of large commercial importance.

Lately, some enterprising person with a habit of observation has paid attention to the common Milkweed of our road-sides, meadows, and pastures. We all know that when this weed is broken or pierced a milk exudes from it—and it is from this that the plant has derived its name. A scrutiny of the peculiarities of this milk or sap led to the belief that it possessed the same properties which characterize caoutchouc or India-rubber, whereupon the experiment was made of collecting a quantity and preparing it in the same manner that the sap of the Indian or South American trees is prepared, and the result, so the deponent saith, was *bona fide* India-rubber. There was no word as to the quality of the article procured; the result merely was given, and the one fact that the quantity afforded by the weed was small.

Insignificant as this experiment appears, it may yet prove of considerable

consequence. Every year the uses to which India-rubber is put are increased, and consequently the amount imported is increased. If here within our own borders we can help supply a portion, however small, of this demand, we open a new industry, and make of consequence that which before only cumbered the land. Hundreds of children could be employed in collecting the juices of the weed, which is of spontaneous and rapid growth, if it could be shown that it would pay.

During the war, when cotton was in request, the long silky down of this plant, to which the seed is attached, was the subject of considerable speculation as to the possibility of its being utilized by mixing with other products, and so being woven with cloth, but as it was not done, at least to our knowledge, the supposition is that it was not thought feasible.

WOMEN AS FLORICULTURISTS.

There is a constant cry among the clamorous for women's rights that so few employments are open to the sex. The truth is every year women, by scores, are admitted to departments hitherto considered only properly filled by men. Every year they jostle men closer and closer in all the business relations of life. When we consider that in the event of a man's place falling vacant there are a dozen of his fellow-men eager and anxious to fill it, the wonder is that women are ever preferred at all—education and custom being on the side of the stronger sex, and experience proving that men's work is best done by men, as women's is by women.

In the matter of Floriculture one would think that women would occupy

the field to the exclusion of men; but, strange to say, they show, if not a decided aversion, a singular backwardness in entering upon a business purely feminine, which they could make peculiarly their own.

Several years since I went with others, by invitation, on New Year's Eve, to visit a large floral establishment in New York, to view the designs in preparation for the next day. Orders had also been received for a ball and several parties, and every hand was busy. Walking around with the proprietor I observed the absence of women—not one being there—and asked why they were not employed. The answer both annoyed and provoked me.

“They can not do it so well as men—are not so handy with the flowers.”

I was incredulous, and said so.

“It is our experience,” was the reply. “Men have more patience, and are not so impulsive.”

To my query if he did not think tending flowers was more suited to women than men, he said no—if it was, women would be doing it. Women liked to trifle with flowers, to amuse themselves with them, but as to carrying on their cultivation as a business, few women were capable of it. They would rather labor at a desk, stand in a store, do the hardest kind of men's work, than engage in any of these feminine or half-feminine employments, and the proof was found in the fact that they did not. They would study for years to become lawyers, or doctors, or preachers, because these were manly professions, but where was there a woman studying to become a skillful floriculturist or horticulturist? He did not know one.

As I looked around this great establishment, and saw more than a score of men busy, some unpacking the blossoms, which, carefully incased in cot-

ton, had come from distant cities, others forming monograms of flowers of particular colors, or working out the elegant and elaborate designs which were to grace the next day's *fetes*, each intent upon what he was doing, I wished the men had been women, and wanted much to controvert what he had said; but “knowledge is power,” and having no knowledge to the contrary I could not.

HINTS FOR FLOWER GARDENERS.

BY AN AMATEUR.

American landscape gardeners, who are liberal and open to all improvements, have for some length of time copied the English in ornamenting turf-lawns, and large flower gardens where there are grass-plats, with plats or beds of various kinds of flowers; but the English and Dutch gardeners in all their large and regular gardens have of late years been in the habit of disposing of each kind of flowers by themselves. The Americans have lately in some instances also copied this mode of showing forth the beauty and rich aggregate colors of their flowers. “We ridicule this plan,” says Hogg, in his “Treatise on Flowers,” because it exhibits too great a sameness and formality; like a bouquet that is composed of one sort of flowers only, however sweet and beautiful they may be, they lose the power to please, because they want variety. It must undoubtedly be acknowledged that a parterre, no matter in what form—whether circular or square, elliptical or oblong—where all the shrubs, plants, and flowers in it, like the flowers in a tastefully arranged nosegay, are variously disposed in neat and regular order and still with some degree of freedom, is a delightful spectacle and worthy of

general admiration. Yet still, in some particular cases I am disposed to copy the Hollanders, and I would have my Hyacinths, my Anemones, my Ranunculuses, my Pinks, my Carnations distinct, and even my beds of Hollyhocks, double-blue Violets, and dwarf Larkspurs distinct, to say nothing of different sorts of Roses. Independently of the less trouble you have of cultivating them when kept separate, you have beauty in masses, and you have likewise their fragrance and perfume so concentrated, that they are not lost in the air, but powerfully inhaled when you approach them."

In the generally clear air in San Francisco, on small or front plats even if they be limited only to a few square yards, flowers can mostly be grown with advantage with any ordinary care and attention. We can here command the requisite amount of air and sunshine, so different from the smoke and limestone dust of the Eastern cities, where it is often a wretched sight to see a few sickly plants struggling for a miserable existence. In such cases clean gravel, or some greensward if it will grow, would be better than to attempt the growth of flowers at all, with perhaps a selection of the finer varieties of Ivy, Jasmines, and Coloniasters on the side-walls or railings; and elsewhere a variegated Holly, Box-tree, Laurel, Acuba, Sweet-brier, Rose, or some other hardy shrub, to enliven them. In laying out little front plats of this description, circular, oval, oblong, and other simple forms should be preferred, for nothing looks more ridiculous than the imitation of labyrinths and intricate designs on so small a scale. A few plain forms in keeping with the front of the building and size of the plat, may produce elegance; but intricate divisions, with gravel lines be-

tween scarcely broad enough for a human foot, are toyish and trifling in the extreme.

An error not uncommon in deciding what flowers shall be planted, is to select numbers merely for their variety and novelty, without reference to what will be their appearance when in bloom. Unless for botanical illustrations, make a choice of flowers on three principles—those that will thrive in the situations assigned to them; those which will be beautiful when in bloom or leaf, although common; and those which will bloom or produce effective foliage at the particular seasons required, to insure a succession of varied beauty throughout the year.

Flowering plants are now so numerous, both as respects species and varieties, that a bare list of them would more than fill a whole number of our magazine. A person with little experience should stock his garden only by degrees—adding a small number of different sorts every year, according to fancy, and what he finds to be the capabilities of the soil and exposure. In commencing to make a choice for a moderate-sized garden, or for still smaller plats of ground and borders, we should also recommend the plan of cultivating a mixed variety of different colors and different heights—those which are smallest being in front, and nearest the eye, and the other rows rising in height and massiveness as they recede. With as few as four colors, four sizes, and six different periods of coming into bloom, a mingled border may be established with fifty sorts which will present a pleasing assemblage to the eye.

Among the vast number of Annuals that offer themselves to the choice of the amateur gardener, are the African Marigold and French Marigold, China

Aster, Marvel of Peru, Indian Pink, Convolvulus, Amaranthus, Zinnia, Ten-week Stocks, Adonis Candytuft, Larkspur, Lupines, Sunflower, Lavender, Poppy, Nasturtium, Sweet Pea, Venus' Looking-glass, Virginia Stock, Mignonnette, Purple Jacobœa, Clarkias, Collinsias, Nemophilas, Helichrysums, and other "everlastings," several kinds of ornamental grasses, etc.

Under the head of Biennials, (though many of these become perennials here) are Canterbury Bells, Carnation Pink, Hollyhock, Sweet William, Wallflower, Lavatœa Arborea, Purple Digitalis, and Stock Gillyflower. Some of these are very beautiful, and none more so than Carnations.

Under the head of Perennials may be included the Hyacinth, Narcissus, Iris, Lily, Tulip, Gladiolus, Ixia, Snowdrop, Crocus, Scillæ, and others.

Of the Perennial Tubers are the Dahlia, Peony, Ranunculus, and Anemones, double and single.

Fibrous-rooted Perennials are: Die-lytra, Primrose, Campanula, Pansy, Pyrethrums, Phlox, and Penstemon.

Among the shrubs, climbers, evergreens, etc., are: Rose, Honeysuckle, Jasmine, Clematis, Hawthorns, Azaleas, Viburnums, Weigelas, and Lilacs; red, white and yellow Flowering Currants; Rhododendrons, Laurels, Arborvitæ, Holly, Juniper, Mahonia, Box, Laurustinus, Ivy, and Arbutus.

Then there are for both greenhouse, window, and out-door culture, Camellias, Geraniums, Fuchsias, Orchids, and Azaleas.

Besides these we may enumerate Nerium, Gardenia, Hydrangea, Chinese Primrose, Daphne, Heliotrope, Acacia, Mimosa, Eucalyptus, Passion-flower, Amaryllis, and Calceolaria.

Succulents are well suited for growing in rooms, as they are not so impa-

tient of either air or water as most other plants; and the abundance of their beautiful flowers renders them objects of interest.

Cactus speciosus, Jenkinsonii, flagelliformis, and speciosissimus; Mesembryanthemums, and Flowering Aloes, deserve especial notice.

OUR VEGETABLE WANTS.

After all that has been said, and said truly, about the great abundance of vegetables in our markets, their large size and fine appearance, their long-continued season, etc., it may seem ungrateful, unreasonable, and, worse than all, unappreciative of California's products, to intimate that anything further is wanted in this line. Nevertheless, with the fear of these accusations before our eyes, and at the risk of being branded as a traitor in the horticultural camp, we declare that the supply in our vegetable market is not up to the wants of the community.

In the universal praise of California fruit, the claims of the fruit-growers have not been properly estimated; but in connection with our vegetables it is but simple justice to give the credit exclusively to the soil. Where do we find indications of progressiveness in this direction? And are we not really "goers backward" in vegetable culture? If we are not progressing we are certainly receding; for in every department of Agriculture—live stock included—varieties and species degenerate if constant attention is not given to cultivating and breeding up to new points of excellence. This is particularly observable in vegetables. Where gardening is conducted on a proper basis new varieties are continually coming into favor, and what was supposed to be perfection at one

period falls out of cultivation within a few years.

Such deteriorations we apprehend are now going on among our vegetables generally. Because the soil and climate are particularly favorable to their growth no particular effort is made toward their improvement; and if people have a fair variety of vegetables of large size, fresh from the ground at seasons when a large portion of the country is forced to abstain from such food, it seems to be supposed that we ought to be satisfied. But this is not enough. Our vegetable supply is too suggestive of fodder. Take, for instance, Peas; we have them early and late, and in great abundance—not cheap particularly, however—but there is a sad lack of variety. People who fully appreciate the delicacy of Green Peas will accept almost anything in this line at the opening of the season, taking it as a fore-runner of something better; but if they are compelled to go through the season on field Peas, they will consume less, and derive less enjoyment from what they eat, than they would if they had the better kinds of garden Peas coming in their course throughout the season. The later Peas are the best, and we believe the same rule will apply to other vegetables and to fruits also.

Summer Beans, too, are not what they should be in our market. As string Beans they are passable, and nothing more; but when they are strung through the whole summer it is a little too much of a good thing. Now, people who "know beans," know that the very best form in which this excellent vegetable is prepared for the table, is as "shelled Beans," as they are termed, that is, they hang on the vine until the Beans have attained their full growth, and the pod turns yellow. At this stage of maturity they will "shell" as

readily as well-filled green Peas, and are much richer and more palatable than the string Bean at its best; and the most skillful of Yankee housewives can not bring the dry ripe Bean to a condition that will compare with the shelled Bean as a summer dish. Any kind of Bean, taken at this stage of its growth and properly cooked, is good; but let us try and rid our system of vegetable-eating of the notion that because the ordinary kinds are good we should make no effort to procure the best.

This wholesome, delicious dish is quite excluded from the California bill of fare; yet to have it in abundance, and of superior quality, is a very simple, inexpensive matter. Still, it must be confessed that it calls for more attention than is usually given to our vegetable supply. To have shelled Beans right they should be of uniform ripeness. They should be picked every day, for at this maturing period of their growth the change is very rapid, and what are just right to-day would be a trifle too ripe to-morrow.

There are two other vegetables, the Parsnip, and Salsify or Vegetable Oyster, that are not what they should be with us; but in these instances the climate is mainly in fault, for neither of them is really fit to be eaten until it has undergone the process of freezing and thawing while in the ground. This is necessary to develop the peculiar flavors of these vegetables. This is quite practicable where the ground freezes to a depth of from two to three feet, and in such localities no one thinks of eating the Parsnip or Vegetable Oyster until spring. In California we have not the requisite frost—lucky for us that we have not—but if more care were given to importing seed and to cultivation, only allowing them to attain a moderate

growth, we might approximate, though we could not expect to fully reach, the fine flavor and rich aroma of these vegetables.

But the greatest need of "educating up" in the vegetable family is in connection with Potatoes. We do not question anyone's veracity, or their partiality even, when they declare they have eaten as good Potatoes in California as they ever saw; but, we ask, is the standard California Potato, such as is set before the mass of people at the restaurants, and is sent by the grocer to private families, is this what it ought to be? Or will it compare with the average Potato of other States? We are sorry that candor compels us to vote in the negative; and more sorry from the conviction that there is no good reason why our Potato should not be of surpassing excellence.

We do not hope to see the Potato of the period "educated up" to the requisite standard. New varieties are needed. The best Potato that we can hope to grow will need replacing in about five years. As it is we really have no well defined varieties. It is a wise Potato that knows its own father here.

One of the progressive movements recently made by the University College of Agriculture is the procuring of a large number—twenty-four, we believe—varieties of Potatoes, which are to be thoroughly tested on the University grounds. Mr. Stearns, under whose direction this new supply was procured, has acted very judiciously in this, and we shall expect good results from it. Similar efforts at improvement are needed in regard to other vegetables.

It is possible that in making known our wants in this quarter, we may become amenable to the charge of depreciating California Horticulture; and the excessively anxious may fear that by

speaking disparagingly of the flavor of California Parsnips we will turn the tide of immigration, and depreciate the value of real estate, but we deny the charge of weakness of faith in the country, and do not apprehend any injury to it from anything that has been said in this connection.—*Pacific Press.*

SEED SOWING.

The evil of too deep sowing of seeds is not confined to the open garden with respect to vegetable seeds, though different seeds, of course, require different depths. One cause why seedsmen are much blamed for selling what are supposed by some of their customers to be bad or too old seeds, when seeds will not grow, is owing to overdeep covering, or placing them in soil so waterlogged, that, though they swell, the air can not get at them, and decomposition is the result. Another cause why seeds saved by amateurs sometimes refuse to vegetate, is, that after cleaning they often are left in a place thinly spread out, and exposed to an excess of sun. The carbon, or starchy matter, becomes so fixed, or indurated, that it will not change into a sweet sugary substance for the nourishment of the embryo. We have known fine kinds of Cucumber seeds much injured by such exposure to the sun for months or weeks on the open shelves of a hothouse. A few days would have done them no harm. As a general rule, small seeds in pots should seldom be more covered than the thickness of their own size. A little shading, before the seedlings appear, is far better than a thicker covering. In the case of all seeds, and especially those a little old, it is always safest to place them in a soil a little moist, to allow the seeds to absorb moisture from it gradu-

ally, instead of freely watering the soil. In general cases, and especially in the case of small seeds, the necessary moisture should be given by watering the pots well before sowing, after draining them well, and filling them with the light, sandy, proper soil, and then waiting a day or two for the soil in the pot to become a little dry on the surface before sowing. When covered afterward, according to the size of the seed, and the mouth of the pot covered with a square glass, and then shaded from sunshine before the young seedlings appear, hardly a good seed will fail to grow. Even then, careless watering overhead will ruin thousands of tender things. It is safer to communicate moisture from below, or flood the surface by pouring the water on a piece of crock held close to the side of the pot. The whole of the tender things may thus be moistened without water coming directly, as from a rose of a watering-pot, on their tops. The previous moistening of the pots before sowing, in most cases of nicety, will supply the requisite moisture until the young seedlings are past danger. Care should also be taken in sowing tender things in pots, that the soil should be from a quarter of an inch to half an inch distant from the rim. When pots are filled more full than that, a careless rose-watering will often send the seed out of the pot. If these little matters are attended to, we feel confident that less blame will be thrown on the backs of seedsmen.

THERE is a French tool called a thistle puller. It is made of wood, and looks very much like a pair of blacksmith's tongs. The handles are something more than four feet long. Five or six old women, armed with this instrument, can clean a foul place in an incredibly

short space of time and with hardly more bending of the body than a housemaid displays while sweeping a carpet. This tool might be adopted by our farmers with benefit.

GRADUAL DESTRUCTION OF FOREST-TREES.

Few persons have ever given a thought to the subject of the destruction of forest-trees, which has been going on for the last fifty years, with accelerated speed, all over the United States. The effect in some extensive districts has been greatly to modify the climate and to render it less mild and suited to agriculture. Forests are one of the chief instrumentalities of nature for controlling extremes of temperature, moderating the violence of winds, and preventing excessive evaporation of moisture from the soil. Where they are destroyed on a grand scale, a deterioration of climate is inevitable.

But the rapid and often needless destruction of our forests will not long hence cause an absolute lack both of fuel and timber. Many kinds of trees have almost disappeared which formerly abounded. The White Pine, the Hemlock, the Black Walnut, and Wild Cherry, which formerly abounded in the Northern and Middle States, are now grown scarce and dear. Black Walnut, which was sold in Ohio thirty years ago for fire-wood, and sawed into boards for five or six dollars per thousand feet, now brings the price of Mahogany. It was calculated by experts in the matter that in 1860 the consumption of wood for fuel by the railroads was about 6,500,000 cords per year, reckoning the running time of the trains at 300 days annually, and the cost at \$50,000,000, besides all the wood used

for fuel in dwellings and manufactories. To furnish the railroads alone required the denudation of 3,000,000 acres of forest land annually. Railroads from 1850 to 1860 had consumed an immense amount of timber for other purposes, such as bridges, fences, stations and culverts, and no less than 65,997,000 ties were required, at a cost of over \$23,000,000. Taking these estimates as starting-points, how vast must be the annual drain upon our forests at the present time. The number of miles of railroad and the building of ships, houses and fences, as well as the demand for fuel, has doubtless been doubled within fifteen years, and all the ties of every road must be renewed in five or seven years. California, in many districts never well wooded, already begins to feel the effect of the constant demand for fuel and other purposes. Localities near the bay of San Francisco, since the construction of railroads, have almost been stripped of their timber already. The immense forests of Redwood up the coast are steadily undergoing the same process. The supply may remain tolerably good for many years to come, as the trees reproduce themselves from the roots, but timber is becoming harder to get every year, and being exhausted, except in almost inaccessible places, must grow dearer and dearer. Fuel is already so scarce for fifty or sixty miles around this city that coal is taking the place of wood.—*Call.*

ALL experience confirms the selection of high hilly ground for fruit-growing. The temperature in winter is always warmer on the top of the hill than in the valley, and in summer the air on the hill is drier and less liable to create insect diseases. In clay lands, set the trees on top of the ground and plow up to them, leaving drainage in the centre.

BANANAS.

The most perfect Banana plantation in the United States is that of Colonel Whitney, near Silver Lake, over two hundred miles south of Jacksonville, and practically beyond the region of killing frosts. A daily line of steamers renders it easy of access from Jacksonville and other points upon the river. This plantation covers an area of several hundred acres, and contains over 10,000 plants, most of them in bearing. The plants are of different varieties. Some of them are huge trees, twenty feet high, with a trunk from six to eight inches in diameter, while others and probably the largest number are of the celebrated dwarf species, standing from six to eight feet high, with a trunk from four to five inches in diameter. The Banana as cultivated in this climate bears no visible seed, but it is propagated from slips or cuttings, which bear transplanting well, and grow with great rapidity. These slips are generally planted about eight feet apart; if it is the dwarf species, an acre of good ground will contain from 600 to 700 plants. They require a deep rich soil, and considerable moisture. It has no season, but the fruit matures generally in from eleven to thirteen months from the date of planting, and by properly timing the planting, ripe fruit may be obtained at all seasons of the year.

Soon a leaf of the blossom opens at the pointed end, and rolls back to the base, disclosing a row of five or six tiny Bananas nestled closely together, as if hiding under the shelter of this protecting leaf. Each miniature fruit has a waxen yellow flower at the end, with a stigma projecting through it. Other leaves of the blossom unfold one after another in the same way, until twenty or thirty clusters of fruit are developed,

all clinging to one stem, when these leaves wither and fall, and the fruit swells and lengthens to maturity, which requires generally about three or four months. The great stem on which the fruit grows bends under its weight until the long finger-like fruit hangs down in graceful clusters.

Each plant bears but a single bunch of fruit, and then withers and dies; but while the fruit is maturing, there spring up from the base of the trunk several offshoots, which take the place of the old plant when that has been removed, and go on growing to the full size of the parent tree.

The fruit, when grown full size, begins to show streaks of yellow upon its deep green skin, when it should be gathered for shipment to market, as it is easily and quickly ripened after cutting by wrapping the bunch in straw or in a blanket, and keeping it in a warm place. By cutting the bunches at the right time they can be shipped to New York with perfect safety.

Colonel Whitney has upon his plantation to-day thousands of bunches, in all stages of development, from the little miniature buds to the well-matured fruit six or seven inches long. Many of these bunches contain 125 Bananas, which sell readily to shippers at two cents each, from which may be inferred the great profits of Banana culture.

An acre of ground will readily support 600 plants. Suppose the bunches to average 75 Bananas each, and we have an annual income of \$900 from a single acre. The cost of preparing and enriching the ground and setting the plants the first year, including the cost of the slips, will average, say, \$1 per plant, leaving a profit of \$300; but they perpetuate themselves after the first year, and require but little expenditure. Besides, the shoots that spring

up from the bulbous root-stock will supply plants enough to double the number each year; or they may be sold for more than enough to pay for all expenses after the first year, thus leaving the \$900 net for the second and succeeding years.

Humboldt states that an amount of land that will produce 1,000 pounds of Potatoes will yield 44,000 pounds of Bananas, and a surface bearing Wheat enough to feed one man will yield Bananas enough to feed twenty-five men.

—*Atlanta Herald.*

THE WILLOW IN CALIFORNIA.

BY WM. P. GIBBONS.

This family is ambitious in its way, ever contending for supremacy of domain, on streams, in swamps, by springs and watered hill-sides. It is cosmopolitan; for claiming a foot-hold on the extreme limit of arctic vegetation, it spreads in number and species as it approaches more genial climes, until it has representatives in almost every country.

The large species of Willow is too brittle for anything but firewood, but it has a thick bark, which forms good material for tanning; it is not regarded, however, as being more than half the value of Oak-bark. In quantity it is too sparse to afford a supply to the market; for the large trees have nearly all succumbed to the policy of most California farmers, which appears to be to destroy timber as they would exterminate ground-squirrels or rattlesnakes.

There is undoubtedly a large field for profitable operations in cultivating some of our native Willows for hoop-poles and baskets. There are large tracts of low and swampy land, which are adapt-

ed especially to their growth. The swamp-land at the junction of the Yuba and Sacramento, the bottom-land of the American River, the sloughs about the Kern River country, and many other parts of the overflowed land of California, are already covered with dense thickets of several species. Such localities in England are called osier lands, or osier polts; and the osier Willow is not a specific name, but is applied to all species which are cultivated and used in the arts. Thus the *Salix Forbyana* W. is most esteemed for fine basket-work; the *S. viminalis*, or Gallicum Willow, described by Columella, is the common Osier; the *Lambertiana* W., the *Vitellina* W., the *rubra* W., or green-leaved Osier, are all esteemed valuable for basket-work; while the *stipularis* W., and *triandra* W., are used for coarse work and for hoops and poles.

But, so far as my observation has extended, I do not think there is any necessity for resorting to the cultivation of foreign species in California; as some which are indigenous to the Pacific slope have all the properties which are desirable to the artisan. I must here apologize for not designating those species by name, notwithstanding specimens are in my herbarium. The fact is, the Willows, in addition to being a numerous and wide-spread family, are so hybridized that it requires more familiar acquaintance with them than the writer possesses to identify the species.

It is quite common to see some of our native Willows grow to be fifteen feet high, with a butt not exceeding one and a half inches. Recently I saw two trees, neither of which exceeded four inches in diameter, which were thirty feet high. Experimental cultivation of some of these species is well worth the trial. The Indians make extensive

use of some for basket-making. The small twigs are tied in bundles and laid over a fire to steam, after which the bark is easily and quickly peeled off.

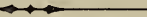
—*Overland Monthly*.

MAKE HOMES.

In early days people came to our shores with the mere purpose to collect a certain number of dollars from the golden sands, or otherwise make them by trade, and then return to some Eastern State to make a home. California was looked upon as unfitted for the planting of permanent communities—was regarded as a sort of far-off desert, where men of extraordinary pluck and enterprise might exist for a few months, or a year or two at most, until they could make their fortunes. Many, however, soon began to discover the virtues of the marvelous climate in preserving the vital forces of the human body, and here and there experiments in agriculture and horticulture revealed the wonders of our soil. So people began to settle, but still there exists to a great extent the old migratory feeling, the nomadic desire to find land more rich, grass more succulent, and water more pure. We should make homes, homes around which cluster our hopes and joys. Home should be the centre of attraction to us, the spot where dwell our loved ones, the place endeared to us by all tender and loving associations, where the wife is the true mistress of the household, the husband the true head of the family, where the children get their earliest and most lasting impressions, and where, finally, we hope peacefully to breathe our last. A cottage embowered in vines, and hid by the foliage of trees planted and nurtured by ourselves, may contain more

of the elements of happiness than a rich and elaborately finished mansion. Carpenters and masons, tinsmiths and plumbers, may erect houses but not homes. The man who has a home must be contented with his station and locality; he must have shut out all thoughts of the green pastures beyond, and set himself about the great duty of making those around him happy, which will be achieved not only by acts of loving-kindness to the people, but also by acts of loving-kindness to the hills and valleys he possesses.

In Walter Scott's novel, "The Heart of Mid-Lothian," an old laird dying is made to say to his son, as his last and most important advice, "When thou hast nought else to do, lad, be putting in a tree. *They will grow whilst thou art sleeping.*" We desire to impress the same advice upon all who are making homes. When you have nothing else to do, be planting trees. Plant trees for shade, trees for future timber, trees for fruit. Do not listen to the fallacy that fruit is so plentiful that it is cheaper to buy than to produce it. Let your children look forward to the budding of the trees and the ripening of the fruit as eras; let them watch the growth of the trees they have planted, and boast of the forests they have created. Make them feel that in one spot they have more than a mere purchasable interest, and that spot is called home.



THE "FROST-FLOWER" OF RUSSIA.

A Boston journal describes an extraordinary Frost-flower of Russia, which has been produced, it is said, in Boston in a temperature of artificial cold. This wonderful plant, or rather flower, is found only on the northern boundaries of Siberia, where the snow is eternal.

It was discovered in 1863 by Count Swinokoff, the eminent Russian botanist, who was ennobled by the Czar for his discovery. Bursting from the frozen snow on the first day of the year, it grows to the height of three feet, and flowers on the third day, remains in flower twenty-four hours, and then dissolves itself into its original element—stem, leaves, and flowers being of the finest snow. The stalk is about one inch in diameter; the leaves—three in number—in the broadest part are one inch and a half in width, and are covered with infinitesimal cones of snow; they grow only on one side of the stalk, to the north, curving gracefully in the same direction. The flower when fully expanded, is in shape, a perfect star; the petals are three inches in length, half an inch wide in the broadest parts, and tapering sharply to a point. These are also interlaced one with another in a beautiful manner, forming the most delicate basket of frost-work (the most wonderful. The anthers are five in number, and on the third day after the birth of the "flower of snow" are to be seen on the extremities thereof, trembling and glittering like diamonds, the seeds of this wonderful flower, about as large as a pin's head. The old botanist says, when he first beheld this flower, "I was dumb with astonishment; filled with wonderment, which gave way to joy the most ecstatic on beholding this wonderful work of nature, this remarkable phenomenon of snow—to see this flower springing from the snowy desert, born of its own composite atoms. I touched the stem of one lightly, but it fell at my touch, and a morsel of snow only remained in my hand." Gathering some of the flowers in snow, in order to preserve the little diamond-like seeds, he hied to St. Petersburg with, to him, the greatest

prize of his life-time. All through the year they were kept in snow, and on the first day of the year following, the Court of St. Petersburg were delighted with the bursting forth of the wonderful "Frost-flower." Our friends in Boston succeeded in obtaining several of the seeds, and all through the summer and autumn they have been imbedded in snow brought at great expense from the White Mountains and the Coast of Labrador; and they now have the most unbounded satisfaction and pleasure of announcing that all signs are favorable to the realization of their fondest hopes, the production of the "flower of snow." The snow and ice are in a large glass refrigerator, with the thermometer forty-five degrees below zero, and the solid bed of snow has already begun to show little fissures and a slight bulging in the centre, unmistakable evidences of the forthcoming of the phenomenon.—*N. Y. Christian Advocate.*

CALIFORNIA OAKS.

There are three species of Oaks which are most prominent in this State—the Evergreen Oak (*Quercus agrifolia*), the Sacramento Live-oak (*Q. lobata*), and also, among the foot-hills of the Sierra, the Live-oak (*Q. chrysolepis*). The first is a very prominent figure in our natural landscape. They resemble in general an old eastern Apple-tree, though they vary much in size and shape. Of late it has been much injured in spring by the attacks of myriads of caterpillars, and loses its foliage, which, however, is renewed in the summer. The Evergreen Oak since the first settlement of the country has been used for firewood. It is unfit for manufacturing purposes, and it is too perishable to be exposed to the weather for fences

and posts. When green it is easy work for the chopper, but when seasoned is very hard and tough.—*Overland Monthly.*

CAMELLIAS.

Among greenhouse plants I do not think there is another which possesses the superb beauty of the *Japonica*, or which has more admirers. The beautiful flowers of varied colors contrast pleasantly with the dark-green foliage; they are also well adapted for the decoration of the dinner-table, bouquet-making, or for dressing ladies' hair, which makes them one of the most valuable of greenhouse plants. Like a good many more of our finer greenhouse plants, we owe considerable to those who have diligently and successfully persevered in intercrossing and raising seedlings, both in Europe and America, to obtain the many kinds now in cultivation.

The soil best adapted for Camellias is good turfy loam, made porous with river sand, if not naturally so, and when potting, which should be done when the plants commence making their growth, do so rather firm, giving plenty of drainage. During the time they are making their growth give an abundance of water at the roots, with frequent syringing and sponging of the leaves when the least dust accumulates upon them. Nothing is more beneficial for the luxuriant health of the *Camellia* than cleanliness. I need not make an exception of this plant, as plants of every kind, especially evergreen plants, require the greatest care in keeping them clean, if anything like success in their culture is aimed at, not only from dust on the leaves, but also from insects.

When they have finished their growth, they will not require so much water,

but at the same time considerable care is necessary to give enough, as allowing them to get too dry or too wet will make them drop their buds. When all danger of frost is past, set the plants outdoors in some place partially shaded, where they may remain until fall, when they will require to be put back into the greenhouse. Previous to doing so, however, it is advisable to sponge the leaves over, using clean water.

Camellias are very impatient when much heat is given them for the purpose of forcing them into flower. Under such circumstances they are apt to drop their buds. When required for early flowering, it is best to give a pretty brisk heat when making their growth in the spring, and induce them to mature early; and housing them in fall pretty early, they will open their flowers much sooner than those allowed to mature their wood and set their buds slowly. Camellias flower best, and make better wood, when planted in a bed prepared for them in the greenhouse.

THE BAY-TREE (OREODAPHNE CALIFORNICA.)

Dr. W. P. Gibbons thus speaks concerning the characteristics of this beautiful native tree:

"It stands almost peerless in the Coast Range *sylva*. Its deep green cones of foliage, scattered through gulches and along hill-sides, give greater depth and wildness to cañons, and mingle with the rounded tops of the Evergreen Oak to form the characteristic scenery of the rock-faced mountains. Early in January its clusters of wax-like flowers appear, half-hidden and protected from untimely cold by a profusion of thick shining lanceolate leaves. The fruit of the previous seasons, about the size of

a large filbert, holds its place beside the blossoms, so that every gradation of inflorescence may be seen, from the half-developed flower-bud to the mature carpel. Like the Willow, its favorite locality is along the course of streams and on springy hill-sides, but it will accommodate itself to almost any locality. Its pungent aroma fills the atmosphere without its circumference, and doubtless it exerts an anti-malarial influence as powerful as the Eucalyptus, or any other tree which has gained a real or factitious reputation in this respect.—*Overland Monthly*.

PAPER FROM SUGAR-CANE.

In conversation, the other evening, the new discovery made in France, and patented by MM. Merelens & Kresser, of making paper pulp from the refuse cane of the sugar-mills, came upon the *tapis*. The question was put, if it was not possible to procure paper pulp from Corn-stalks as well as from Sugar-cane stalks. Some one thought it had been done, and was the basis of the French discovery, but this was disputed.

Hitherto, sugar-planters have been obliged to burn the refuse of their Sugar-cane making, and mills were provided for the purpose. This discovery of making paper pulp of it is putting to valuable service a hitherto useless and cumbersome residue.

The pulp thus procured is reported to require less bleaching than that otherwise required, and the paper made of it is said to be of good quality.

If a similar pulp could be procured from the Corn-stalk, the stalk would be available even after it had been used for fodder. At present the part the animal refuses is either burned or thrown upon the compost pile.—*Ex.*

ORNAMENTAL GRASSES.

Among the grasses from which you can make choice for garden decorative use we name several that in our American gardens would add material features of beauty to them. The cultivation of the grasses has been almost entirely overlooked, and only occasionally are our eyes pleased with the beauties of the tall waving plumes of the *Gynerium argenteum*. This is a favorite adjunct of English and European gardens, and no garden of well-assorted selections is considered complete without a clump of the waving plummy Pampas Grass. Our American gardens lack the tropical element and situations adapted to the growing of the tall variegated grasses, so beautiful in the fall months, and for that reason they are almost entirely discarded. This should not be. We would enter our plea for a little nook or corner in the garden where the Pampas and the *Stipa pennata* as well as the Violets may be grown. We do not urge the cultivation of these grasses, variegated and elegant though they are, in large numbers, for that would be an impossibility, but we ask our readers, particularly the ladies, to procure from the florists in May at least one good strong plant of the two above-named grasses, to which I would add the *Andropogon argenteum*, a slender-growing species with silvery-hued leaves and plumes. All the above are quite hardy, and if large clumps of roots can be procured they will live and thrive well.

In procuring any of the above grasses be particular to get a large-sized clump of roots, as from one or two stalks your chance for raising good tall grasses is very poor. Having from this cause made numerous failures in the growth of these grasses, I would urge the fact that until I obtained good clumps of

well-rooted grasses my labor and success was entirely in vain. With the right kinds of roots I had good success. Seeds of the various kinds of these grasses may be procured from most of our first-class seedsmen, and from them you should purchase if you are desirous of getting the true seed. You can sow the seed and raise your own plants if you are prepared to give much care to the work; if not you had better buy plants. The perennial kinds are the best as a general rule, but the annual and biennial species are beautiful and unique, and if added will repay all your care. I have often looked at the tall stems and silvery plumes of the Pampas Grass, full three feet in height, glistening and changing from deep green to silvery white. This grass is a little tender, and in northern latitudes a little impatient of cold, but with a little straw covering the roots it will go through with our winters in safety. I have often cultivated it, and can recommend it as a beautiful ornament. I recollect a garden in one of our pleasant New England towns in which I placed in good position six very fine *Yucca filamentosa* and six *Gynerium argenteum*. About the beds and foregrounds were placed the diversified and many-colored Geraniums, and when the garden was in good condition the appearance was particularly effective; then one plant helps to set off the beauties and graces of the other, and the decline of the sun not only scattered the fragrance of the pearly flowers of the Yucca, but drew around its hundreds of bell-shaped flowers numberless species of the humming-bird and wren.

In ordinary garden culture all these plants will grow, and there are many others of this species of easy culture, which, if transferred from their native haunts, would be much improved and

beautiful additions to our gardens. With one more plant, the *Arundo donax*, a very large and beautiful one growing in clumps, we close this article. This plant, under good cultivation, will send up a long, reed-like stem to the height of ten or twelve feet in our very Northern States. It seldom flowers, but in sheltered places, or protected it will give forth its fine blossoms. Even without its blossoms, this plant is very fine and picturesque. In ordinarily good position it will flower every moderately warm year.

FLOWERS AS A SANITARY AGENT.

We all have heard what the alarmists say—that the odors of many flowers are injurious to health. But modern science teaches us that ill effects produced by the odors of one set of plants and flowers are balanced, perhaps quite over-matched, by the good effects of other sets. Most of us have heard of “ozone.” It is one of those capital ingredients of the world that has existed from the beginning, but which has only of late years been actually recognized, and consists, in plain English, of highly electrified oxygen; the gas, when so electrified, acquiring specially good qualities in regard to the general health of mankind. Prof. Montegazza, of Padua, states that certain plants and flowers, upon exposure to the rays of the sun, cause so large an increase in the quantity of ozone round about, as to be eminently conducive to a better condition of the atmosphere, of course with the understanding that there is proper ventilation, such as will carry off the excess of purely odorous matter that may arise from them. Among these ozone manufacturers of the botanical world are the Cherry Laurel (poisonous in its leaves

and kernels), the Clove, Lavender, Mint, Fennel, the Lemon-tree, and others; also the Narcissus, the Heliotrope, the Hyacinth, and Mignonette. Certain prepared perfumes, similarly exposed to the sunshine, add further to the atmospheric stock of ozone; the well known eau-de-cologne, for instance, oil of bergamot, extract of millefeurs, essence of lavender, and some of the aromatic tinctures. The oxidation of certain essential oils obtained from plants and flowers, such as the oils of nutmeg, aniseed, thyme, and peppermint, is likewise indicated by the professor as a source of ozone, though the supply of this pleasant aerial condiment is in the case of these less considerable. Dr. Montegazza recommends accordingly the large and sedulous cultivation of ozone-producing plants in all districts and localities where the atmosphere is liable to be corrupted, marshy places in particular; in which last, according to Dr. Cornelius Fox, in his recent comprehensive work upon ozone, it is impossible for any better sanitary agent to be introduced than the common Sunflower. This plant, happily able to make itself quite at home in the poorest cottage backyard, has been shown not only to purify the atmosphere of marshy places, removing a very decided amount of the miasmata ordinarily there engendered, but to confer the positive benefit of augmenting the quantity of ozone. People are recommended often to the sea-side, or the special marine watering-places, for the sake of their reputed wealth in ozone. Should we not move a vote of thanks to the man who has shown us how to arrange for supplies upon our own premises?

SEEDS of Peach and Plum, from healthy trees, may now be saved and preserved in boxes of sand, for planting.

Editorial Portfolio.

EXHIBITION OF THE MECHANICS' INSTITUTE.

THE PAVILION GARDEN.

Whatever serves to advance the progress of society in the æsthetics and graces of life, in the contemplation of the wonders of nature, and the cultivation of those things which lead to domestic elegancies and refinement, must be worthy of our culture and encouragement. The improvements in the formation of gardens and grounds—in other words, modern landscape gardening—in the cultivation of flowers, trees, and shrubs, in the erection of ornamental and useful rural buildings, rockeries, fountains, bird and bee houses, plant-cases, fish ponds and tanks, and all the numerous other garden adornments, are but the beads in our rosary of homage to the spirit of beauty, and are all objects worthy of designation as showing an improved era in the social life of our comparatively young city and State. These are all signs and accompaniments of the rapid march of the popular mind in the appreciation of what is lovely, and the happy means in the promotion of our intellectual and moral tastes. We are, at any rate, surely in the ascent toward them, and our course is becoming steadier, and our light purer as we rise. Our rooms are commencing to sparkle with the products of art, and our gardens with the enchantments and curiosities of nature. Our domestic life is beginning to be a guarantee of the greatness of our State in the national grandeur of all her sister States, and as long as we shall continue to surround that life with these emblems and suggestions of higher things, so long will the highest teachings of knowledge, elegance, and virtue be attainable at our homes.

These remarks have been suggested by a view of the horticultural department of the Fair. These garden grounds, or miniature park, by the exertion and taste of Mr. Schumann, under supervision of Mr. Hall, the Park Superintendent, are made quite attractive. A great deal of good taste and judgment has been used in the laying out and ornamentation of this pleasant and delightful garden. It is a very admirable contrivance for the purposes of beauty and pleasure for which it is intended. We consider that the decorations are quite appropriate to the style in which the ground is laid out, and the kind of plants with which it is stocked. A few leading principles are most judiciously observed at starting; everything falling into its proper place, and there are no eye-sores or incongruities. It is a judicious blending of the Italian with the English modern style. Unfortunately, but few of us can appropriately develop the true theory of gardening in the close neighborhood of towns, for the imposing terrace, the spacious lawn, large fountains and shrubberies, occupy more space than can be obtained, except by our millionaire owners of broad acres. All that can properly be done in a limited space like the Pavilion garden, is to do what was done by its managers—namely, to have the main portion of it of verdant grass-plats, with small beds of choice and vivid flowers near its borders; flowering shrubs beyond, near the boundaries, and appearing to great advantage against the darker background of massive evergreens which hide the walls and thicken in the prospect; a handsome rustic arbor with seats at the farther end; adorned with a fountain in front; rockeries with plants, vases of flowers on pedestals, statuary among the shrubs and evergreens, and speci-

men foliage plants here and there in appropriate position.

A gracefully formed tent produces a good effect on the lawn and against the border shrubbery. The prismatic fountain, with the sheet of water flowing over it, and its internal illumination in the evening, shows off its brilliant panes of crimson, blue, and pink to great advantage, and the gorgeous colors reflect their changeable glare on water, jets, rock-work, and the amphibious creatures—the crocodile and hippopotamus—below.

Mr. Woodward makes his usual handsome show of tropical and semi-tropical plants, ferns, etc., on the side of the platform, before entering the garden.

Mr. L. Tisch, florist, with Mr. Kelsey, Oakland, presents a very beautiful display of *Coleus* or foliage and some other fine plants; one particular *Coleus* being a new handsome seedling of his own raising.

Messrs. T. O'Connor & Co., of Sansome Street, exhibit some specimens of Bahia Oranges and Lemons, with Norfolk Island Pines and choice Ferns, and other valuable plants from Australia. The Oranges are, some of them, of the "Naval" variety, and are splendid. This firm also shows some fine *Gladioluses*, and constantly renew their table with new specimens of a variety of tropical and other varieties.

Mr. Beggs, collector of a large quantity of superb Pine and other cones, who has been six months at work in the mountains for the purpose of showing them in this city, has erected a picturesque arbor, covered with evergreen boughs, and richly ornamented in every part with a great variety of cones. This rustic piece of work is a curious, interesting, pretty, and imposing object. Mr. Trumbull, florist, of Sansome

Street, has added considerable beauty to it, by a number of graceful hanging baskets and other floral decorations, with plants, seeds, and other interesting horticultural objects.

Mr. Upton makes a good exhibit of cut Dahlias and *Gladioluses*.

F. Ludeman exhibits a large and choice variety of evergreens, tropical plants, foliage plants, and some valuable specimens of flowering plants.

Messrs. Miller & Sievers exhibit a portion only of their usual large display of choice and new plants, with a case of floral baskets, in wood, straw, and paper, and other elegant receptacles, etc., for flowers and bouquets, and a large variety of Dahlias, *Gladioluses*, etc.

Mr. Bailey, of Oakland, an extensive cultivator of the *Eucalyptus* tribe, exhibits them growing in boxes; and has a piece of the trunk of the *Eucalyptus globulus*, or Blue Gum, at least two feet in diameter—the growth of only eleven years. They are raised chiefly for forest culture.

Other horticultural exhibits are in preparation, but are not in a sufficient state of completeness for present notice. We would have much liked to see the horticultural hall better lighted at night. It should have had at least double the number of gas-burners, or some other kind of additional lights. By day, the light and temperature are all that could be desired, both for man and vegetation. A few more beds of showy flowers, also, would have been a desirable acquisition for the general effect.

At Bowen Brothers' stand there is a fine assortment of California candied or crystalized fruits of Apples, Peaches, Apricots, Plums, etc., in large glass jars, put up by William R. Smith, of Davisville. They are of the finest quality ever shown here—either Ameri-

can, French, or English. The fruit is almost transparent. This is a fine addition to the capital dried fruits of our coast.

PRUNING HYDRANGEAS.

The Hydrangea is cultivated and pruned in two different ways: for pot culture, and the training for out-door plants. The safest way to prune it for out-door culture is never to cut back one morsel of the young wood till it has done flowering, and then to cut it back entirely to the old wood; never to cut back the old wood until it gets too crowded, and then cut back to a promising young shoot; to thin out young shoots when they are three joints long, if they come much crowded, and not to allow suckers to grow from the roots on any account whatever. There is nothing differing in principle between pruning a Gooseberry-bush and a Hydrangea-bush; the old thumb-rule and the best rule for Gooseberry pruning is: "What you cut, cut clean out, and what you leave do not touch with the knife." But the drooping kinds of Gooseberries require some of the points of the young shoots to be cut back to prevent them from trailing too much on the ground. We all know Hydrangeas should be planted in shady places.

NEW HYBRIDIZED GLADIOLUS.

We are indebted to the kindness of Mr. B. F. Wellington, florist and seedsmen, 425 Washington Street, for our frontispiece this month, which shows a very handsome illustration of one of these showy and favorite florists' flowers. The almost infinite variety of colors that are now produced by hybridizing this splendid garden beauty renders it much sought after. We have

previously written rather fully upon this rich and diversified colored bulbous plant, and shall do so still more at large in some of our future numbers. At present we have but space sufficient to make this brief notice of our plate for the present number of the HORTICULTURIST.

PICTURES RECEIVED.

We have the pleasure to acknowledge with many thanks the receipt of four finely drawn and splendidly colored lithographs of flowers and foliage plants from William Bull, F.L.S., florist and nurseryman to the queen. They are from his large establishment for new and rare plants, King's Road, Chelsea, London, S. W. These beautiful plants are: *Dyplademia Brearleyana*, Pelargonium Beauty of Oxtou, *Croton majesticum*, and *Croton Spirale*. They are well worthy of being handsomely framed.

CATALOGUES RECEIVED.

From Ellwanger & Barry, Rochester, N. Y.: "A Catalogue of Ornamental Trees, Shrubs, Roses, Flowering Plants, etc., for 1875." This is the most complete, best arranged, and handsomest nursery catalogue that has ever been printed in this country. It embraces an unusual quantity of novelties, both in evergreen and deciduous trees and shrubs. The lists of Roses, Pæonias, and Phloxes are larger and more complete than we have ever seen them before. The entire catalogue is replete with interest, and should be in the possession of everyone who has the least taste for the beautiful in nature.

From James Vick, Rochester, N. Y.: "Vick's Floral Guide, No. 4, for 1875." This number is mainly and appropriately devoted to the culture of Hardy

Bulbs, which furnish our earliest and choicest spring flowers. It treats also on the Winter Garden, Autumn Work in the Garden, and Culture of Bulbs, Seeds, etc.

RARE PLANTS IN BLOOM.—At Woodward's Gardens is now in bloom a Century Plant some twenty-five feet high, a number of different varieties of Orchids or air-plants, and the beautiful Holy Ghost Flower (*Peristeria elata*), so called from the flower resembling the form of a dove. It is seldom seen in bloom.

HOW TO DISTINGUISH GOOD FROM POISONOUS MUSHROOMS.—So many deaths or severe cases of poisoning occur from eating poisonous mushrooms, that it is very important to know how to distinguish the good from the bad. The following is given by Prof. Bentley, which, though not full or unerring, gives the general features by which the edible or under trees and poisonous species of fungi may best be distinguished: The edible mushrooms grow solitary, in dry, airy places, and are generally white or brownish; they have a compact, brittle flesh; do not change color, when cut, by the action of the air; juicy, watery, and odor agreeable; taste not bitter, acrid, salt, or astringent. The poisonous mushrooms, on the contrary, grow in clusters in woods, and in dark damp places, and are usually of a bright color; their flesh is tough, soft, and watery, and they acquire a brown, green, or blue tint when cut and exposed to the air; the juice is often milky, the odor commonly powerful and disagreeable, and the taste either acrid, astringent, acid, salt, or bitter. These characteristics are almost invariable.

FRUIT CULTIVATION, AND
REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

We have so favorable a climate and soil for the culture and propagation of all fruits, that they offer much encouragement for originating new fruits, as well as introducing here all those that are cultivated elsewhere, either in Europe or America.

In sowing seeds for the purpose of procuring improved varieties—which should be the aim of many of our fruitists who are so situated as to have favorable opportunities and facilities—care should be had not only that the seeds should be taken from the finest existing kinds, but also that the handsomest, the largest, and the most perfectly ripened specimens should supply the seeds. A seedling plant will always partake more or less of the character of its parent, the qualities of which are concentrated in the embryo when it has arrived at full maturity. How this concentration takes place we are as ignorant as why certain constitutional peculiarities in men are transferred from father to son, generation after generation, but we know that it does take place. Now, if the general qualities of a given variety are concentrated in the embryo under any circumstances, it is reasonable to suppose that they will be most especially concentrated in a seed taken from that part of a tree in which its peculiar good qualities reside in the highest degree. For instance in the fruit of an apple growing in much shade and to the north there is a smaller formation of sugar than in the same variety growing much in the sun or toward the south; and it can be easily understood that the seed of that fruit which is itself least capable of forming saccharine se-

cretions will acquire from its parent a less power of the same nature than if it had been formed within a fruit in which the saccharine principle abounded. It should therefore be always an object with a fruit-raiser, in selecting a variety to become the parent of a new sort, to stimulate that variety by every means in his power to produce the largest and the most fully ripened fruit it is capable of bearing. The importance of doing this is well known in regard to Melons and Cucumbers, and also in preserving fugitive varieties of flowers; but it is not so generally practiced in raising fruit-trees as it ought to be.

We will now say a few words on what is called cross-fertilization, which is another mode to originate varieties as distinguished from raising them from the seed.

The power of procuring intermediate varieties by the intermixture of the pollen and stigma of two different parents, most deserves consideration. We all know that hybrid plants are constantly produced in every garden, and that improvements of the most remarkable kind are yearly occurring in consequence. Cross-fertilization is effected by the action of the pollen of one plant upon the stigma of another. The nature of this action is highly curious. Pollen consists of extremely minute hollow balls or bodies; their cavity is filled with fluid, in which swim particles of a figure varying from spherical to oblong, and having apparently a spontaneous action. The stigma is composed of very lax tissue, the intercellular passages of which have a greater diameter than the moving particles of the pollen. When a grain of pollen comes in contact with the stigma, it bursts and discharges its contents among the lax tissue upon which it has fallen. The moving particles descend through the tissue

of the style, until one, and sometimes more of them finds the way by routes specially destined by nature for this service, into a little opening in the integuments of the ovalum or young seed. Once deposited there, the particle swells, increases gradually in size, separates into radicle and cotyledons, and finally becomes the embryo—that part which is to give birth, when the seed is sown, to a new individual.

Such being the mode in which the pollen influences the stigma, and subsequently the seed, a practical consequence of great importance necessarily follows, viz.: that in all cases of cross-fertilization the new variety will take chiefly after its polleniferous or male parent; and that at the same time it will acquire some of the constitutional peculiarities of its mother. Thus, the male parent of the Downton Strawberry was the Old Black, the female a kind of scarlet. In Coe's Golden Drop Plum, the father was the Yellow Magnum Bonum, the mother the Green-gage; and in the Elton Cherry the White Heart was the male parent, and the Graffion the female. The limits within which experiments of this kind must be confined are, however, narrow. It seems that cross-fertilization will not take place at all, or very rarely, between different species, unless these species are nearly related to each other; and that the offspring of the two distinct species is itself sterile, or if it possesses the power of multiplying itself by seed, its progeny returns back to the state of the one or the other of its parents. Hence, it seldom or never has happened that domesticated fruits have had such an origin. We have no varieties raised between the Apple and the Pear, or the Quince and the latter, or the Plum and the Cherry, or the Gooseberry and the Currant. On the other hand, new varieties ob-

tained by the intermixture of two pre-existing varieties are not less prolific, but, on the contrary, often more so than either of their parents. Witness the numerous sorts of Flemish Pears which have been raised by cross-fertilization from bad bearers, within the last forty or fifty years, and which are the most prolific fruit-trees with which orchardists are acquainted. Witness also Wm. Knight's Cherries, raised between the May Duke and the Graffion, and the Coe's Plum already mentioned.

It is, therefore, to the intermixture of the most valuable existing varieties of fruit that cultivators should trust for the amelioration of their stock. By this operation, the Pears that are in eating in the spring have been rendered as delicious and as fertile as those of the autumn; and there is no apparent reason why those very early but worthless sorts, such as the Muscat Robert, which usher in the season of Pears, should not be brought to a similar state of perfection.

There is no kind of fruit, however delicious, that may not be deteriorated, or however worthless, that may not become ameliorated, by particular modes of management; so that after a given variety shall have been created, its merits may still be either elicited or destroyed by the orchardists.

The high price of fruits this season is something unprecedented, if we except the time when orchards were scarce. The early reports of prospects for short crops were not overdrawn. Even the Blackberries that bloomed after the spring frosts are very short indeed. Several patches near San Jose have failed entirely. Others have not produced one-tenth of a crop. For instance, Mr. Bird's eight acres, that produced seventy chests per day last year for weeks together, is yielding only five

chests per day this season. The San Jose Canning Factory contracted for all that several vineyards produce at six and seven cents. Last year they got all they wanted for two cents. The crop is so short that dealers have to pay nine cents by the chest, and many orders from a distance can not be filled. The local demand is greater than the supply. As to other fruits the San Francisco markets govern others, and much of the fruit used in San Jose is shipped from a distance. On an average, it sells for less in San Francisco than in San Jose, notwithstanding that San Jose is one of the finest fruit-growing districts in the State.

In the first week in August there was no change in the markets worthy of note. Fruit and vegetables were plentiful, and in prime condition. A great variety of Plums were in season, and the range for all kinds was from 8c. to 15c. per lb. Nearly all descriptions of Grapes were obtainable, natives selling at 5c. per lb., and fancy kinds at 10c. to 15c. Raspberries were dull at 30c. to 35c., and so were Blackberries at 10c. to 12½c. Pomegranates were in good supply and cheap, retailing at 5c. to 10c. each. Nectarines were quoted at 12c. to 15c. per lb., and Crab-apples at 10c. German Prunes were steady at 15c., and Peaches at 6c. to 12½c. Currants were inactive at 12½c.

Green Lima Beans retailed at 6c. to 8c. per lb.; dry do., at 15c. We quote Summer Squash at 5c. to 6c. per lb., and Winter do at 2c. to 4c. Egg Plant was firm at 5c. to 6c.; Okra at 15c.; Sweet Potatoes at 6c.; Chili Peppers at 15c.; Shell Beans at 5c. Green Corn was quotable at 10c. to 25c. per dozen, a very fair quality to be had for the former figure. Canteloupes and Watermelons were plentiful at 10c. to 25c. each. Cucumbers ranged from 10c. to

15c. per dozen for green, to 50c. for ripe yellow.

One of the very best Potatoes we have, either for cultivation or market, is the Early Rose. It is of fine shape and mealy, very prolific, and good for table use. Another very fine Potato that comes to our market is known as the Bodega of Humboldt County, where they are grown extensively; but within the last two years they have been almost entirely destroyed by the blight, which has also been so prevalent immediately around this city. It will probably be necessary to change our variety of Potatoes for foreign sorts.

About the 13th of last month (August) Plums were in great variety and plentiful. Green-gages were quoted at 5c. to 6c. per lb.; Damsons, 6c. to 8c.; Peach Plums, 10c.; Egg do., 6c. to 12½c.; German Prunes, 10c. to 12½c. Following were the quotations for Grapes: Black Hamburg, Black Malvoisie, and Rose of Peru, 10c.; Sweetwater, Natives, and Mission, 6c. to 8c.; Muscat of Alexandria, 10 to 12½c. Pomegranates retailed at 50c. per doz. Quinces are in the market and retail at 10c. to 12½c. per lb. Raspberries were quoted at 30c., and Blackberries at 12½c. Strawberries were in limited supply and moderate demand at 20c. Currants continued to hold out at 6c. to 12½c. Nectarines were down to 8 to 10c. Peaches were firm at last week's prices—6c. to 12½c. The supply of Crab-apples was light at 8c. A few Australian Oranges were retailed during the week at 12½c. each. Australian Lemons were also in the market, and were offered at \$1 per dozen.

Sweet Potatoes were arriving freely and prices were down to 4c and 6c. per lb. Egg Plant was a trifle firmer than it had been for some time, being quoted at 6c. to 8c. Okra was quoted at 15c.; Chile Peppers at 15c.; Green Lima

Beans at 6c. to 8c., and dry do. at 15c. Green Corn was very plentiful, and remarkably cheap, the range being 10c. to 25c. per dozen. Summer Squash was steady at 5c. to 6c., and Winter do. at 2c. to 4c. per lb. Artichokes retailed at 50c. per dozen. Cantaloupes, Watermelons, and Cucumbers were unchanged.

On the 27th of August the business in the retail market was much affected by the money panic and derangements. Buyers were fewer at the stalls, and a comparatively small number of purchases were made. Prices were unchanged, and there was but little difference in the varieties of fruit and vegetables offered. Currants, Raspberries, Strawberries, Crab-apples, and some other fruits had nearly disappeared. We have nothing new to come in if we except a few rare varieties of fruits already in. Grapes are at the head of the list, and will continue so until the season closes. There was a slight depreciation in the prices of Black Hamburg, Black Malvoisie, and Rose of Peru, which retailed at 6c. to 8c. per lb.; in Muscat of Alexandria, 10c.; and in Natives, Mission, and Sweetwater, at 4c. to 5c.; Flame Tokays, held their own at 15c.

Blackberries continued to be quoted at 12½c.; Nectarines, at 5c. to 6c.; Peaches, at 6c. to 12½c.; Quinces at 10c. to 12½c. Seckel Pears were in the market in good supply at 6c., and Bartletts at the same price. Bellflowers had been coming in during the week, but these were rather green yet to make good eating. Cocoanuts were quoted at 15c. to 20c.

Winter Squash was very abundant and it was offered freely at 1c. to 2c. per lb. Summer Squash was firm at 5c. to 6c. Cucumbers were plentiful at last quoted prices. Rhubarb sold at 6c.; Garlic sells at 15c.

The latest arrival in our markets is some good and rather plentiful lots of Strawberries—about the fourth crop. They sell readily at the rate of 25c. to 30c. a pound.

Ornamental Gourds, styled erroneously "Pomegranates," retailed at 50c. per dozen. The true Pomegranate does not find its way into market until a much later date in the season. The variety of Pears in the market is becoming large for this coast, such as the Flemish Beauty, Seckel, Winkfield, etc. Their size compared to the eastern of the same kinds is great deal larger, and their complexions generally finer. We observe this season very few specimens of the true Green-gage Plum in market. It is the king of all plums in rich sweet qualities and in juiciness. There have been, also, very few white Nectarines. A great deal of much finer varieties of fruits than we now possess could be cultivated by orchardists, if they only had the ambition to excel, and followed up the good motto—"Excelsior."

VERBENA PULCHELLA.—A dwarf-growing species with numerous trusses of small striped flowers, is used by Mr. Record at Vintner's Park, Maidstone, as an edging to beds of flowers on the terrace garden, and with charming effects. The pretty *Nierembergia gracilis* is used in the same way, and is most effective, being so free of bloom and so continuous. *Sedum acre elegans*, with its variegation of silver-gray and creamy white, is employed for paneling purposes in beds of low-growing succulents; and notwithstanding the dry weather that preceded the recent rains, and the exposed position of the terrace garden, it was most effective, keeping its color well, and growing very dense.—*Gardener's Chronicle*.

Editorial Cleanings.

IDESIA POLYCARPA.—This fine hardy plant comes from Japan, and appears to have been distributed from the Botanic Garden of St. Petersburg. It was exhibited in 1867 at the Paris Exhibition, by M. Linden, as a fruit-tree from Japan, and was afterward put into commerce under the names of *Polycarpa Maximowiezii* and *Flacourtia Japonica*. The generic name *Idesia* was given to it by Maximowiez, and is now adopted by all botanists. A figure of it published in the *Revue Horticole* (1872, 174) represents a specimen bearing only ripe fruits, sent by Maximowiez to the Paris Museum, and which was described as coming from a cultivated tree, forty feet high, growing on the island of Nippon, in the neighborhood of Mount Fusi, while other specimens, probably wild, bearing only male flowers, were from the forests of Kinossau, in the island of Kiusiu. Whether or not it is likely to become a useful fruit-bearing tree may be questioned, but there can be no doubt it is a fine ornamental plant, and thoroughly hardy. Its trunk is said to be straight and robust, its branches spreading, and its leaves caducous.—*London Garden*.

ORNAMENTING HOME.—The greenhouse, flower-beds, lawns, drives, ornamental trees and shrubs receive considerable attention, but not as much as they deserve. Remove all attempt at such things from any place and its value is decreased at once in a very large proportion. It is money well spent. There is no lesson of more importance than to teach the art of making home pleasant. This is one of the ways to keep the boys and girls on the farm and to make them satisfied with their situation.

For the want of something nice many a boy has left the country home, and made a poor lawyer or clerk, who would have made a good successful farmer.—*Prof. W. J. Beal.*

HOW TO TREAT WET BOOTS.—What an amount of discomfort wet boots entail, and how well we all recall the painful efforts we have now and then made to draw on a pair of hard-baked ones which were put by the fire over night to dry! Once on, they are a sort of modern stocks, destructive of all comfort, and entirely demoralizing to the temper. The following plan, it is said, will do away with this discomfort: When the boots are taken off, fill them quite full with dry oats. This grain has a great fondness for damp and will rapidly absorb the least vestige of it from the wet leather. As it quickly and comfortably takes up the moisture, it swells and fills the boots with a tightly fitting last, keeping its form good and drying the leather without hardening it. In the morning shake out the oats and hang them in a bag near the fire to dry, ready for the next wet night; draw on the boots, and go happily about the day's work.—*Scientific American.*

CURL IN THE PEACH.—The *Gardener's Monthly* expresses doubts as to the cause of the curl in the Peach. About twenty years ago we made microscopic examinations of Peach-leaves from the moment they were less than a twentieth the size of full-grown leaves, and delicate, and nearly transparent, until they had attained maturity, and through all these stages detected the minute fungus inside the entire epidermis, until it burst through, and, covering the outside of the leaf, produced strongly developed curl. The appearance was quite similar

in this respect to the rust in Wheat, but the minute plants less distinct. In the Wheat-straw a good microscope shows the myriad heads beneath the unbroken and glassy epidermis; in the Peach-leaf, the appearance is more obscure. Only the strongest cases of curl will exhibit this appearance fully. These observations were published at the time, and occasionally have been referred to since.—*Country Gentleman.*

THE EUCALYPTUS GLOBULUS.—*Italie*, a paper published in Rome, says that of three thousand trees of the *Eucalyptus globulus*, planted at San Sisto Vecchia by the municipal government, none are in a flourishing condition; and of all those planted along the line of the railroad between Rome and Naples, only those near Naples are living. It is almost certain, says *Italie*, *Eucalyptus globulus* will not grow in a temperature below 27 deg. Fahrenheit.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING AUGUST 31, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.	30.03 in.
do 12 M.	30.04
do 3 P. M.	30.03
do 6 P. M.	30.02
Highest point on the 5th, at 3 P. M.	30.18
Lowest point on the 24th, at 3 and 6 P. M.	29.92

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	62°
do 12 M.	65°
do 3 P. M.	64°
do 6 P. M.	59°
Highest point on the 8th, at 12 M.	74°
Lowest point on the 17th and 18th, at 6 P. M.	54°

SELF-REGISTERING THERMOMETER.

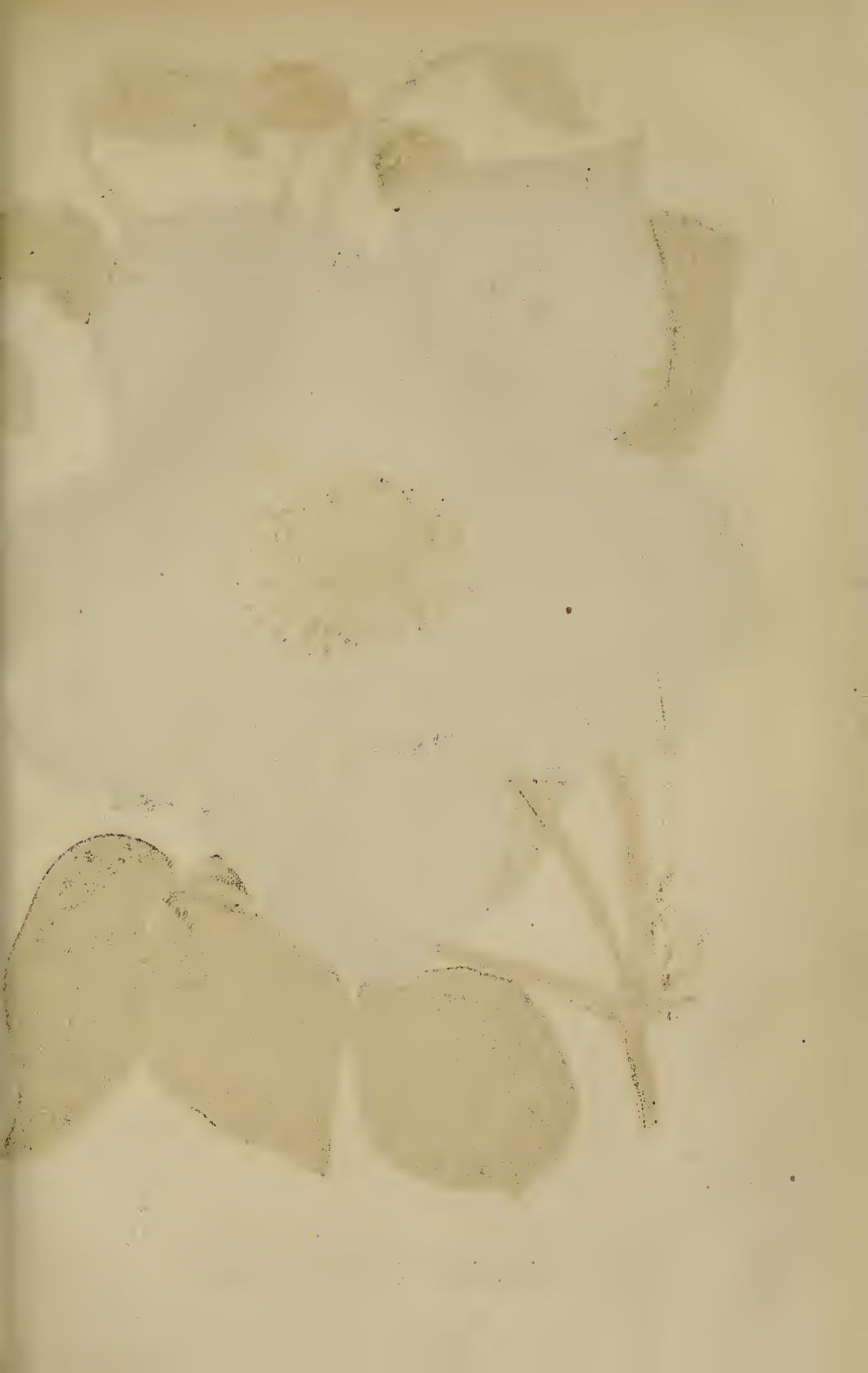
Mean height during the night.	51°
Highest point at sunrise on the 29th.	66°
Lowest point at sunrise on the 21st.	47°

WINDS.

Prevailing wind, west.

WEATHER.

Clear on 5 days; cloudy all day on 4 days; the remainder of the month, cloudy mornings, with clear weather and sea breeze in the afternoons, and foggy evenings.





CLEMATIS JACKMANII.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, OCTOBER, 1875.

No. 10.

THE CHINESE YAM, OR DIOSCOREA BATATAS—ITS CULTIVATION AND COOKERY.

BY E. J. HOOPEE.

It has been many years since this esculent was introduced into this country. When its discovery was announced, it created some excitement. To many even now it is entirely unknown. It was cultivated by some persons years ago, but it was considered almost without an exception a complete failure. One reason why it did not generally succeed, I believe, was, that its very long roots penetrated so deeply into any kind of ground that it was much of a task to dig out the tubers at their ends, and it required so deeply worked and cultivated a soil, that but very few persons made the necessary preparation of it. But still the roots would penetrate a very hard pan, which seemed to show that it was not very particular as to what kind of soil it grew in. Another cause of its want of success was, for the first one or even two years the tubers sent out were so small that people were disappointed in it and thus gave it up as a failure. But those who persevered with it for several years, found that the

tubers increased much in size each year. They will penetrate the earth two or more feet, according to the number of years they are left to grow, and will weigh several pounds. For the best results, a very deep, loose, sandy soil should be selected, but they will grow in almost any ground. Enough of the small tubers can be planted to support a family for years, each year bringing larger yams. There is nothing difficult in their culture. The tubers are simply planted an inch and a half below the surface six or eight inches apart, and in rows one and a half or two feet apart. They should be cultivated, of course, to keep the weeds down, and they may be dug any time in the year, as they are suitable for eating any time after the second year's growth. William Cruzan, a farmer in Indiana, writing to the Cincinnati *Times* concerning them, states that "everything considered, he thinks they are just what all should have growing to supply their tables when other vegetables are scarce." This to be sure will hardly apply to California, which rejoices in many vegetables all the year round, but as everything succeeds so well here, the Batatas would most likely, be extra fine in our excellent climate

and soil—at all events it would be interesting to observe the results of a good trial of it here, and it would probably produce large crops. There is, however, one objection advanced by those who have thoroughly tried it, that it has to be dug out, as the large end grows right down so deep. But some have said that they would prefer this rather laborious digging of them out a great depth, than do without them. Some who have succeeded with them, think they are equal, if not superior, to the finest Potato, either baked, steamed, or boiled, and may be put into the water cold, or boiling, just the same as a Potato, and most persons do not know the difference when cooked, if they are not told. Boiling is the most simple method. The only question seems to be, whether they will pay for growing. This may be rather expensive, on account of the very deep trenching requisite. No insect ever discovered injures them, and drought may be guarded against by irrigation, if necessary. They do not blight, and keep well. They were once advertised and sold by Wm. Prince of New York, and probably his successor has them still: at any rate it is probable that they can yet be obtained East.

THE ORIGIN OF NEW PLANTS.

BY THOMAS MEEHAN.

In any theory of evolution morphology must play an essential part. In the transformation of a leaf-blade to the various organs of a plant the change is sometimes gradual—as in the passage from leaves to bracts in some orders, or from sepals to petals, petals to stamens, or stamens to pistils in others—but the cases where the change is from one form of structure to another of very

different character are by no means rare. If it can be proved that change with gradual modification and change by the sudden appearance of a distinct form are both good morphological laws in plant life, there is no reason why both laws may not operate in any scheme in which morphology is called to act. How suddenly the parts often change is well illustrated in most coniferous plants. In the Pinus, on the first pushing of the axis from the cotyledonous condition of the plant, flat leaves are developed, often an inch or more in length. After some time these leaves are suddenly arrested, and the axillary buds as suddenly develop into fascicles, or needles, as they are popularly called. So, when the plant reaches its floral condition, the transformation of leaf and stem into the various parts which constitute a cone comes on with wonderful suddenness. The leaf which we saw so suddenly arrested in early life now becomes a bract, the *fasciculi* combine and form the scale, and the axis suddenly ceases to elongate and gives form to the whole. The one in search of missing links would be sadly puzzled here.

This sudden change of folial organs to organs of inflorescence is common. In the change of one portion of a leaf structure to another, Magnolia and Liriodendron afford an interesting example. In many plants the regular leaf-blade is metamorphosed and forms the petal; but in these, as soon as the plant reaches its flowering stage, the leaf-blade is suddenly and entirely arrested in the formation of the petals, and the stipules are as suddenly developed. The petals are in fact highly developed and transformed stipules, and all without the slightest trace of gradual modification. So, in sexual transformations the modifications are by

no means always gradual. One who had never seen Maize growing would hardly believe the tassel and ear were from one plant, yet they are formed morphologically on the same plan; and once in a while we find male flowers gradually merging into females and females to males, in the respective domain of each, but this is the great exception to the general rule. Now we come to variations from specific form, and here I find great changes with no transitional form between. I have a *Halesia*, from seed of *Halesia tetraptera*, which anyone might be pardoned for placing in a new genus. It is much farther removed from its parent than is *H. diptera*. The corolla is not drawn up into a funnel-like tube as in the original, but is cupular and barely the length of the stamens. The leaves are broadly ovate and rugose, and no one at first glance would take it for a *Halesia*. When I first saw it in the seed-bed I supposed it to be a young Apple-tree.

I have on my grounds large quantities of *Yucca filamentosa*. Hundreds of plants throw up their flower-spikes and open their first blossoms within twenty-four hours of each other. But some years ago one struck off to have a more branching panicle and to open its flowers two weeks before the others, which characters remain and are continued in the progeny. This two weeks was not gained gradually, day by day, through successive generations, but in one great leap. So with raising Peaches or other varieties of fruit. Though the progeny usually take to the general habits of the parents, there will be, once in a while, very late varieties from seeds of early ones, and very early from late kinds. In Delaware and New Jersey *Azalea viscosa* varies to a form having glaucous saliciform leaves. I have not raised these up from the seeds, but

I have seen an extreme form, with leaves looking rather like the English Woodbine than an ordinary *Azalea viscosa*, growing under ordinary circumstances, which left no doubt on my mind that it sprung without any intermediate links from the other form. *Glyptostrobilus* is another remarkable case. I exhibited branches of a tree from seed of *Taxodium distichum* and branches from an acknowledged *Glyptostrobilus pendulus*, and no one could separate them. Here is a leap at once to a new genus. Moreover, I have a *Thuja* growing, which the highest authorities insist is a *Retinospora*, but which I know was raised direct from the *Thuja occidentalis*, without any intermediate parent whatever. Some genera seem very variable. Take our common Ox-eye Daisy for instance; and then, say in *Staphyllea*, we may examine hundreds of plants without any apparent variation.

But in the variable genera it is a mistake to suppose that these variations are by gradual modifications, though one can often place them so as to appear like gradually approaching links. It is wonderful how many variations there are in the common Ox-eye Daisy. I have studied them closely for years, and find that the most divergent forms are often parent and child. I do not know anything that more exactly repeats itself than *Glycine frutescens*. Every leaf is exactly ovate, with an upward turn from the mid-rib; but in its variety known in gardens as *G. magnifica*, the leaves are regularly attenuated and reflexed, and the whole manner so different that some have supposed it a distinct species with the name as above. Not only do strikingly distinct forms come suddenly into existence, but once born they reproduce themselves from seed, and act in every way as acknowledged species. The Peach in its

general form has its branches at a very acute angle upwards. I never saw a plant with branches approaching a right angle; but some thirty years ago one came into existence with a strong angle downwards, a weeping variety, and seeds of this reproduce this form exactly in every respect. So with color. The Peach is of a uniform green — no tendency to vary its shade — but, ten years ago, a deep blood-leaved variety appeared. The deep blood-leaved Peach is also a rapid jump from the green, and reproduces the blood-leaved character from seeds. The Siberian Arbor-vitæ is another great leap from the *Thuja occidentalis*, and reproduces itself from seeds, as do all the striking forms in which this species abounds.

Indeed, I think I may close this branch of my subject by the statement that, in over a quarter of a century of experience among living plants, I have rarely known any striking form to have originated by gradual modifications, but always by one grand leap. The slight changes are generally in efforts backwards, as when we sow Purple Beech seed some few are a trifle paler than their parents. There is little of this hesitation in the forward leap. But even reversions are not always gradual. Some years ago the common Babylonian Willow sent out branches suddenly which bore singular curved leaves, just as the Nectarine is said to have suddenly sprung from the Peach. The cuttings grew and maintained the character. It is known as *Salix Babylonica annularis*. A few years ago I saw a tree, perhaps twenty-five years old, push out the regular Weeping Willow leaves. This fact in regard to the Willow suggests another great principle. Forms are not only called into existence suddenly, widely different from parents, and can reproduce themselves from seed, but they

come into existence without seed agency, and the same or similar form in widely separated localities, and not all necessarily by seed from one individual. I have had sent me from five different localities flowers of *Viola pedata*, in which the two upper petals were of the beautiful maroon characteristic of the Pansy.

Again, a whole change of character will occur suddenly in many individuals through a large extent of country. This season, in our part of the world at least, half the leaves of the Liriodendron are from five to seven lobed, when, as it is well known, the three-lobed character has been almost specific in former years. We are accustomed to say about these changes that they are "caused by climate;" but this expression proves nothing. We have in Pennsylvania a form of *Viola cucullata*, usually growing in wet places, which always causes the breast of the young botanist to thrill with the idea that he has a new species. The paler color and more delicate growth, when the plants are seen in the aggregate, are very striking. But when the plants and flowers are analyzed, no difference is found that can be described in words.

A review of the facts I have presented shows, I believe, the following truths: 1. Morphological changes in individual plants are not always by gradual modifications. 2. Variations from specific forms follow the same law. 3. Variations are often sudden, and of such decided character as to be deemed generic. 4. These sudden formations perpetuate themselves and act in all respects the same as forms which spring through gradual modifications. 5. Variations of similar character occur in widely separated locations. 6. Variations occur in communities of plants simultaneously, by causes affecting nutrition,

and perhaps by other causes. Arguing from these facts, new and widely distinct species may be suddenly evolved from pre-existing forms without the intervention of connecting links.

TACSONIA.

BY F. A. MILLER.

The Tacsonia is closely related to the Passiflora in general habit as well as in the construction of the flower. Of all the climbing plants at present under cultivation on this coast, the Tacsonias ought to rank foremost for various reasons. First of all, they seem to be hardy with us. I have cultivated them as greenhouse plants during the past year, but find that they grow entirely too rank and weak. A few months ago I gave them a place outside, and I find that this is just the position for them, and am convinced that they will do well wherever the common Passion-vine can be cultivated. The foliage is rich and elegant, and, being evergreen, makes an excellent appearance at all seasons of the year.

A number of varieties have been introduced of late, and some of them are described as producing magnificent flowers. During the past year I have cultivated five varieties principally: *T. von Volsemi*, *T. Buchanani*, *T. manicata*, *T. splendens*, and *T. floribunda*. During this summer *T. von Volsemi* has flowered finely; its large crimson flowers were admired by everyone who saw them. *T. splendens* is in bloom at the present time in the large dome at Woodward's Gardens, and its very bright crimson color is generally admired. *Tacsonia Buchanani* bears a brilliant orange-scarlet flower, and promises to do as well as those already named.

The propagation of Tacsonias has

been slow work with us, and we have barely succeeded in rooting one cutting out of twenty. Of late, however, we have undertaken to grow young plants from root-cuttings, and this method seems to be much more satisfactory. To grow plants from root-cuttings requires, of course, strong roots and a gentle bottom heat.

We have now a nice little stock of the different varieties named. There are some varieties which may prove less hardy, and which may succeed better under glass; but those named above certainly thrive luxuriantly in the open air.

FERN CULTURE.

Few things so easily obtainable as Ferns give as much general satisfaction. Their delicate green and beautiful symmetry constantly delight the eye, giving rise to new and gentle thoughts, while the opening of the Fern from its little brown frond is a never-failing source of wonder and delight. The tiny bolls uncurl so gracefully, stretching out toward the light, with an appealing gesture almost human in its influence. One has only to spend a few hours among the canyons of Oakland or Saucelito, and he will come home laden with enough of three or four of the common varieties of Fern to render his home beautiful for a year or more. Ferns should be kept in a warm, light place, out of reach of the direct rays of the sun. They require the light and warmth, but not the force of the sun. In their native homes they are shielded from his ardor by the overhanging boughs and clustering leaves of the trees. A window is very favorable to the growth and development of Ferns. In whatever position they are placed they almost invariably thrive if

the soil be kept in a uniformly moist condition—not drenched one day and neglected for three or four. The sensitive Fern can never stand such treatment as this.

Ferns, when taken from their native soil, often die down, and people throw them out, thinking them dead. But this is a mistake; the roots are still alive and will come up fresh and green again if the ground be kept moist. A white fungus often appears upon the Fern, containing a species of animalcule, which eventually destroys the leaf on which it appears. It bears a strong resemblance to white mold and is often mistaken for it. Ferns should be looked over at least once in two days and this mold removed as fast as it appears, and there will be no trouble in keeping the plants in a healthy condition. Many people have the idea that Ferns will not grow unless they are under glass. This is a wrong idea; and many who have deprived themselves of the pleasure of having the plants because of the expense of a fernery, will be pleased to know that we have successfully cultivated Ferns for the past five years, and have never yet used a pane of glass. Ferns grown under glass have an unnaturally delicate texture and a sickly color, while those grown in the open air are vigorous and hardy.

Let children cultivate house-plants, if they can not have a little garden-plot of their own. It will serve to interest them and take their minds from less innocent pleasures, at the same time making them more childlike in manner during that short period allowed for childhood in this fast age of ours. If the peculiarities of each genus are pointed out from time to time in an interesting way, new trains of thought will be opened and the mind constantly enlarged and enriched. Children, like Ferns,

require a uniform mode of treatment; they are delicate and require constant care and watchfulness; they are wayward, and need to be brought back into place by a gentle, persevering hand. A stock of patience is needed in the case of both, that they may thrive and become in the one place green and beautiful, in the other pure and high-minded. The varieties of Ferns are endless; in this country alone there are probably thirty or more, and in the Yosemite valley I counted nine varieties. I was talking with a friend who has twenty or more varieties in her own conservatory, and she told me that their name was legion. Our California Ferns are very beautiful, and so also are the French and Sandwich Island Ferns. Among the most beautiful of all varieties is the "Maiden's-hair." Several species of it grow in this country, but the beautiful branching kind is imported. After the rains this fall go to Saucelito and make your homes beautiful for the winter; it will repay you.—*S. F. Chronicle.*



"HORTICULTURE IS A WAR WITH INSECTS."

This is no figure of speech. Go into the vegetable garden; would you Asparagus?—beetles; would you Radish? maggots; early Cabbages and Cauliflowers?—green worms and lice above ground, and club-root below. Would you Cucumber?—the "flea" and striped-bug have something to say on that. If you like Peas, you must also like *Bruchus pisi*. If you would, as all reasonable people should—make your Pumpkin-pie out of Squash, your chance for the delicious Marrow, Hubbard, or Marblehead is small, if you do not pick off that solemn and odorous bug, *Coreus tristis*, so as to leave the vines in good

condition for the borer, which goes near the root of the matter, and the six or eight feet of vigorous vine that your care has preserved, goes in a night. Tomatoes and Egg-plants you grow to feed a fat fellow, as big as your finger, and so all through the catalogue, from the time the first Asparagus-shoot comes through the ground until the last Parsnip is dug. Nor is it any better in the fruit garden. You have grown your Strawberries in hills for two years, and now look for a grand crop; they were white with flowers, the fruit set finely, but you find that here and there a vine has collapsed; the next day more vines give out; you dig down, and find a fat, white grub, which likes what the Strawberry produces below ground quite as well as you do that which it bears above. The majority of the Strawberries may fail, but there are the Currants, which set so full and are already ripening. Look at your early ripened Currants, and they will be found to be still small, and have only turned red, because the borer has taken the life out of the stem. Rose-bugs will eat up the Grape-blossoms, curculios sting the Cherries and Plums, and if there are any Apples and Pears this year, it will be because there were not enough of the codling-moth and its allies to go round. Take the ornamental parts of the grounds. Upon about one-half of the shrubs there will be some kind of an aphid to curl up and partly kill the leaves. You are fond of Roses, and precious few do you get. You fight the early green fly with tobacco-water; the later slug is dosed with whale-oil or carbolic soap, and when these are in a measure vanquished, and buds of promise come, you go out one morning, and find six or eight Rose-bugs at every opening Rose, and those which can not get a chance at the opening ones are

discounting the matter by gnawing the buds. If you believe anything will trouble these fellows, just try it. As I do not expect to live anything like half a century longer, I can worry along, and take the few vegetables, fruits, and flowers these winged scourges and their larvæ leave me, but my trouble is, as this destruction increases yearly, to guess what will be the state of affairs in years to come, unless something is done to arrest this devastation. Unless united action can be had, individual effort is useless. The Apaches, who make their raids upon the borders of northern Mexico, steal judiciously, a few horses here and a few cattle there, but never break up the settlement, as that would be, so to speak, destroying the nest-egg. Our insects seem to have some such instinct, and they do not, as the grasshoppers of the West, make a clean sweep, but leave us just enough to encourage us to go on and provide food for their progeny of next year. One person can do nothing. My neighbor on one side says: "My man tells me that the worms are eating up his Cabbages." My neighbor on the other side says: "Well, I never *did* see anything like it." But neither do the first thing to kill the pest. What good does it do for me to dust, and powder, and squirt all the remedies I can hear of—and I do kill some—while on each side of me there is ample provision for next year's insects? If a State has a right to legislate against Canada thistles, have they not the same right to make laws to prevent the increase of the Squash-bug, the Rose-bug, the codling-moth, or any other controllable insect, that now takes the larger share of our vegetables and fruits, to say nothing of our flowers? I did not intend to make so long a "preach" about insects, but I am well persuaded that it is the duty of

every State to look to this matter, as one affecting its material interests, as much as vile weeds, stray animals, or horse-thieves. Missouri has set a grand example to the older States. She has a State Entomologist, a competent man, to tell the people which insects are injurious, and how they may be fought. I hope that after a proper time for this knowledge to be disseminated, she will set a still better example, and make it a penal offence for anyone to harbor and allow to multiply any preventible insect.—*American Agriculturist*.

[We in California are not so afflicted. but we should accept the foregoing as an indication of future possibilities, and as a warning to be up and doing.—Ed.]

THE COUNTRY OF ORCHIDS.

BY AMATEUR.

The number and variety of fine Orchids which have for a long time been introduced and cultivated at Woodward's Gardens, and more lately by some of our florists, especially Miller & Sievers, T. O'Connor & Co., and F. Ludemann & Co., have, no doubt, created interest in the minds of the public with regard to their character, habits, and habitat. This family is one of the largest and widest spread which our globe contains. Except in those desolate regions where winter rages almost without intermission, there is scarcely a country, isolated though it may be, which does not spontaneously produce some interesting individuals of this great family. However, whatever may be the merit of many Orchids of northern regions, it is evident that in proceeding from the north to the south, in going from the frozen to the temperate zone, and thence into the intertrop-

ical countries, the beauty, size and showiness of the species, taken altogether, increases, as does their number, with temperature of places, and especially with the intensity of the light and the atmospheric humidity.

Another phenomenon is produced as we approach the warmer portion of the globe, at some degrees north or south of the tropics, namely: thus far the Orchids, following the most general law of vegetation, implant themselves in the ground and there collect their nourishment, under some special conditions, however; but hardly have they attained the fruitful regions which a vertical sun floods with light and heat, than they quit, for the most part, their terrestrial habitations, and disdaining to creep, fix themselves on living or dead trees, and suspend themselves by lining the slits of the bark with their roots, and thus go through all the phases of their life without touching the earth, without borrowing anything from it, collecting from the air that surrounds them, from the moisture with which it is impregnated, without doubt, also, from the gases which the great work of decomposition and assimilation in the virgin forests disengages, the elements of that vegetation which is termed *epiphytal*, and which we must be careful not to confound with the *parasite* existence of certain vegetation whose roots pump up from under the bark the sap of living trees, as our Orchids demand nothing but a solid resting-place and a shelter.

In the limits where the epiphytal Orchids are met, that is, within the tropics and a little beyond them, hardly farther, however, than 30° north or south latitude, are found the warmest parts of our globe; the coasts and the low regions generally are exposed to a heat which European races can

hardly support. However, the coasts and provinces which border on it had been known and explored a long time before the more moderate parts which occupy the interior of the large continents of Asia and America, and it was along the coast at a little distance from it that the first Orchids, on which the patience of European cultivators was exercised, were gathered. It was from that that was originated and propagated the idea, in most cases erroneous, that Orchids do not prosper except under the influence of excessive temperatures.

It is undoubtedly true that some Orchids are found near the ocean and almost on its shore, and that even under the equator, whose torrid heats they endure, thanks to the excessive moisture and thick shade of some low valleys, deep and watered. Yet this is only an exception, especially in America. In Asia, where the torrid part of the continent is suddenly broken off on the south by the ocean, on the north by the highest mountains of the earth, and where climatic conditions are subject to the influence of this disposition, there are some races of Orchids, of powerful vegetation and splendid appearance, which inhabit extremely warm but extremely moist forests of the lower parts of Hindostan, of the Malayan peninsula, of Java, Sumatra, Borneo, New Guinea, the Molaccas, etc.

The Orchidaceæ are the type of the most extraordinary order in the whole range of the vegetable creation, which possesses high claims on the culturist's attention for its own intrinsic loveliness.

Orchidaceous plants are capable of reproducing themselves by seeds, and no doubt this method is constantly going on in nature; but the success of man in attempting to turn to his advantage this natural property has hitherto

been extremely slight. This is a matter of less regret, as the majority of them are readily increased by the separation of their parts. They may be considered as terrestrial or epiphytal; that is, either growing upon the ground, or attaching themselves to other vegetation, rocks, stones, etc. The latter division is by far the most numerous, and is also the most extraordinary in its organization. The different species require different treatment; some requiring much shade and moisture, some much sun and moisture, others much moisture with heat, and others again require a lower temperature, less humidity, and full exposure to the sun. All require annually for three months a low temperature and great drought; this latter is their time of rest, or winter.

CALIFORNIA SEEDLING FRUITS.

We have frequently urged our nurserymen and orchardists to plant seeds and pits with a view to originating fruit better adapted to the peculiarities of our climate. Most of our old standard varieties were originated in the Northern States of the Atlantic slope, and are consequently adapted by nature to a colder climate and different seasons. With us fruits so originated very generally lack that high delicate flavor and lively acid taste natural to them in the climate of their origin. The winter Apples of the Northern Atlantic States become with us fall Apples, and if allowed to remain on the trees a little too long lose both juice and flavor and become simply insipid and valueless. If picked a little too early they are apt to wilt and become tough and leathery, or to prematurely decay. Many of the best varieties of Peaches originated East, grow indifferently in most localities in California.

For instance, the Early and Late Crawford, except in some damp soils and a damp atmosphere, in this State ripens very irregularly, one side seeming to secure all the secretions while the other remains hard and undeveloped, and the pit frequently cracks open, impregnating the pulp with its flavor and destroying the Peach. Of course we have localities in the State where these objections to the old standard varieties do not apply, as in some of the coast and bay counties, and well up in the foothills of the Sierra Nevada, where the climate conforms more nearly to that in which they were originated; and this fact of itself confirms the position taken by us, and presents another argument in favor of originating our own varieties for general culture in the State.

While upon this subject it may not be improper to remark that in planting the seeds of pit fruits particularly it is best to obtain pits from fruit that has never been propagated by any of the modern modes of propagation, such as grafting, budding, etc. Pits from the original native fruit as found in the forest, are by experience proved to be much more likely to produce trees free from disease, than pits taken from fruit produced by the ordinary means of cultivation. Hence, in Delaware and New Jersey, and portions of Maryland, where Peaches are an important and profitable crop, the nurserymen invariably obtain the Peach-pits for stocks on which to bud improved varieties, from some of the Southern States, where budding has not been to any extent introduced, and where all the Peaches are seedlings or natural fruit. In this way they obtain more vigorous and long-lived trees, less subject to the curled leaf and other diseases. We would suggest to our nurserymen that the same practice would in all probability be at-

tended with good results here. The Peach-tree here is notably of short life, and we have but little doubt but this tendency of the tree is in consequence of departing so universally from this well-known principle in its propagation. The nurseryman who shall change this plan of raising his Peach stock from pits collected here, and imports pits from North Carolina, for instance, grown on trees that have never in their history been propagated, except in the natural way, will confer a great benefit upon the State and add largely to his own reputation as a nurseryman. We have already quite a large list of seedling fruits originated in this State, but they have been originated as a general thing more by accident than design, and more by mere orchardists than by professional nurserymen, and hence have had none of the benefits of scientific culture or designed fruit pedigree, so to speak. While this fact is not much to the credit of our professional nurserymen, it speaks well for our State as the place to originate fruit to be cultivated here. We were lately shown some seedling fruit by Robert Williamson of this city, among which is the Eureka Apple, a seedling originated by James Welty of Yolo County. It is an Apple above medium size; slightly elongated; color green; generally striped; very handsome; flavor most delicious, subacid; an annual and profuse bearer, and ripens from the 1st to the 10th of August. An excellent eating, cooking and market Apple; tree, a moderate grower, and rather upright habit. Also, a large, yellow Apple, with pink blush on the sunny side, originated by Mr. Skinner, Santa Clara County, and known in that vicinity as Skinner's Seedling, but introduced here by Robert Williamson, and named by him the Santa Clara King. This Apple grows as large as the Gloria

Mundi, and in form resembles it, but in flavor is far superior, being most excellent, slightly subacid. The tree is very peculiar—in form and habit resembling the Red Astrachan; the new shoots being very large and heavy, with large and abrupt terminal buds, very dark large green leaf, and luxuriant foliage. James W. Welty has also originated a seedling Plum, which proves to be a most valuable addition to our list of Plums. It is large, and pink-colored—shaped much like the Bradshaw, most excellent flavor, half cling where originated on the Sacramento River, but on some soils free. It is a superior Plum for shipping long distances. This Plum has been named the Welty Plum, and is so known generally in this market. The tree is very hardy, and this season withstood the April frosts and bore a heavy crop in every orchard where it has been planted and grown to bearing age, while Plums of other varieties in the same orchards were killed. This makes it the more valuable, and is itself a strong point in favor of the practice we recommend to our nurserymen. We learn from Mr. Williamson that he has in his nursery, collected from different sources, some fifteen or twenty other varieties of new fruits, all having been originated from seed on this coast, and, with one exception, in this State. He considers most, if not all of them, superior to the old standard varieties, ripening at the same time; that, as a rule, they are more hardy, more prolific, better shippers, and generally better adapted to this climate and market.

B. S. Fox, a nurseryman of Santa Clara County, has originated a large number of seedling Pears, some of which are equal to the best varieties known. A few specimens of these seedlings were exhibited a few years ago at an exhibi-

tion of the American Pomological Society, and were commended highly by some of the most distinguished pomologists in the Union. One of these seedlings has very much the size and appearance of the Winter Nelis, and is as nicely flavored as the Seckel.

Dr. J. R. Crandall, of Auburn, an amateur culturist, has a seedling which he considers one of the most valuable winter Pears grown. It is large, well-formed, fine flavored, and keeps till late in the spring. There is no doubt that we should give more attention to seedling fruits.—*Sacramento Record-Union.*

PROPER USE OF THE LANDING-NET WHEN ANGLING.

BY E. J. HOOPER.

We have already given our reasons in the *HORTICULTURIST* for admitting the subject of angling in its pages. Our excuse for this is, that this seductive sport to many, of old Isaak Walton, leads its votaries to a close and interesting relationship with nature and natural history—indeed, with Horticulture itself, in trees, shrubs, flowers, birds, insects, etc.—so much may be learned, so many hints may be taken in these inviting and instructive fields of knowledge, to aid us and to instill into our minds that enthusiasm, energy, and taste in our horticultural pursuits, while prosecuting our favorite amusement in this gentle and contemplative art of beguiling the various and beautiful fish with which nearly all descriptions of water abound in all countries. And now having relieved our minds, by endeavoring to satisfy or pacify any of our readers who may consider angling a rather incongruous subject when connected with Horticulture, we will pro-

ceed to continue to offer some practical directions for anglers, which may possibly be of service to them in following their favorite recreation. And now with respect to the manner of the use of the landing-net, which is the caption of this article. It is very surprising that so few anglers really know how to use this instrument in a sportsmanlike style. Indeed, the proper use of it seems to be hardly attainable by some, who in other respects have some pretensions to be experienced fishers, especially fly-fishers; they therefore deprecate the use of it. Often has the writer been amused while following one of these worthies in his frantic efforts to get the fish into his net—pursuing the fish now here, now there—poking it after him as he made desperate efforts to get away, but never once holding the rod up or attempting by it to guide the fish to the net; at one time pulling him away with the rod and line, then thrusting the net after him, for no other purpose apparently, than to make the fish still more crazy; till at last he has cast it away altogether, and resorted to the juvenile method of hauling up the fish, line in hand, and lifting him by it, or attempting to do so, when snap goes the snooding, and the fish takes himself off, to the said worthy's no small chagrin and mortification. Then follows such a lesson on the uselessness of the landing-net that I have almost sometimes questioned the party's sanity. Even some of our best authorities in the works on angling seem not to have known how properly to net a fish, as some of these call that most useful instrument, a landing-net, an "inconvenient convenience," and recommend more earnestly the gaff. They, like all others who can not use it properly, are greatly to be pitied; for they lose much of the pleasure derived from fine single-gut fly-fishing; at least

we in our fine American waters would fare but badly without it. Rather walk with your fish than give him line, for you lose command of him by so doing; and always after you have hooked one keep your line tight, until you have jockeyed him into the net.

In order to describe the proper use of the landing-net we will suppose that you have hooked a fish while standing very near or in the water. First, then, run the shaft of your landing-net forward until you are holding it in your left hand in the same way as you hold your rod in the right, and at the same distance from the butt-end, keeping the net-head just in the water before you. Do not poke it at the fish to set him away, but keep it there while you draw up your fish with your rod and line (having first wound the latter up to the proper length), and pull him steadily toward the net, and, as soon as he is over it, raise it out of the water, with him in it; run your left hand up the shaft so that you can reach the fish with your right, put your rod under your right arm, take the shaft of your net under your left arm; pass the fish to your left hand, holding him around the shoulders with your thumb in his gills; take the shank of your fly-hook close to the bend between your finger and thumb-nail, getting the nail into the bend, which will save your fly from injury, and so pull it out; hold your net in your right hand, while you basket your fish; resume the net with your left hand and your rod with the right; let go the fly, round with your rod, making a full sweep or two, and so to work again. Always contrive to pull your fish down or across the water to land him, either by your net or otherwise. When a good fish can be landed in this style it is one of the neatest feats of the craft, and at once stamps

the practitioner as an accomplished artist.

SUMMER TONES.

BY HENRY GILMAN.

The bluebird from the drooping Ash
Echoes the runnel's silvery splash,
And, robed in azure of the sky
Makes heaven and earth a unity.
In meadows by the river brink
Flutes the agile bobolink;
And, hid by green leaves, under--over--
The golden-throated vireos hover.
From out the misty distance roll
The trumpets of the oriole;
And, ceasing, gentle murmurs come--
The insect's faint, melodious hum,
The crooning bees, half drowned in balm,
In clovered meadows long and calm;
And, fine and shrill, from sandy banks,
The cricket's cheery note of thanks.

At the Elm-tree's foot there lingers,
Pale as spring's own pearly fingers,
The slender Windflower, like a fairy--
Rightly named, so light and airy;--
And rises without speck or flaw,
The Ivy-leaved Hepatica.
All unconscious of its grace,
The Violet hides its modest face,
While, above, the Columbine
And the lithe Clematis twine.

Far beyond the Laurel-bushes,
Guarded by the spear-like rushes,
Flames the Marigold, a light
That even seems a torch at night.
There the lands lie low and meery,
Haunted by the clear-voiced veery;--
There, bewitched, I stand and listen,
While the diamond sun-dews glisten.

Deeper in the forest, where
Silence fills the pulseless air,
And withered leaves, last year's farewell,
So thickly strew the ferny dell,
The Lily, child of promise, dwells,
As pure as heaven's own Asphodels.

This is pleasure! This is grace!
From pain and care a glad release.
Is it a mist that doth arise?
Or are they tears that dim my eyes,
Or is this half a Paradise?

BUY SMALL TREES.

The average American is in a great hurry to realize on his investments. If he orders a few garden seeds in January, he is anxious to have them set immediately; and if he forwards six cents for a copy of some paper which contains a story of which he has read or heard, he does not forget to request the publisher to send it "by return mail." Patience which takes the form of quiet waiting is a virtue of which he seems to be wholly ignorant. He can not wait the progress of events, but must constantly hurry and fret in order to make nature move a little faster than her wonted pace.

This tendency crops out very plainly when he purchases trees. He finds them described in the catalogue as "second-class," "medium," "first-class," and "extra." The difference in these classes is principally, if not wholly, in the size and height of the trees. The larger the tree the higher the price. But the farmer "don't care anything about that." He wants good trees or none; and gives his orders for those of extra size, and which are four and five years old. In doing this he thinks he is acting wisely, but the nurseryman knows better, and the farmer will find before long that with equal care, the small trees will grow faster and (if fruit-trees) come into bearing condition sooner than the larger ones.

In half a dozen years the tree that was small when planted will be larger and finer than the other. The reason for this is obvious. The larger the tree the larger the roots which it has, and the larger the roots the less fibres there will be upon them. A tree that has plenty of fibrous roots will grow readily if proper care is used in transplanting; but no amount of skill can

coax a tree to live and flourish which is destitute of these little fibres. The roots of large trees are all more or less mutilated in the process of taking up, while the small trees sustain little injury from this source. Dealers in trees assert that experienced men buy small, thrifty trees, while those who are just starting are anxious for the largest ones to be had. Those who are to set trees the coming season will do well to learn from the experience of those who, at considerable loss to themselves, have demonstrated that small trees are the ones to buy.

JAPANESE PAPER.

At the great Vienna Exhibition a complete collection of articles of wonderful variety, and all made of paper, attracted much attention in the Japanese section. The process of manufacture was a secret at the time, and the public were at a loss to comprehend how pocket handkerchiefs, napkins, dresses, ornaments, umbrellas, etc., could be made so strong and durable from so frail a material. A member of the Society of Orientalists, M. Zappe, has at length penetrated the mystery, and published the process by which this paper is obtained. The substance employed is the bark of *Broussonetia papyrifera*, a sort of Mulberry-tree, which is also used by the inhabitants of the islands of the Pacific for a sort of cloth, the manufacture of which, however, differs completely from that employed by the Japanese for their paper.

The rearing of this tree is extremely easy; its roots are cut up into pieces three inches in length, which are stuck into the ground, where they strike with astonishing rapidity. Within the first year their offshoots attain the length of

nine inches, and thrice that within the second. The stem also grows fast and reaches the height of thirteen feet in the course of three years; and if care has been taken to prune it properly, the plant has the appearance of a vigorous shrub. At the beginning of winter the branches are lopped off and cut into bits two inches long, then boiled until the bark strips off easily. The latter is then laid out to dry in the air for two or three days, and afterward exposed for twenty-four hours to the action of a running stream, and ultimately carded, whereby two kinds of fibre are separated from each other, viz.: the outer ones, called *sarakawa*, which are coarse and serve to make paper of inferior quality, and the inner ones, called *sosori*, for first-rate sorts. These latter are rolled up into bales weighing thirty-five pounds each, which are again exposed to running water, then, dried, and lastly, boiled in large kettles. After rinsing again in cold water, these fibres are now crushed and pounded in wooden mortars for about twenty minutes, made up into balls, and reduced to pulp, mixing therewith a small quantity of a liquid extracted from *Hibiscus manihot*, and some rice-water, to preserve it from the ravages of insects. The pulp is then made into paper in the usual way, or drawn into threads to be woven with silk.

ABOUT BUGS.

Mrs. I. H. Williams, a successful florist, furnished a paper for the recent meeting of the Wisconsin Horticultural Society, of which the following is the main portion:

"The aphid or green fly is so well known to all plant-growers that it scarcely needs a description, and is the

easiest to dispose of in the greenhouse by smoking with dampened tobacco stems, then syringing. This knocks the stifled bugs down into the earth, where their wings become covered with it, and they, being unable to remove it, soon die. Plants in the house may be washed with warm suds and rinsed off with clear tepid water, and then remove the surface of the soil where they will fall. Garden plants may be syringed with tobacco tea, made by pouring hot water on tobacco stems. A decoction made from quassia chips is also recommended as a wash. Encourage the lady-bug and toad in the garden. They are untiring, ever vigilant, and valuable assistants in destroying these insect foes. The red spider is the most insidious and annoying of all insects; its appearance is sudden, and it is difficult, on account of its minuteness, to be noticed until much mischief has been done. They appear to be brought into life by a dry hot temperature, and, when they have taken possession, are a difficult claimant to remove. A cold moist temperature is death to them, and this can be obtained by repeated dippings and showerings. The instinct of self-preservation seems strong in all the insect tribe, taking refuge, as most of them do, on the under side of the leaves. Oftentimes the red spiders can not be seen without the aid of a glass, but their presence soon speaks for itself by the turning brown and curling up of the leaves. A wash composed of two ounces of soft soap to a gallon of quite hot water; into this dip the infested plants, let them drip, and return to the wash again; then wash off with clear water.

The mealy-bug is the most repulsive-looking of all insects. When viewed through a microscope it resembles a tiny poodle-dog, pinkish-white in color,

oval in form, unpleasant to kill, and a very troublesome intruder. It is found on hard wooded plants such as the Fuchsia, Ivy, Geranium, *Hoya carnosa* or Wax-plant, and even taking possession of the most prickly of Cactuses. Smoking, freezing, or drowning harms them not. The only remedy is a strong suds of whale-oil soap, applied with a small paint-brush.

The scale-bug is a small, oval, brown-backed insect, with thick shell, clinging so closely to the stalk or leaf that it seems to be part of the plant. They must cling by suction, for I have never been able to discover any visible means of locomotion, or ever seen them move, as one may other insects. They must be rubbed off with the hand, then washed with strong suds of whale-oil soap. They are found on Abutilons, Ivies, Oranges, Lemons, and sometimes on Roses. Plants thus affected should in the summer be planted in the ground, and let the busy little ants do the work of cleansing for you, and right well will they do it.

The thrip is a small white fly, usually found on the under side of the leaves. The least touch of the plant will cause them to rise and fly. They are generally found where plants are grown too much crowded or in badly ventilated places. Tobacco smoke will dislodge them, or where there are but few plants sprinkle and wash often. They will be found on Bouvardias, Salvias, Lantanas, and Roses. Plants so affected will have on the under side of the leaf a tiny white speck. This is the egg or germ which produces the insect, so be sure and remove it.

The Rose-slug is a small light-green worm which makes its appearance about the first of June, to greet our lovely June Roses. They, like the rest, shelter themselves under the leaves; they

come like a vast army in battle array, ready to defy us. They make sad havoc, not only with foliage, but even destroy the buds, so that some years it seems impossible to preserve this queen of flowers from their ravages, and many in despair reluctantly give up the culture of the Rose. I have tried the following, and know it is valuable, destroying the slugs without injury to the plants: One-fourth pound of white hellebore and one-half pint soft soap to a pailful of water. Early in the morning use wash with a garden syringe, as with that one can reach the under side of the leaf. In August, if any were allowed to escape in June, they will return again; watch closely and at once apply the remedy.

PRUNING APPLE-TREES.

I was 'brought up' to trim Apple-trees in the spring, no matter what the size, shape or condition of the tree, it being taken for granted that pruning is necessary. Aside from the vague and general idea that the tree would 'do better' for being trimmed, I could find no reason for doing it. But the experience and observation of years have led me to some definite conclusions. And among them are the following:

1. That pruning should be begun when the tree is small. Any shoots which start out too near the ground, with superfluous twigs, should be removed the first season of their growth. It is worse than useless to allow branches to grow year after year which must eventually be cut off. It takes the life and strength of the tree to grow them, and injures it when they are cut off. Very often when branches two or three inches in diameter are removed, the stump will bleed and the tree will re-

ceive a wound from which it never recovers. The better way is to remove all twigs which are not wanted when they are small and can be cut off with a common knife.

2. All branches which start out too near the ground will, if not removed, remain just as near the ground as their first starting-place. I suppose it is the general impression that a tree grows in all directions, and that a branch which is three feet from the ground when the tree is only four or five years old will be six or eight feet high when the tree is fully grown. But this a great mistake. A tree which branches low when small, will always branch low unless the lower shoots are removed.

3. When the desired shape of a tree is obtained, there is no need of pruning except to remove sprouts and dead limbs. These should always be cut off, either in the winter or early spring; but the common practice of cutting and slashing is an injury to the tree. The renovation of old orchards by cutting off the tops and most of the branches is a make-shift job at the best. It is a better way to set young trees before the old ones fail. They can be pruned in almost any form desired, and will make not only a handsome, but also a productive and permanent orchard.—

Exchange.

FENCE OF LOMBARDY POPLAR.—According to the *Petaluma Argus*, J. M. Palmer is trying to make a live fence of Lombardy Poplar on his ranch near Donahue. Last March he planted 3,000 cuttings along the line of one of his fields, placing them two feet apart. Nearly all have thrived, and are now from five to seven feet high. Mr. Palmer believes they will make a good fence.

A BLACKBERRY RANCH.

Perhaps but few, when they partake of their dainty dessert of Blackberries and cream and smack their lips over the luscious fruit of the *Rubus villosus*, the purple juice meanwhile trickling down and painting the faces of the surrounding little ones like the Babes in the Wood, when

“The robin so red
When she saw them lie dead,
Brought strawberry leaves
And over them spread,”

have any idea of their production other than the pastoral recollection of boyhood's days, of nimble lads and lassies, and shady groves, and torn clothes, and ringing voices that last along down the memory of time, the sweetest and tenderest of all. How would these reminiscences be dispelled by a visit to the modern Blackberry fields that supply the great markets of the world! Instead of the shady nooks and scattering bushes, here are broad fields and solid acres planted with the regularity of a Corn-field, where, in place of the laughing children fitting butterfly-like from bush to bush, are solid platoons of Chinamen moving as solemnly as the march of fate on the overladen bushes; and for the happy return scene of barefoot trippings, and cozy baskets, and privileged walkings by the girl you love, are only dingy freight-trains and ponderous engines, that whistle and roar and groan under the burden of their tons of freight. The great Blackberry ranch of this part of the country, and we believe the chief of all that supply San Francisco with its tons daily during the season, is that of J. & W. Trubody, at Trubody's Station on the line of the Napa Valley railroad, seven miles above Napa and about one and a half from

Oak Knoll. Here the present owners commenced about ten years ago, and now have one of the largest, if not the largest, Blackberry fields in the State. They have now twelve acres in full bearing, and three acres more put out last year that will bear another season. The vines are planted eight feet apart, which would give about 700 to the acre, or say a total of 10,500 on the fifteen acres. They are staked and trained up about six feet high.

The varieties are principally Lawton, which is the most highly esteemed of all, being the largest, firmest, best flavored and most marketable; also Early Wilson, Missouri Mammoth, and Dorchester. The vines bear the second year; and they last, it is hardly known how long, but Mr. Trubody thinks that they should be renewed about once in ten years. They have vines twelve years old that are hale and vigorous as ever. The average yield of an acre in full bearing is four tons to the season. The ground required is a rich deposit, or made land. There is no irrigation used by the Messrs. T., their berries being sweeter and better without. The effect of irrigation is to enlarge and harden the white heart inside the berry, until it becomes so hard that the pulpy exterior will slip off in eating; also to reduce the percentage of sugar some 20 or 25 per cent. Ordinary dry-raised Blackberries have from five to six per cent of sugar; irrigated ones only four to five. It is possible that in drier ground they would have to be irrigated, but in the Messrs. Trubody's ranch the water is only three to four feet below the surface, except in the dry season.

The pickers are Chinamen, for the double reason of greater expedition for the work to be performed and such cheapness as is required in the low

price at which the berries are sent to market. The number employed varies from six to forty-five, according to the stages of the season, averaging over forty for about three weeks. The season lasts about two months, and the expense of picking, shipping, commission, etc., averages \$100 per day for three weeks of the busiest time, tapering off at each end of the season, when less help is used. The Chinamen work very slowly and leisurely at it, picking about eighty pounds a day per man, or sixteen of the little five-pound drawers. They each have a little frame called a "shade" (the invention of A. Trubody), in which the drawer is carried while picking, which is principally for the purpose of keeping the sun off the berries, when picked, and also keeps leaves, etc., from falling in off the bushes. If the sun be allowed to shine long on picked berries, it turns them of a reddish color and impairs their flavor, thereby, of course, injuring them for market, though we believe they regain their color in cooking. The greatest quantity picked any one day was 4,300 pounds last year for Mr. Groezinger to make wine of.

The total this year is 23 tons up to last Saturday. The season began this year June 24th, and is consequently a little more than half advanced. The vines are picked eight times each season. The men work twelve hours a day, commencing about six in the morning and working to near seven at night—a good long time, certainly, but then they take it very leisurely. The berries as fast as picked are brought in the little drawers and deposited on racks in a kind of store-house, where they have every facility for coolness and ventilation, awaiting shipment. The drawers are in turn put into chests holding twelve and twenty each, and shipped

twice a day by morning and evening train to San Francisco and other points. About three-fourths of the crop is usually sold at the Bay City. As may be imagined, it takes a large number of chests and drawers to keep up the transportation. There are 40 twelve-drawer chests and 141 twenty-drawer chests, aggregating 2,900 drawers; and as it takes a double set of the latter to keep them going, the Trubodys have on hand all the time a stock of 5,800 drawers.

The price of berries varies from $4\frac{1}{2}$ to seven cents, and not averaging more than five, or \$100 a ton, so that the produce of a year is worth from \$4,000 to \$5,000. The price this year averages two cents better than last. These gentlemen have besides the Blackberries a ranch of some 600 acres, 500 of which are under cultivation to other products. We should have stated earlier in the article that the picking ceases at eight o'clock each Saturday, or as soon as the morning train passes, because all picked after that time would reach the city too late for a market before Monday morning, when they would be spoiled. The Messrs. Trubody receive friends and visitors with the greatest kindness, and none go away with empty stomachs. We would acknowledge with thanks a courteous reception and most hospitable entertainment, as well as cheerful assistance in giving all desired information.—*S. F. Chronicle.*

APPLES OF SODOM.

In "Murray's Hand-book for Syria and Palestine" we find the following most interesting description of the "Apples of Sodom," a figure frequently introduced into descriptive writing:

"On the plain of Engedi the traveler will be able to illustrate for himself a

remarkable passage of Josephus relative to the fruit called the Apples of Sodom. After speaking of the conflagration of the plain and the remaining marks of the fire from heaven, he adds:

“There are still to be seen ashes reproduced in fruits, which resemble eatable fruits in color, but on being plucked by the hands are dissolved into smoke and ashes.”—(B. J., iv: 8, 4). Here beside the rivulet a tree still grows with a singular kind of fruit. Its Arab name is *osher*, and the botanists call it *Asclepias gigantea*. The stem is six or eight inches in diameter, and the height of the tree is from ten to fifteen feet. It has a grayish cork-like bark, and long, oval leaves, which, when broken off, discharge a milky fluid. The fruit resembles a large, smooth Apple, hanging in clusters of two or three, and has a fresh, blooming appearance; when ripe it is of a rich yellow color, sufficiently tempting to the thirsty traveler. But on being struck or pressed it explodes like a puff-ball, leaving nothing in the hand except the shreds of the rind and a few dry fibres. It is chiefly filled with air. In the centre a slender pod runs through it from the stem, and this is connected by delicate filaments with the rind. The pod contains a small quantity of fine silk with seeds. The Arabs collect the silk and twist it into matches for their guns, preferring it to the common match because it burns freely and without sulphur.

A CHANCE FOR MEN OF SMALL MEANS.

It is generally conceded that to make a success of Orange-growing a man must have capital. Land that is suitable for their culture and that is well supplied with water can not be bought for less than one hundred dollars per acre, and

often costs more. The trees cost from one to three dollars each, according to size, and to prepare the ground and plant out is an expensive job. When all this is done, the trees must have constant attention and careful cultivation for eight or ten years, before they will return much of an income. It is therefore plain that a man who desires an Orange-orchard, especially if he is anxious to get it as soon as possible, must be prepared to lay out a good deal of money at once, and to continue laying it out for a number of years. This being the case, the poor man may as well at once dismiss from his mind the illusion that he can come to southern California, and in a few years possess an Orange-orchard of fabulous value, unless there is some way in which he can make his living and make his orchard as he goes along. We believe there is a way for the industrious man of small means.

There are men within five miles of this city at the present time, struggling under a load of debt, and trying to hold on to their Orange-orchards till they come into bearing, who yet do not seem to know that in the cultivation of small fruits and vegetables is their chance for salvation. They borrow money at high rates of interest, and potter around waiting for their trees to produce, and at the same time buy their vegetables, or do without.

It seems to us that a man with a few hundred dollars, and a little industry, can certainly make money in a small way, but a sure one, by undertaking the culture of small fruits and vegetables. If he is ambitious of possessing an Orange-orchard, he can grow one in the meantime. With a few acres of land suitable for vegetables, he can, with hardly any additional expense, raise his own trees, plant them out and care for them, and when they have come to ma-

turity, bringing in a good round income, he will have the satisfaction of knowing that they are the reward of his own industry, with no mortgage on them for capital invested that was not his own.

In this way, men of energy, with a few hundred dollars for a beginning, can make a good living and secure a home surrounded by all the associations that cling to a home made by one's own hands.—*Semi-Tropical Farmer*.

FIGS.

The production of Figs is destined to become an important business in California, as the climate is very favorable both to the growth and drying of the fruit; and some of our orchardists have acquired the skill of drying Figs so well that we prefer their flavor to that of the best brought from Smyrna, though they are inferior in appearance. Many of the orchardists, however, do not succeed so well, and their dried Figs are hard, dry, dusty, and unpalatable. The *Sacramento Record* gives the following instructions for drying:

“Most people suppose that there is some great secret in preserving Figs, and that great skill is required in their manipulation. To a certain extent this supposition is true, and yet when this secret is known and the skill acquired, preserving Figs becomes as simple and easy as drying Apples, Peaches, or any other fruit. In the first place the Fig must be thoroughly ripe before picking to dry. It need not be actually shriveled or wilted, but if left on the tree till this stage, does no harm. In picking care must be taken not to jam or mash the fruit, as this would induce decay and mold before the juices or water can be evaporated. As soon as picked the

Figs should be dipped in a weak lye made of wood-ashes, and then carefully spread out on a scaffold so that the specimens will not touch each other too much, for if one lies upon the other, evaporation is to a certain extent retarded. The scaffold should be near the ground and in a well-exposed place so that the rays of the sun will fall directly upon the fruit. A dark heavy paper laid on the boards to lay the Figs on will be a good thing, as it will act as an absorbent of the moisture that sometimes oozes out. If the fruit can be covered nightly it will facilitate the drying and add to the quality of the preserved fruit, but this is not a necessity. They should be carefully turned over as often as every other day, for a few days, or until they are thoroughly wilted.

They may then be packed more closely together, or even piled three or four deep, but should be moved or turned over every other day, so that the drying may be uniform. When the water of the fruit is well evaporated and the juices seem pretty thick, but before the fruit begins to seem hard, they should be gathered up, placed in a perforated dish, and dipped in boiling water, say for half a minute. This will soften the skins and bring the sugar of the fruit to the surface, as on the foreign fruit, and will at the same time kill all the insect eggs that may have been deposited during the drying process. They should again be exposed to the sun until the water in which they were dipped is fully evaporated, and then they are ready for packing. In packing, boxes or vessels from which all insects may be excluded should be used. Lay the fruit carefully down in layers and press compactly together, and set away in a dry place. In about two months' time the necessary change will have tak-

en place, and the fruit will have the flavor and appearance of the best imported varieties, and will be ready for the market. People generally make the mistake of drying the Fig too much before removing from the scaffold, and then neglect to pack sufficiently close, and the result is simply a dried but not preserved Fig. The imported Fig is generally said to be the White Smyrna, but we have no white Fig in this State that will produce as good a preserved Fig as the large black California Fig. This variety is richer in sugar than any light variety we have ever seen here, and is better for preserving, and a better bearer."

ABOUT WILLOWS AND WILLOW WARE.

How many kinds of Osier are grown for various kinds of basket-work? Do parties who grow the Willow usually do the manufacturing? How much capital is required to run a regular manufactory, apart from growing the Willow? Are there any extensive manufacturers of Willow-ware in the West? Can you refer me to any book or paper that treats of this industry at length?—N. J. H., *Des Moines, Iowa*.

Salix viminalis is the variety most cultivated and most generally used in the manufacture of Willow-ware. Its straight, long slender branches are especially adapted for this purpose. *Salix fragilis* is sometimes cultivated for basket-work, but not extensively, and we think rarely in this country. We have known *Salix Babylonica* (Weeping Willow) to be used for this purpose, but it is not as valuable in this respect as *Salix viminalis*. Germans in the neighborhood of large cities grow and manufacture Willow into Willow-ware on a small scale individually. What capital is required to run a regular manufac-

tory we can not say—it must, of course, depend upon the extent of the business and the character of the ware manufactured. We know that Willow-ware is manufactured in the West, but nothing of the extent of its manufacture, nor by whom. We have no knowledge of any work that will aid our correspondent.—*Exchange*.

TROPICAL PLANTS FOR ORNAMENTAL PURPOSES, ETC.

Among the great variety, I would mention some of the Palm family, and first, the *Corypha Australis*, or in common parlance, the Australian Cabbage Palm; the *Cycas revoluta*, or Sago Palm; the foliage is most graceful. *Isaboea spectabilis* produces a sweet syrup called Palm-honey, used for domestic purposes. The nuts are used by confectioners, and by the boys as marbles. The leaves are employed for thatching roofs, etc., while the trunk, which is hollow and very hard, is converted into an excellent water-pipe for the purposes of irrigation, etc.

But the most available tree for ornament and use, with which I am familiar, is the celebrated Bahia or Naval Orange, the king of Oranges, without pulp or seeds, smooth and thin-skinned, the flavor most delicious. And last, but not least, is the *Passiflora* or *Grandedellis*, and the Garabalda and Chinese Peach, the former of which is not only graceful as an ornament but produces abundance of fruit every month in the year—in this respect like the Naval Orange. The smaller variety is the best fruiter, and resembles Strawberries and cream. It also forms a delightful shade for balconies, verandas, or out-houses, etc., being one of the greatest runners, and will make its way over the housetop, if allowed so to do.—*Los Angeles Herald*.

Editorial Portfolio.

CALIFORNIA STRAWBERRIES.

We are now reaching the end of the season for this, one of the most delicious of all fruits. Yet we can hardly speak of its final non-production for the year here, when some can be had very nearly every month in our genial and mild climate. But still the quantity varies according to circumstances at different times of the year, the greatest quantity being obtained from about May to August.

The first that appears in market is the sort called Longworth's Prolific, originated by one of the tenants of that great patron of Horticulture, near Cincinnati. It is immensely productive, thirty to forty well-ripened berries being sometimes seen on one truss. It suits the climate of California better than Wilson's Albany, the latter being more hardy for the Eastern States, and at the same time very productive. The Longworth Prolific lasts longer here than any other kind we cultivate. It is irregular in its form, but of rich color, and of second-rate flavor as compared with some others.

The next sort that follows the Prolific is the Jucunda. It is very large, bright scarlet, flesh rosy, and does well in rather compact deep clayish or adobe loams, but requires high culture. Then follows the British Queen. This is large, productive, rich, juicy, sweet, and of excellent flavor; requires a deep rich soil. The American Girl, which follows in rotation, is of a good size, light red, round, very juicy, and not very good for carriage, being delicate in texture.

Hovey's Seedling is the next. It is an old seedling originated in 1834; of very large size when in suitable soil;

form roundish ovate, a little conical, with a short neck, never cockscomb-shaped in the largest berries; color, dark rich shining red; flesh firm and scarlet, nearly solid, abounding with a most agreeable acid, and exceedingly delicious.

The British Strawberries suit the climate of California better than they do the East, because the climate of Britain is more moderate than the eastern. The famous Keen's Seedling of England was raised from the Hovey's Seedling. The Victoria comes next with us, a very large, handsome, rich berry. And lastly the Black Prince, very fine, of round form, and deep red color.

The cause of there being such an unusually large supply of Strawberries in market at this time, is, that the parties who have raised them at San José and Santa Clara, have paid extra attention to keeping up their plants by irrigation, good cultivation, etc. Their success will no doubt induce other culturists of the Strawberry to pay especial care to their plants, next year, for the same purpose. The sort so successfully cultivated and now so plentiful in our markets, is Hovey's Seedling. It is of good size, though perhaps of not so fine a flavor as it always possesses when it has had the benefit of the natural watering from the rains.



WHITE WATER LILIES (*Nymphaea odorata*).

Nothing surely can exceed the simple elegance, the unpretending grandeur of these beautiful aquatics. They are the lovely naiads of our eastern streams, ponds, and lakes. There are many varieties of them, native and exotic. All should be planted in tubs of loam, leaving five or six inches for the water, which should be changed before it

becomes foul. About three months since we received from J. E. S. Crandall, Rockville, R. I., six bulbs of the species named above. We planted them as directed, and they are doing well, and will we hope soon bloom in abundance. Mr. Crandall has had orders for these bulbs from several of our florists here. They have arrived in good condition, and are growing in tubs and tanks, and it is hoped they will shortly be in bloom to delight the eyes of florists, as well as of the public at large.

But the locations where the *Nymphaea odorata* grow and show their flowers in the greatest perfection, are in warm and sheltered places similar to San Rafael, and other inland towns. In some ponds in or near San Rafael they are flourishing finely. They have not been found as yet to thrive so well in our too cool and windy city of San Francisco—but it is probable that it is on account of this comparatively cold climate that they have made much slower growth than in the interior of the State.

FRONTISPIECE.

Our present number is, as our readers will no doubt readily admit, brilliantly and handsomely embellished by the richly colored and choice specimen of the genus *Clematis* (natural order *Ranunculaceæ*). This variety is called *Clematis Jackmanii*. The discovery of Sieboldt added several species to this family, remarkable for its gracefulness, delicious fragrance, and poetical associations. The whole of them are quite hardy, preferring to grow in strong rich soil, and are highly useful for covering walls, arbors, shaded walks, etc., which they do speedily when once established. Propagation is effected by laying the young shoots in summer, or by root-grafting in spring; the latter

method is only employed with the scarcer kinds. The following are among a selection of some suited to the garden: *flamula*, white; *grandiflora*, blue; *florida pleno*, white; *Simsii*, purple; *Sieboldii*, blue and white; and the beauty before us, of the most vivid purple, and very large.

FRUITS EXHIBITED AT THE FAIR.

The display of Grapes from George West—of many kinds, but chiefly for wine of the best quality—was very fine. They were from his large “El Pinal Vineyard,” near Stockton. We noticed especially a very choice kind, the Corinth or Seedless Grape, and the Laga or One-seeded Grape; also, the famous Scharass, for raisins. These Grapes from this Stockton nursery and vineyard formed a choice and superior collection, remarkable for the large size of the bunches, showing careful growth.

The collection of Dr. J. Strentzel, from the “Alhambra Gardens” at Martinez, was gorgeous and brilliant, exhibiting the complete science of cultivation for which the doctor is remarkable. A grand cluster of twelve and a half pounds weight was the largest and best ever yet shown. The Peaches, Apples, Oranges, Lemons, Limes, and Pomegranates were superb specimens. The Grapes were chiefly the best kinds suitable for the table.

The table of H. W. Crabbe, of Oakville, Napa County, truly showed what the rich and beautiful valley of Napa was capable of producing, although the bunches were not generally quite so large as in the two collections noticed above. But this collection embraced a larger variety than in the two spoken of, having eighty-six dishes of grapes, more than half of which comprised different species, with some large suspend-

ed clusters; seven dishes of extra-fine Peaches, and one of Apricots, with two extremely gigantic samples of Duchess and Vicar of Wakefield Pears. Among the Grapes was a collection of American Grapes, now becoming numerous in their new seedlings.

T. O'Connor & Co. presented imported Seedless Oranges, and other tropical fruits.

The miscellaneous show of Grapes and fruits from the beautiful and extensive estate of "Oak Knoll," the property of R. B. Woodward, was very good, comprising some superior specimens.

J. S. Campbell, of Solano County, exhibited large and good specimens of the Mission Grape.

The great Santa Barbara Vine, of the old Mission variety, twelve feet high to the branches, and more than four feet in circumference, is now being put up in the garden at the Fair, with all its wide-spreading branches complete; to be taken afterward to the Centennial Exposition at Philadelphia.

CATALOGUES RECEIVED.

From John Saul, nurseryman, seed-grower, florist and importer, Washington, D. C., "Descriptive Catalogue No. 7, of Hyacinths, Tulips, Crocus, Narcissus, and other Bulbous Flower Roots," with a choice selection of winter-blooming plants for autumn, 1875. Mr. Saul has imported direct, in large quantities, over twenty years from the most celebrated growers in Holland, and his bulbs may be depended upon as the best of their respective kinds.

From A. Bryant, Junior, proprietor, his wholesale price-list of his nurseries, Princeton, Ill., for fall of 1875, and catalogue for 1875 and spring of 1876,

unless a new list is issued. This nursery was established in 1845.

Also received, with thanks (with kind compliments of Col. Jas. W. Abert), "Contributions from the Laboratory of the School of Mines, by Chas. P. Williams, Ph. D., Director and Professor of Analytical Chemistry and Metallurgy."

Also, from Col. James W. Abert, "University of Missouri, School of Mines and Metallurgy, Rolla, Phelps County, Missouri. Announcement and Register for year ending June 17th, 1875."

We acknowledge with thanks the receipt of a pamphlet entitled "The Relation of the Patent Laws to American Agriculture, Arts and Industries," being the annual address before the New York Society of Practical Engineers, delivered September 7th, 1875, by the President, James A. Whitney.

EXCHANGE TABLE.

The Semi-Tropical, the first number of a monthly journal devoted to Agriculture, Horticulture, and Immigration, edited by Harrison Reed, and published at Jacksonville, Florida. It is got up very handsomely as to printing, paper, etc. The articles are interesting, useful, well written, and of varied character, and the work gives promise of utility, amusement, and value, upon the subjects and points of which it treats.

A NEW SEEDLING GERANIUM. — From an amateur grower in Oakland we have received a sample of a new seedling Geranium, which appears to us worthy of propagation. The plant is a natural hybrid from the Lady Washington and so-called Sandwich Island Geranium,

the last-named being a creeping variety. The flowers of the new plant are of medium size, of a delicious rosy pink shading off at the centre nearly white, and delicately penciled with purple. It is a free bloomer. The leaves and stems exhale a very pleasant spicy odor, becoming more powerful on pressure. In habit the plant is prostrate, like the Sandwich Island parent; some of the branches are five feet long. This habit will doubtless suggest a variety of uses to experienced cultivators.

AMERICAN POMOLOGICAL SOCIETY.—We have had the pleasure of receiving the address delivered at the fifteenth session of this Society, held in Chicago, Ill., by that noble patriarch of Horticulture, Honorable Marshall P. Wilder, President of the Society. This admirable, instructive, and enlightened address on horticultural and pomological subjects we find imbued with the same spirit, energy, and wisdom which has ever distinguished all that has ever emanated from the same zealous and ever-flowing source, either by word or writing. No doubt this address was highly appreciated by all who heard it delivered, as well as by those who have had the good fortune to possess it in its published form, and who had not the happiness of being present at the important session of this eminent national society for the advancement of pomology.

SEEDLESS WATERMELONS.—The Sutter (Cal.) *Banner* says: "We are informed by Mr. Wm. Mawson, one of the champion Watermelon growers of Sutter County, of a novel way of producing seedless Watermelons. When the vine begins to bear he lets the first Watermelon on each branch grow undisturb-

ed, but covers the branch up with dirt, from the first Melon to the second one; within six inches or more from the end of the vine will be a seedless Watermelon, the Melon nearest the body of the vine having kept all the seed."

FRUIT CULTIVATION, AND
REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

The time will soon arrive to plant fruit-trees. If newly set trees of moderate size have been well dug up, with plenty of roots, and the roots well spread on every side, they will maintain a stiff, upright position, and need no additional staking or stiffening. But they do not always receive such attention; and in this case they may need straightening up. Hardly anything can be worse for a tree than the bending about in the earth by the strong winds of this coast. This caution also applies to all shrubbery, and even flowers planted out, especially in this city. Fruit-trees will sometimes stand pretty well till the leaves come out in spring, after which, of course, the winds have more purchase on them, and staking may be required; at any rate it is best to examine whether the earth is always sufficiently firm round their stems. Orchardists are familiar with the disease that sometimes affects the bark of nearly all kinds of fruit-trees on their bare trunks, especially standard Pear-trees, particularly at the south and west, where there is so much sun at midday. Some fruit-growers protect their trees against the hot sun by adjuncting a board to shield them from the 2 o'clock rays, with entire success, until the lower branches grow long and thick enough to form a sufficient screen.

In young orchards it is best not to trust at all to memory or perishing labels, to know how many trees or rows of Baldwins, etc., are set on this side, or how many Bellflowers, etc., on that side of the orchard, or what kinds are placed in the different parts of the fruit garden. Every tree should be registered carefully and accurately—first in a memorandum book, or on a slip of paper, to be copied afterward in an account-book or some other book which should always be at hand; or it is better to have a blank-book, expressly for a garden and orchard record, where the place of every tree is noted, as well as other planting and experiments. Then, when the trees begin to bear, it will not be necessary to call on others to ask them the name of this Apple and that Pear, with a fair chance of half being named wrong, and endless confusion in sorts as a consequence. If people want labels, after several years' trial, we have found nothing so cheap, simple, convenient and durable as pieces of sheet tin for permanent labels on bearing fruit-trees. They may be seven or eight inches long, an inch or so wide at the larger end, and tapering nearly to a point at the other. Neither the breadth nor the length requires accuracy. They are cut out of scrap tin, and may be made at the rate of a dollar and a half per thousand, or at a less cost. To write the name, lay the label on a table or board, and make the letters with the point of an awl or of a file ground to a sharp point, pressing firmly while writing. Each label is placed on the side limb of the tree, by bending the smaller end once or once and a half around it. The work is then done—in less time than the reader has occupied in reading these directions. Nothing further is necessary for many years. The point used for writing the

letters scrapes away the tin coating, and admits the moisture or rain to the iron, rusting it and rendering the letters conspicuous. As the limb increases in size, the tin yields to the pressure and never cuts the bark, and is at the same time stiff enough to hold on and prevent the label being removed by the wind.

At the beginning of last month (September) there was an abundant supply of fruit and vegetables, but the retail market lacked buoyancy.

There was an unusual quantity of Strawberries received during the first and second weeks of the above month, and they retailed as low as 20c. per lb. They were fine and of large size, and of good quality.

All varieties of Grapes were then in season, with prices unchanged, excepting in the case of Flame and White Tokay, the former retailing at 10c. to 12½c. per lb., and the latter at 6c. to 8c. Several lots of Bartlett Pears were received from Oregon during the week, but they were far inferior to the California Bartletts, and sold for less money. The latter retailed at 8c. per lb. Seckel Pears were quoted at 6c. Peaches continued firm at 6c. to 12½c., and Quinces at 10c. to 12½c. But few Blackberries were to be had. Nectarines were still quoted at 5c. to 8c. Pomegranates retailed at 3 for 25c. or \$1 per doz., and Coconuts at 15c. to 20c. each. German Prunes were selling at 10c. per lb.; Italian do., 12½c.; Washington Plums, 6c. to 8c.; Damsons, 6c. to 8c.

Rhubarb was quoted at 6c. per lb., Chile Peppers, 15c.; Garlic, 15c.; Okra, 15c.; Egg Plant, 6c.; Horseradish, 25c.; Summer Squash, 5c. to 6c.; Winter do., 1c. to 2c.; Green Corn, 15c. to 25c. per dozen; Artichokes, 50c.; Kale, 50c.; Watermelons, 10c. to 15c. each; and Cantaloupes, 10c. to 15c. each.

About the middle of last month (September) Strawberries were still more abundant than they were at the beginning of the month. They were of good size and quality, and were sold from 10c. to 15c. per pound. The display of Grapes was the most striking feature at the fruit-stalls. All the varieties grown in the State were to be found in the greatest abundance. Blackberries went out of the market about the above-mentioned time. Bartlett Pears were scarce at 10c. to 15c. Quinces retailed at 6c. to 8c. per lb.; Pomegranates, 6c. to 10c. each; Prunes and Plums were less plentiful at 6c. to 12½c. per lb.

At the Fair there were three fine displays of Grapes; also exhibits of Apples, Pears, Peaches and Pomegranates, Oranges and Lemons, grown in the middle and northern parts of the State. We observed one bunch of Grapes at the Fair, of the Tokay variety, which weighed 12½ pounds. Another cargo of Tahiti Oranges arrived on the 21st of last month, in good condition, but owing to the immense quantity of other fruits in market the demand for them was slack.

There is no diminution in the supply of vegetables. On the contrary Tomatoes are more plentiful than at any previous time during the season. Summer Squash is retailing at 5c. to 6c.; Egg Plant, 8c. to 10c.; Chile Peppers, 12½c.; Rhubarb, 6c.; Horseradish, 20 to 25c.; Marrowfat Squash, 2c. to 3c.; Green Corn, 15c. to 25c.; Artichokes, 50c.; Kale, 50c.; Watermelons, 15c. to 25c.; Cantaloupes, 15c. to 25c.; Brussels Sprouts are again in market, selling at 5c. to 6c.

Editorial Gleanings.

THE COCHINEAL INSECT OF CALIFORNIA.
—At a meeting of the San Francisco Microscopical Society, an interesting and important communication was received from Henry Edwards, describing a curious insect recently discovered by him, and which he believes to be a species of the cochineal insect. Mr. Edwards states that during a recent visit to Grass Valley and Nevada City he found the bushes of Manzanita covered with a species of coccus, resembling closely in form and size the species so valuable in commerce, from which is produced the exquisite pigment, carmine, and known to naturalists as *coccus cacti*. For miles and miles along the road the leaves of the Manzanita were covered with these creatures, and it struck him that some commercial importance might be attached to the insect, as it seems to abound in immense numbers. Most of the members of the genus are in some way or other quite valuable, the "lac insect" of China being one of them; and it is quite possible that we have in California a source of profit furnished to us by the insect world as yet unknown and unrecorded. A few specimens of both sexes, the male being winged and the female the producer of the dye, were presented for the inspection of the society, that members might subject them to chemical analysis, and discover if any dye could be extracted from them. The abundance of Manzanita in the foot-hills would, if such were the case, render their cultivation quite easy, and no real obstacle could exist to the introduction of this valuable and interesting addition to the commercial product of the State. Mr. Edwards concluded by expressing the belief that the species is unknown to science, and he designed preparing a

A persistent use of sulphur is said to cure mildew in Roses.

description, under the name of *Coccus arctostaphylos*.

FLORAL INSANITY LAUDABLE.—Whoever has heard Henry Ward Beecher preach or lecture, or read a title of his writings, knows that he is a great lover of flowers, his passion for and knowledge of them being such that they are very frequently introduced in his descriptions and illustrations. In a late number of the *London Garden* we find some remarks touching floral insanity which are expressed in Mr. B's enthusiastic and characteristic style:

“Roses are easy of culture, easy of propagation, requiring almost as little care as Dandelions or Daisies. The wonder is that every man is not an enthusiast, and in the month of June a gentle fanatic. Floral insanity is one of the most charming afflictions to which man is heir! One wishes never to be cured, nor should any one wish to cure him. The garden is infectious. Flowers are ‘catching,’ or the love of them is. Men begin with one or two. In a few years they are struck through with floral zeal. Not bees are more sedulous in their researches into flowers than many a man is, and one finds, after the strife and heat and toil of his ambitious life, that there is more pure satisfaction in his garden than in all the other pursuits that promise so much of pleasure and yield so little. * * * A man is not always to be trusted because he loves fine horses or because he follows the stream or hunts in the fields. But if a man that loves flowers and loves them enough to labor for them is not to be trusted, to whom in this wicked world shall we go for trust? A man that carries a garden in his heart has got back again a part of the Eden from which our great forefather was expelled.”

DREER'S IMPROVED LIMA BEAN.—This Bean is the product of the green wrinkled variety obtained from Mr. H. Kimber, of Kimberton, Chester County, Pa., about thirty years ago. Selections of the best specimens were annually made for seed until the Bean has increased in early maturity and size, and established the present standard character.

The distinctive features of this sort are early maturity, prolificness, and extra quality of Bean; containing more saccharine matter and producing one-third more shelled Beans to the pole than the large Lima, while the shelling becomes an easy matter, from the fact of the pods being entirely full of beans, forming one against the other like Peas in a pod.

The *American Agriculturist* says: “In these Beans the pods are not only full, with no spaces between, but are as full as they can stick, the seeds so crowding one another that the ends of the central Bean are square; the Bean is also much thicker than the ordinary kind. A vine of this kind, bearing the same number of pods as one of the ordinary variety, would, we should judge, yield nearly if not twice as much in shelled Beans. The pods being so completely filled, the shelling becomes an easy matter, and the Beans when cooked are much superior to the ordinary ones, as the amount of skins is much smaller in proportion to the inclosed nutriment.

“We regard the improving of this Bean as one of the most important of recent contributions to Horticulture.”

CENTINELA ORANGE-GROVE.—The *Los Angeles Express* of June 11th says: “It probably is not generally known, but this young grove will be the largest

Orange-orchard in one inclosure in the world. It covers nearly three hundred acres of the choicest land in the Centinela valley, and contains some 13,000 Orange-trees nearly five years old. Between the rows are planted some 2,500 Almond-trees, now three years old. The Almonds will bear this year, and will bear about six pounds per tree. In two years they will easily yield twelve pounds per tree, or \$6,000. Two thousand Lime-trees four years old are in this orchard, and they will in two years yield \$5 per tree, or \$10,000. The Almonds will be dug up as soon as the Oranges begin bearing. In the meantime, they will defray the entire expense of attending to the orchard. The Orange-trees will commence bearing in five years. Two years later it is reasonable to suppose they will yield 1,000 Oranges to the tree, which at one cent apiece would give an income of \$130,000. As they will hardly ever sell for less than one and a half to two cents apiece, an income of \$200,000 to \$250,000 from the Centinela Orange-grove is quite a reasonable expectation. The fruit will be of a fine quality, as the Oranges grown at the Centinela Ranch House are large and luscious.

EVERLASTING FLOWERS.—The flowers known as "Everlastings" are so desirable for forming wreaths and bouquets for winter decorations, that a small place should be set apart for their cultivation in all gardens, and even now it is not too late to plant a few of them in the border where they are to bloom, and as they require only the most simple treatment and will thrive exceedingly well in any ordinary soil, a place can be found for them among the vegetables; for if the soil is too rich they will grow too vigorously, and not produce as ma-

ny flowers as is desirable. Sow the seed very sparsely, and if they come up too thickly, thin out at least six or eight inches apart. The *Helichrysums* will require from ten to twelve inches of soil to produce strong plants. From a medium-sized bed of these flowers a large supply can be obtained, which cost several dollars if purchased in the winter, while the seeds can be procured at a cheap rate. The flowers should always be cut in small bunches, which should be hung up in a warm, dark closet, heads downward, to dry. They can be kept there until needed for making winter decorations. If their colors are not bright enough they can be dyed with "domestic dyes." Dried grasses, which should be gathered now before their blossoms fully expand, and treated like the Everlasting flowers, are very useful for mingling with them in bouquets and wreaths.

THE COCOA-TREE.—The Cocoa-tree, so often confounded with the Coconut-tree, is about equal to a good sized Apple-tree; the pod that incases the bean, of which chocolate is made, is about the shape of a Lemon, but three times as large, and is of a deep orange color—the kind called "Caraccas" Cocoa is so deep as to be almost red. The pods grow on the branches, and on the stem quite down to the ground. The branches do not grow low, so that looking down on a piece of Cocoa ground, the vista is like a miniature forest hung with thousands of golden lamps. Anything more lovely can not be imagined; it is perfectly unique. After the pods are picked they are cut open with a cutlass; the beans, which are tightly packed together, and from forty to eighty in number, are dried in drawers in the sun, after having gone through a process

called "sweating," which is being packed close in a barrel and covered over. When the Cocoa is thoroughly dried it is put into bags, each containing one hundred and fifty pounds, and shipped.

THE FLORA OF MADAGASCAR.—Near the rivers, or in damp valleys, the eye is enchanted by the splendid foliage of the Ravenela, or traveler's tree, one of the most characteristic representatives of Madagascar. Truth and error have alike made a poetical legend of it. When it is spoken of, the imagination pictures the exhausted traveler dying from the agonies of thirst, restored at once by the pure water of this tree. Alas for this fiction! it only grows where there are plenty of springs. Sailing on the River Jorouka, and stopping to climb the hills, a beautiful landscape presents itself to the eye; the Ravenelas cover all the valleys, some rising to the height of thirty feet; and at the top of the strong stem a gigantic fan spreads out of fifteen, twenty, or twenty-five enormous bright leaves, on stalks from two to three yards long. Between these a few branches appear, bearing flowers and fruits; the latter on opening show about thirty seeds, wrapped in a silky envelope of a bright blue or violet. The reservoirs of water are very simple; the rain which falls on the leaves runs down a trench in the flower-stalk; these are large at the base and retain the liquid. When this is pierced with a lance, a stream runs out, and the natives at work in the heat draw from this source, to save the trouble of going to a neighboring torrent. It is besides a most valuable tree; the leaves are made into plates and cups; they serve to cover the roofs and walls of houses; the bark is made into planks, and the trunk into beams. Unique of its kind, those

who have seen the Malagaches use it say it should be named the builder's tree.

AMERICAN TEA.—Georgia is going to try her hand once more at Tea-growing. Those who have investigated the subject assure us that the obstacle to the culture of Tea successfully as an article of commerce in the Southern States is the want of experience, but chiefly of cheap labor. The Tea-tree of China has been grown by several persons in Georgia, from the Piedmont region to the sea-coast. The shrub is a hardy and vigorous evergreen, and thrives as well with us as it does in China or Japan. It grows from three to five feet high—a neat, compact, Laurel-leaved shrub, with pretty white flowers in spring, and is quite ornamental. It is perfectly hardy, and will stand any exposure to the climate, as has been tested in Athens, and many other localities in Georgia. We are told it would be an easy matter for any family that has a home and a few feet of ground to produce their own Tea and a little to sell. Its general introduction for home use would most likely lead to its production for the market. There will be many things for the people to learn before they are able to manufacture the article as we get it from China; but, it is said, a very good Tea, and free from adulteration, can be made by simply picking and drying the leaves in the same manner that Sage-leaves are cured.—*N. Y. Bulletin.*

SOOT AS A GARDEN FERTILIZER.—Perhaps it may never have occurred to some of our fair lady readers, that the refuse soot of their chimneys is one of the most valuable stimulants and fertilizers they can have for their garden flowers. The following incident of practical ex-

perience is from a lady contributor to *The Rural Carolinian*: During two seasons we nursed, fed and petted a Hartford Prolific Grape-vine—as much for its shade over a window as for its fruit—but it persisted in remaining a stunted cane, yellow, and refusing to climb. At the window, on the other side of the door, we had a stunted Rose-bush, also yellow and refusing to climb. Despairing of shade, Grapes, and Roses, we finally bethought ourselves of soot as a manure, and forthwith made a “soot tea” by steeping a tea-cup of soot in a quart of water. This we administered, two doses each, to both the tree and the vine. The vine grew six feet in height in the space of six weeks, the Rose-bush four feet in the same length of time—both thereafter rejoicing in raiment of living green.

LABELS FOR PLANTS.—The *Horticulturist* says: “One-half the pleasure in growing our plants arises from the knowledge of their names and whence they come. In fact, we desire some little memorandum that will remind us, every time that we look at them, what their title is, what their native country, from whom procured, and sometimes additional remarks of an explanatory character. An ordinary flat surface would have to be too large and unsightly, so we use a four-sided stake, one and three-quarter inches in diameter, planed smooth, and painted white. They should be about twelve or fifteen inches in length and pointed. When desired for use, rub lightly over the surface a thin coat of paint, and write thereon with a lead pencil, which will last for two or three seasons distinctly. The four-sided stake or label is preferable, as it is comparatively inconspicuous, gives a greater amount of surface

for writing upon, and always looks neat. It is especially adapted for Rose-bushes, groups of flowering shrubs, or masses of hardy border-plants. True, it has not the merit of being imperishable; in fact, it has to be replaced rather too frequently; but we like the appearance of wooden labels and we like to write upon them. The four-sided stakes for supporting Roses and other plants may be utilized as labels by painting say six inches of the top white, while the remainder looks best green. This top may then serve the same purpose as the above-named label.”

THERE is one mode of adding to the health as well as the beauty of San Francisco which seems strangely neglected, namely, the planting of trees along our great thoroughfares. The outskirts of the city owe much of their agreeable appearance to the rows of Eucalyptus and Cypress that adorn their sidewalks. Surely, at least Market Street might have similar lines of verdant foliage, relieving and softening the bustle and commercial features of that centre of traffic. The subjects cursorily dealt with here are well worthy of the attention of our new Board of Supervisors. There are more sides to a man's character than one. His nature becomes dwarfed if money-getting and business excitement absorb it entirely. Give the artistic and beauty-loving elements in the mental constitution of our fellow-citizens a chance; let public buildings, constructed according to the strictest principles of architecture, rear their stately forms in our midst; place the poetry of nature, with its verdure, side by side with the prose of the active pursuits of life, and we may live to see San Francisco not only the centre of the commerce of two continents, but of their arts as well.

FRUIT IN THE FOOT-HILLS.—California, says a Sacramento paper, has obtained a world-wide reputation as a fruit-producing country, and as a State she probably excels in this respect any other state in the world. Not only are all the hardier fruits of temperate climates raised within her borders in great profusion, but the semi-tropical fruits are also produced in great perfection. All these fruits grow well in nearly all the valleys of the State from Siskiyou to San Diego, and return a handsome profit to the cultivators, but experience is demonstrating the fact, although the valleys are good for fruit, the foot-hills both of the Sierra and Coast Range Mountains are much better. Both the climate and the soil of the rolling country leading from the valleys to the mountains seem much better adapted to fruit culture than the valleys themselves. All fruit raised on these rolling lands has a closer meat and finer flavor than the same varieties raised in the valleys below. The Apple is more juicy, the flesh harder, and will keep much longer. The Apple of the foot-hills is also more highly colored, and if not larger, is equally as large and fair. The foot-hills seem to be the natural home of the Prune, the Plum, and the Peach; in no other portion of the State does the Grape grow so perfectly either for wine or raisins as in the rolling country called the foot-hills.

THE FLORIDA CEDAR.—Active efforts are being made to acclimatize the Florida Cedar (*Juniperis Virginiana*) in Bavaria. Its wood is superior to all other kinds of Cedar, and is in great demand in the manufacture of lead-pencils. As this industry is largely carried on in Bavaria, the manufacturers are striving to secure a home-supply of the material

so necessary to their operations. Seeds have been sown in the Royal Forest, and about 5,000 young plants have been grown on one private estate. The cultivation of the tree is also being attempted in other parts of Germany.

A NEW SOURCE OF CAOUTCHOUC.—Just as the world was beginning to be told that the supply of this useful material was about to come short by reason of the destruction of the tree which produced it, and the thriftlessness which failed to keep up the supply by artificial cultivation, we are also informed of the fact that an entirely new source of supply has been discovered in Burmah, in a creeping plant whose botanical name is *Chavannesia esculenta*. The plant is very common in Burmese forests, and is cultivated by the natives for the sake of its fruit, which is said to have an agreeable acid taste, and to mature at a season when Tamarinds are scarce.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING SEPTEMBER 30, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.06 in.
do 12 M.....	30.06
do 3 P. M.....	30.06
do 6 P. M.....	30.05
Highest point on the 30th, at 12 M.....	30.19
Lowest point on the 20th, at 6 P. M.....	29.81

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	61°
do 12 M.....	65°
do 3 P. M.....	64°
do 6 P. M.....	58°
Highest point on the 20th, at 1 P. M.....	86°
Lowest point on the 11th and 25th, at 6 P. M.....	53°

SELF-REGISTERING THERMOMETER.

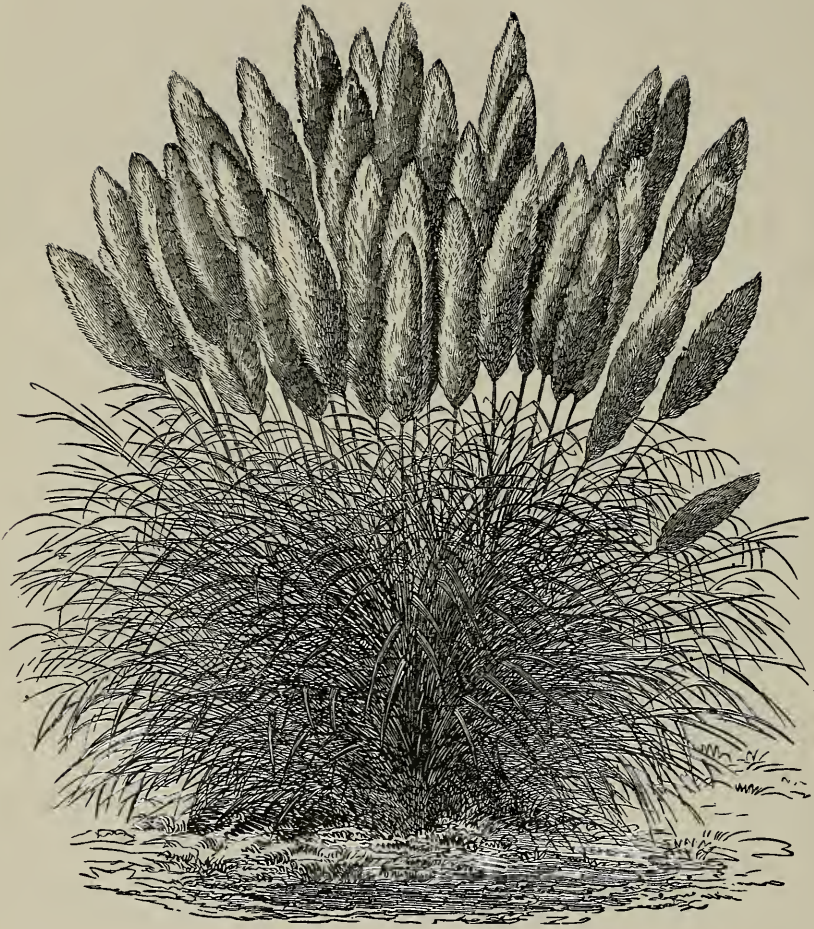
Mean height during the night.....	51°
Highest point at sunrise on the 21st and 23d.....	55°
Lowest point at sunrise on the 9th.....	48°

WINDS.

Prevailing wind, west.

WEATHER.

Clear all day 7 days; cloudy all day 1 day; the remainder of the month, cloudy mornings, with clear weather and sea breeze in the afternoons, and mostly cloudy or foggy evenings.



GYNERIUM ARGENTEUM.

(Pampas Grass).

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, NOVEMBER, 1875.

No. 11.

WILD FRUITS OF THE WEST.

BY E. J. HOOPER.

A subject which is interesting to most fruit-growers and lovers of fruit is that of the wild fruits of the West on the North American continent. We have, during our sojourns and visits in various parts of the western countries, paid some attention to these. We will, in our brief descriptions of some of the chief of them, follow the order in which they ripen from spring until winter. The first to ripen is the wild Strawberry. It grows mostly on poor land, but sometimes, as in California, on very rich soils, and generally where there is not much timber. There are always many such places to be found in many large tracts, as well as localities of some small extent on the points of hills along the creeks. It is to be seen in many of the canyons of the State, and, nearest the city, back of Saucelito, in Marin County. The fruit is small (it is not of the alpine kind), and is always rather more acid than any of our cultivated Strawberries. It is never found very abundant where there are very thick woods. In Virginia and Kentucky, and many of the other Western States,

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trees called the "Service" are among the first to bloom. Their beautiful small white flowers make a fine appearance through the woods in April. It is often transplanted from the forests by settlers, into their gardens. It bears its fruit in June. The small red berries are sweet, and somewhat juicy, with a slight acidity, and a very agreeable flavor. They grow very abundantly in new regions along the small water-courses, and more thinly over the hills at a distance from them. When domesticated, the berries of these graceful trees are eagerly devoured by the small birds, especially by the tallingers, and the cedar-birds or waxwings. The early settlers cut down the trees, as they did the Mulberries and Cherries, for the fruit alone. The Service-tree is hardly worth cultivating in gardens, as these small birds above named, with others, generally destroy all the berries before they are ripe.

At the earliest settlement of the western country, Blackberries of course grew in abundance, as they do still in open places, and where the timber is blown down by tornadoes or hurricanes. These openings were called the "fallen timber." At first the gatherers had to

pick the berries under a guard against the Indians. Wild Raspberries, of an agreeable flavor, both red and black, are found in many parts of the West, but the pioneers did not at first find them very plentiful anywhere.

Gooseberries of small size, and very full of thorns, but of an agreeable taste, grow in some situations in the woods, but they are not so plentiful as the Blackberry or Raspberry.

Whortleberries are abundant in some sections in the mountain parts, and scarce in others; also, Huckleberries are numerous. Wild Plums are plentiful on the richest lands. They are of various colors (chiefly red and yellow) and sizes, and many of them are of excellent flavor. They are a little like, in flavor, to a large fully ripe English Gooseberry. They began about 1822, like the Damson and other Plums, to be affected and destroyed by the curculio, and have been so ever since, although some persons have thought that they were free from that pest.

An indifferent kind of fruit, called by the frontiersmen Buckberries, grows on small shrubs, on poor ridges particularly.

The fall fruits are winter and autumn Grapes. The winter sort grow in the bottom lands. They are sour, of little value, and only used when strongly touched by frost. The fall Grapes grow on the higher grounds, especially in the "fallen timber" land. Of these last Grapes there are several varieties, all of the Fox genus, and some of them large and of excellent flavor, as the Catawba, Isabella, etc.

Black Haws grow on large shrubs or bushes along the moist bottoms of the creeks. They are in large clusters, and ripen with the first frosts in the fall. Red Haws grow on the Whitethorn bushes. They are of various kinds.

The Sugar Haws, which are small, grow in large clusters, and, when ripe, are free from worms, and the semi-transparent are most esteemed.

Wild Cherries are abundant in many places.

Papaws are plentiful along the larger water-courses and on the rich hills. Scarcely any animal will touch them except the raccoon. They are rich and luscious, and much liked by some persons.

The Crab-apple is very abundant along the smaller water-courses. It blossoms a little later than our Apple-trees. The blossoms are very showy, pinkish, and fragrant. The fruit is tolerably good when frosted under the trees.

Of Hickory-nuts there are a great variety; some of the Shell-bark nuts are quite as good at least as the English Walnut. Of White Walnuts the early inhabitants had a great abundance (so says, at any rate, an early history of Kentucky), and of Black Walnuts many varieties as to size and amount of kernel. Hazel-nuts and Chestnuts are plentiful in many parts of the country.

As early as 1765 Peach-trees were planted. For some time a crop of Peaches once in three or four years was as much as was expected. After awhile, these trees became so far acclimated as to bear almost every year. So, in rather less degree with Apple-trees. The Peach and Pear trees did very well until 1806, when a long succession of rainy seasons commenced, during which the trees overgrew themselves, and the fall being warm and rainy, they continued their growth until the onset of winter. Their branches were then full of sap, and as water occupies a greater space when frozen than when fluid, the freezing of the water they contained burst the texture of the wood, and ren-

dered them unfit for the transmission of sap the next season. This fact leads to the conclusion that these soft-wooded fruit-trees ought to be planted in the climate of Virginia, Kentucky, Pennsylvania, and in many other States, in the highest situations, and in moderately rich land, where they will have rather a slow growth; and this is now being mostly done. In 1826 came the destructive Peach-worm. Persimmons are found wild as well as cultivated in such States as those named above. There are several sorts of them, and they can, no doubt, be improved by cultivation and grafting. It is well known that they are not eatable until after pretty severe frosts. We have not yet heard of any of them being brought to California, and if they were here we have not frost sufficient to make the fruit eatable, except on the mountains.

California possesses some of the wild fruits above described. Her wild Grapes are uneatable, attaining no size. California Huckleberries are an inferior sort to the eastern. She has likewise Salmon-berries.

I need hardly mention that the large Acorns from one of our Oaks (*Quercus Hindsii*, or White Oak), form the principal food of all the wild Indians; as also do some kinds of Pine-nuts, especially those of *Pinus Sabiniana*.

A species of the Cereus or Cactus is well known, also, to yield a plentiful supply of fruit to the Indians in southern California.

In Arkansas there is a plant called Man-root from the similarity of its root in size and shape to the body of a man. It is esculent, and serves sometimes to sustain human life in some of the many vicissitudes of hunger and privation to which men who roam the prairies as an occupation are subjected.

In Oregon there is the Oregon Grape,

or Holly-leaved Barberry, which bears a flower that is very ornamental, of a bright yellow color, in clusters a finger long. Its fruit is ripe in August, and is of a bluish-purple like the Damson-plum.

In the northern part of California there is the *Camasia esculenta*, or edible Camas, of whose roots the Indians make bread.

The California Horse-chestnut or Buckeye (*Æsculus Californica*), bears a fruit or nut which is a staple article of food with those few California Indians who still depend upon wild fruits and game for their subsistence.

Our Madroña (*Arbutus Menziesii*) bears a bright red berry in clusters, of which Indians as well as the birds are fond.

The Manzanita (*Arctostaphylos glauca*) produces round red berries, having a pleasant acidulous taste, and are often eaten by the Indians and grizzly-bears, but there is too little meat in them to pay white men for the trouble of gathering them.

THE PHYLLOXERA AND ITS REMEDY.

BY COL. M. EYRE, JR.

We must bear in mind that the phylloxera kills the vine by depriving it of the rootlets by means of which it receives nourishment from the soil. The vine dies of starvation. Besides this the phylloxera modifies the composition and constitution of the vegetable juices as soon as it has attacked the roots. It can then be laid down as an absolute principle, that, to save the vines attacked by the insect, a double treatment is required:

1. The use of an appropriate manure reconstituent.

2. The employment of an insecticide.

For the re-animation of the vine the kind of plant-food best adapted for the purpose can be ascertained in the locality. The composition of one soil may be such as to require either potassa or phosphates, another may require nitrogenous manures. When the vine has been attacked by phylloxera the appropriate manure must be applied in even more than the ordinary proportion. In districts where the vines are not customarily manured it is best to furnish them, when attacked by phylloxera, with a complete manure, such as stable manure, guano, or mixtures of animal manures with phosphate of lime and salts of potassa.

Ammoniacal liquors, such as putrid wine, ammoniacal waters, gas-lime, mixtures of chalk and ammoniacal salts, are also means which, besides helping to destroy the insect, furnish the vine with nitrogenous food of great value.

Ammonia and its salts should never be used at the same time as the sulpho-carbonates. A fortnight should elapse between the application of the one and the other. On no account should the vine be left to itself; its diseased condition renders manure indispensable.

To destroy the phylloxera, the following are the insecticides which have proved to be the best:

1. The simplest is water employed according to the process of M. Faucon. Experience has shown that forty days' submersion, in winter, will clear the vine of the insect.

2. When the above is not applicable, as must be the case in a vast majority of instances in California, the sulpho-carbonate of potassium should be used.

Sulpho-carbonate of potassium is a compound which is decomposed by the carbonic acid contained in the soil into carbonate of potassium, sulphide of car-

bon, and sulphide of hydrogen. It is a source of sulphide of carbon, placed in the neighborhood of the roots. But as sulphide of carbon, which is so destructive to insects, may be hurtful also to the vine, especially during summer, the active period of vegetation, it may be well to so regulate the quantity as to apply too little rather than too much. To show how little is necessary to produce the effect on the insects, the commissioners say that 15 grains (supposed dry), dissolved in 20 gallons of water, killed phylloxera on vines in pots. The sulpho-carbonate of potassium of commerce, such as is used by the delegates of the academy, is in solution; it contains half its weight of dry salt. The dose for each vine, or for each square yard of ground, is from $\frac{2}{3}$ to 1 fluid ounce, which represents nearly a gallon each of gaseous sulphide of carbon and sulphureted hydrogen, capable of being developed gradually and communicating their poisonous properties to hundreds of gallons of air. The experiments of M. Mouillefort at the Cognac station shows that the action of the sulpho-carbonate continues for several days. It should be used in watery solution, but, as it is not always possible to obtain sufficient water during the dry season, it may be deposited in the soil during the fall, so that the winter rains may dissolve it and carry it into contact with the infested roots. For the latter plan, the sulpho-carbonate can be made so as to be carried in sacks, by mixing it with absorbents, such as dry manure, sawdust, burnt bone, plaster, slaked lime, &c. The best recipients are those which retard the action of the carbonic acid, and permit the sulpho-carbonate to await the coming of the rain.

When the vine is in full vegetation, the dose of sulpho-carbonate should be restricted. But during winter, if the

insect resists the action of the poison, the dose may be doubled or even tripled, as the vine is less liable to suffer at that season.

In treating an isolated spot, where only a limited number of vines are attacked, but where a whole region is in danger, the question of expense in procuring water should not be taken into account. The evil should be encountered at once, and you should not wait until the autumn or winter. By attacking the pest at once, you place an obstacle in the way of the development and emigration of the winged phylloxera, which make their appearance from July to September. In this case, the sulpho-carbonate of potassium should be dissolved in water, and carried down into the soil to the roots, to destroy the wingless insects. After applying the sulpho-carbonate, the infested ground should be covered with a layer of spongy matter, impregnated with heavy oil of coal-tar, the vapors of which are particularly useful in destroying the winged phylloxera, and which are important for the destruction of the insect in all its stages, if used in summer, on ground which is dry and capable of being penetrated by vapors.

When properly applied these processes will succeed. Wherever the phylloxera appear as extensively as in Sonoma the viticulturists must unite and form local commissions to give their attention to the vines of their districts. As soon as the disease appears on one or more vines, the vine-grower should immediately notify the committee, who should without delay examine the roots of such vines. When the phylloxera have been recognized, means must be taken to circumscribe the attacked portion, by treating all the diseased vines contained therein, also the healthy vines comprised in a "zone of preservation" round the

part where the principal work has been done.

Taken thus in its early stage, the evil can be fought, circumscribed, and killed. The surrounding vines should be specially looked after, and the least indication of disease should be carefully studied.

The application of sulpho-carbonates, to be successful, must take cognizance of these conditions:

1. The whole of the infested surface must be treated.

2. The poison must be carried deep enough to reach all the phylloxera. The quantity of water used for dissolving the sulpho-carbonate may vary from $\frac{1}{2}$ gallon to 8 gallons per square yard, according to the nature of the soil, its depth, and its state of dryness or humidity. In most cases, the sulpho-carbonate can be dissolved in 2 or 3 quarts of water, the liquid poured into the place prepared to receive it, and, when it has been absorbed, that is in a few minutes, the rest of the water can be poured in.

To prepare the soil for the sulpho-carbonate, the best method according to the experiments of Mr. Mouillefort at Cognac, is, to dig an excavation with flat bottom round each vine 3 to 5 inches deep and about half or three-quarters of a yard square, and pour on, first the liquid, and then the water. When the solution and the water are absorbed, the bottom of the excavation is covered with a layer of coal-tar roughly mixed with some absorbent or spongy substance, as above described. The earth is left heaped up on the edges of the excavation until the time for working the vineyard.

Proprietors whose vineyards have not yet been attacked, may simply protect their vines by means of the coal-tar, sawdust, &c. It is, perhaps, the best

protection against the invasion of winged and emigrating phylloxera.

The alkali sulpho-carbonates are now an article of commerce. Delachanel and Mermet have given a method for determining the amount of carbon disulphide. The solution is precipitated with acetate of lead, and the lead sulpho-carbonate decomposed into lead sulphide and carbon disulphide by heat; the latter being carried over into sulphuric acid, and then, freed of the vapor of water, into a tared portion of olive-oil, where it remains.

In the Royal Agricultural School at Vienna continued experiments with Dumas' remedy have been kept up.

Zoller and Grete have discovered that the ethylsulpho-carbonate, as it evolves the effective carbon disulphide and does not eliminate the deleterious hydrogen sulphide, will more effectually do the work than will the potassium sulpho-carbonate. But a greater recommendation is that it is cheaper and more easily made—and the amylsulpho-carbonate of potassium is still cheaper, costing but some fifteen cents a pound, and equally effective. I have not been able to obtain the original report of their experiments, but it seems to me that any committee experimenting should not neglect a trial of the amylsulpho-carbonate of potassium.

The State Vinicultural Society will meet at 2 P. M., on the 23d November, in San Francisco, at Grangers' Headquarters, and it is hoped that every grape-grower will try to attend, or at least become a member of the association. The apathy with which the owners of even large vineyards view every effort to inaugurate measures for their benefit is truly wonderful. Had one-tenth of them taken means to infuse vitality into this society we could never have witnessed such prices for grapes as we see this

year. It would seem as if every vine-grower would at once address the Secretary, M. Eyre, Napa, Cal., and ask to have his name enrolled as a member. I have this year sold my grapes at \$25 and \$20 a ton, while others have obtained \$8 and \$10, and yet interchange of ideas and suggestions would have enabled these people to have pocketed a difference in price sufficient to have paid their membership fees for a hundred years. It seems wonderful to me.

THE BULB SEASON.

BY F. A. MILLER.

The time is again at hand when bulbs for winter flowering should be planted, and, as early flowering demands an early planting, we should not delay attending to this matter. Flowers in general will soon become scarce, and if we want to adorn our windows or greenhouses with Hyacinths, Narcissuses, Crocuses, etc., about Christmas time, we must plant at once. Hyacinths generally give for the home better satisfaction under ordinary circumstances than any other bulbous plants. With very little experience anyone can cultivate them successfully, and every sound bulb will produce its flowers. In purchasing bulbs, I find that invariably large bulbs are selected in preference to small ones; and although it seems quite natural to pick out the strongest or largest bulbs, it is not always the case that these produce the finest flowers. It is quite sufficient to select fair-sized bulbs, which are positively sound. If a bulb is firm about the crown, it is certainly sound, and will flower under ordinary treatment. I have also noticed that the demand for double Hyacinths is far greater than for the single

kinds, yet there are many single varieties, of all colors, which form finer and more perfect flower-stems than most of the double varieties. Hyacinths may be made to flower in glasses filled with water—so-called Hyacinth-glasses; or they may be planted in pots singly or several together, or they may be grown in the open ground. They will develop



A POT OF HYACINTHS.

their flowers in either case, but those cultivated in the house will, of course, flower earlier. To grow them in Hyacinth-glasses filled with water is not as popular now as formerly, and with the exception of neatness there is no particular advantage about it. At any rate, I am decidedly in favor of growing Hyacinths for the house in pots. If you prefer to cultivate them singly in pots,

plant them so as to cover the tops of the bulbs about half an inch; water well and place them in a dark place; or cover them with sand or sawdust to the depth of four inches, or cover them with an empty pot of the same size—any way will do so as to keep the bulbs in the dark. Whether it be in a cold or warm room matters very little in this climate, except when intended to force them for very early flowering, in which case bottom heat of some kind is required. If it be desirable to cultivate several bulbs in one flower-pot, I would recommend different treatment, for the purpose of obtaining uniformity of growth and the simultaneous flowering of the various bulbs. Hyacinths will not all grow alike; some varieties develop their flowers quicker than others, and some produce a much greater abundance of foliage. I would therefore suggest to take, say, a dozen bulbs, and plant them all in a box of about four to five inches depth in the same way as suggested for the planting of bulbs singly in pots. In a month or six weeks they should be examined, and if the foliage is sufficiently advanced so that the flower-buds show themselves, then carefully take up with a trowel those which are most advanced and equally developed, not disturbing or breaking up the roots any more than is necessary, and plant them by threes in a six-inch pot; water well after transplanting, and place them again in the dark for a few days, by simply inverting an empty flower-pot of the same size over them. In less than one week they may be exposed to the light—in the shade at first. The leaves will soon assume their natural green color and the flowers will develop. In partial shade the flowers will last much longer, but a little sun will strengthen the stem sufficiently to bear the flowers without

any artificial support, which should be avoided if possible.

The prevailing idea among amateurs here, that Hyacinth-bulbs are worthless after having produced their flowers once, is entirely wrong. When they have finished their flowering season, plant them in a little group in the garden, and they will multiply and produce flowers every year, unless some ignorant hand employed will dig them up and throw them out. In setting them out in the open ground, they should be planted certainly four inches deep, and if they can be accommodated every autumn with a good top-dressing of manure they will do much better. In this way I have produced hundreds—yes, I may say thousands—of excellent spikes of Hyacinths every season.

Next time a few words about some other bulbs.

ABOUT ROSES.

F. R. Elliott, in the *Prairie Farmer*, writes thus of Roses: "To-day I have been in Ellwanger & Barry's greenhouse, where all the new as well as old Roses are grown, and, while I have no desire to give them more than due credit, I must say, their greenhouse and grounds devoted to specimens of hardy ornamental trees and shrubs, and of varieties of fruit, exceed any known to me in the world. I have no interest pecuniarily in writing the above, but do it as a truth that should be told. But now, ere I touch the varieties of Roses, and compare our old with our new sorts, let me say that one of the thirty houses for the propagation of plants, belonging to Ellwanger & Barry, has a Lamarque Rose, two to three inches in diameter at base, and covering in lines underneath the rafters a distance of sixteen

feet in width by seventy-five feet in length, and as I write I think I am safe in stating that there are upon this over three thousand buds and full blown flowers.

But to my subject. Doubtless many have already got their collection for the year and have planted them out, but it is well at times to add a few, especially if they have beauty in both flower and growth to warrant the expense. In this article I propose only to speak of a few varieties of rare beauty, and taking the Hybrid Perpetuals first, because they are hardy, I shall say that among them many of the old sorts, such as Baron Prevost, Caroline de Sansal and La Reine are difficult to surpass, but time brings forth new names and varieties, such as Anna de Diesbach, Auguste Mie, Charles Lefebvre, Countess of Oxford, John Hopper, Madame Victoire Verdier, etc. Later, we have first a grand charm in La France, with a perfect full double flower of silvery peach-colored rose, fragrant, and a free and continuous bloomer. This is classed, by some, among the Hybrid Perpetuals, but most growers place it as a Hybrid Bourbon, and, viewing it—without making a distinct class—place it among the Bourbons. Next to this, we have Madame Lacharme—white, slightly shaded on outside of petals with delicate rose, but opening to pure white. Next, we have Mademoiselle Eugenie Verdier, of a large, full, fine form, emblematic of its name, and of a beautiful silvery rose color. Victor Verdier, Prince Camille de Rohan, and many more may be cited, but the experience of the writer is that it is not advisable to get too many new ones at one time.

I can not, however, keep from writing of one called "Baron Chauriand," a very dark, rich, velvety Rose, I think originated by Paul, of London, En-

gland, and only now in the hands of one party in this country, who, to-day, are unwilling I should give their name.

Of the Bourbons, to-day, we have few or none that surpass the Duchess de Thurenge, Hermosa, Dupetit Tours, Queen of Bourbons, and Souvenir de Malmaison. Acidalie is a blush white, and distinct. So also, Madame la Marechale.

Of the Noisettes, no new ones, to our knowledge, have been brought out; but the old Lamarque (*vide* my note of a plant in Ellwanger & Barry's greenhouse) is yet one of our best outsiders, while Woodland, Margaret, Solfaterre, Isabella Gray, and Caroline Marinese, are good enough. The China or Bengal Roses have one, new and valuable, named Ducher, the flower of which is pure white, and the plant a free bloomer.

Of the Tea Roses there are many new ones; but the list, beginning with Adam Bougere, Silene, Gloire de Dijon, Isabella Sprunt, Marie Ducher, Safrano, and Sombreuil, are so good that it will not do to leave them out.

Among the new varieties of this class, the lover of Roses should not neglect Madame Ducher, Duchess of Edinburg, Helvetia, Madame Doctor Juttle, Marie Van Houtte, and especially Madame Francoise Janin, a bloom of which we have, just before this writing, been admiring in Ellwanger & Barry's collection of new Roses. It is distinct in color, of an orange yellow, with a shade of copper in centre, full in form, medium in size, and with a pleasant but peculiar fragrance, that can only be breathed once to be appreciated.

In closing these, my notes, it may not be an error, inappropriate, or to be counted by those who want to learn as an egotism, if I add that Roses bloom much better when grown in the house

or out of doors, if they are well and often trimmed or pinched back, to cause the buds mainly to form and bloom on the strong shoots."

TROUT.

BY PISCATOR.

Fishing is closely connected with trees, shrubs, and flowers, mountain breezes, green hills and rippling waters, azure skies and sunny evenings, when the skimming swallow and the speckled trout, sporting in the silvery stream, contend together for the tiny fly. As I have always contended, angling possesses a close affinity to the lover of Horticulture, Botany, and Natural History, and as it encourages and assists in the love and study of all these objects, it can hardly be said to be out of place in a corner of the HORTICULTURIST.

Our present paper shall have for its subject that eminently game and predatory fish—the trout. These truly sportsmen's fish differ considerably in proportions, color, and size, in different brooks, streams, and lakes, and even in different parts of the same river, according to the quality of the water, and the nature and abundance of their food—as witness the great disparity in size and color between the little dusky or sable tenants of the mossy mountain or forest or marshy stream, of four or five inches in length, and two or three ounces in weight, and the crimson-striped portly brethren of the lowland or prairie river, or inland lakes, weighing as many pounds. The average size of adult trout in most rivers may be said to vary, in California, from eight or nine to sixteen inches in length, and from half a pound to a pound and a half in weight. A well-proportioned

trout of a pound, or three-quarters of a pound, is a *good fish*; and there are many more that are below that weight than above it.

The female trout has a deeper body and a smaller head in proportion to its length than the male, and is considered to be of superior flavor for the table. The flesh of those in fine condition, in a stream where food is abundant, is of a delicate pink color, and of a most delicious flavor when cooked; being superior, in our estimation, to any other fish, whether inhabitants of salt or fresh water, except the salmon, particularly the young salmon or grilse. The rosy tint of the flesh of the salmon tribe is caused by its being permeated by a red coloring matter, which Sir Humphrey Davy found to consist of a peculiar coloring principle, capable of being extracted by alcohol; and the quantity of this matter present in the flesh of both trout and salmon depends entirely on the nature and abundance of their food. It is supposed to be most abundantly secreted by those fish that are in the habit of feeding almost exclusively on small fish and crustaceans at the bottom of the water. And it is a fact well known to most experienced anglers, that in almost every river and lake there are certain fish which feed almost exclusively upon worms, crustaceans, and small fish toward or at the bottom, and seldom or never rise to a fly; while others, again, feed almost entirely upon insects on the surface during the time they last. The former fish may easily be distinguished from the latter by their exhibiting larger and more numerous black spots, and less of red coloring on their sides, and by their bellies being of a shiny silvery white, and flat underneath. The flesh of these fish will be generally of a fine pink color, and rich in flavor; while that of the fly-taking

individuals will be comparatively white, softer, and more insipid. They will also be found much thicker at the shoulders in proportion to their length than the latter.

The condition of a trout may be judged of by the thickness of the shoulders, the depth of the belly, the general firmness of the flesh, the brilliance of its coloring, the vigor and determination with which he resists his capture, the comparative smallness of the head to the bulk of the body, the brightness and distinctness of the red line on its sides, and the bright colors and silvery lustre of the fins and belly. A fish displaying all these characteristics will be in the prime condition, and generally have pink flesh.

In regard to the production of cross or hybrid fish between the different members of the salmon tribe, Sir Humphrey Davy in his time, and others at the present time, very accurate and also highly scientific observers, seem to have entertained a notion that such male fish were sometimes produced; and a series of well-conducted experiments on this subject would be of the utmost interest, as a fish partaking both of the qualities of the salmon and the common trout, blended together, would indeed be a valuable acquisition to our waters, provided it were capable of perpetuating the race. But it seems to us highly probable that nature may have fixed an insurmountable barrier to such anomalous modes of propagation among the finny tribes, by rendering the spermatic fluid of one species incapable of fecundating the ova of another. Were it otherwise, the indiscriminate manner in which that fluid is shed abroad in the water during the breeding season, by several different species, at the same time in the same river, and its consequent liability to be brought into con-

tact with the newly-excluded ova of other species and varieties similarly occupied, if it was capable of impregnating them, would give rise to endless cross varieties of fish, and speedily involve the whole genus in inconceivable anarchy and confusion: a proceeding so totally at variance with the usual perfect order and harmony of nature's plan, as to render such anomalous impregnations of doubtful result.

THE ROCKY MOUNTAIN BRAMBLE.

When the expedition to the Rocky Mountains, commanded by Major Long, returned in 1821, the botanist, Doctor James, brought home dried specimens of a Raspberry or bramble, of which the fruit, according to him, was "large and delicious." Doctor Torrey, finding it was a new species, named it, upon the strength of Doctor James' notes, *Rubus deliciosus*, he not at that time knowing that every fruit met with by an explorer is, if not absolutely repulsive and uneatable, "delicious." Major Long himself greatly excited the fruit-growers of that day by his accounts of the excellence of a Grape found on the same expedition, which was some years afterward cultivated, and found to be no better than any other wild Grape. The stories of explorers in regard to fruit must be accepted cautiously, as everything tastes good to a hungry man, who has lived for months on salt pork and "hard-tack." In this case "delicious Raspberry," as we may translate *Rubus deliciosus*, is a misnomer, as its fruit is not only not delicious, but only barely edible. There has long been a fine old specimen of this shrub on the rockery at the Botanic Garden at Harvard University, and when Professor C. S. Sargent assumed directorship of the garden,

he was struck with the value of the species as an ornamental plant. It has a graceful habit, neat foliage, and in spring produces an abundance of pure white flowers upon the shoots of the preceding year. While the flowers are not very lasting, their great abundance, large size, and individual beauty, commend it to all lovers of flowering shrubs. The shrub will probably flourish in any garden soil, but its natural habitat being rocky hill-sides, it is especially adapted to the rock-garden. Theseeds of the old plants at Cambridge have been saved, and sent to various gardens at home and abroad, though they do not seem to have grown very generally. Mr. Dawson, the propagator at the Arnold Arboretum (Jamaica Plains), has succeeded in raising two lots of seedlings, and we may expect to see the plant before long quite generally distributed.

FLORISTS' FLOWERS.

ZINNIAS.—These have been so much improved of late years that it is somewhat surprising they are not more cultivated. The double varieties are quite equal in fullness of petal and form of flower to any Aster or Marigold, while for vivid coloring and general effect they put in the shade either of the above, or indeed any other annuals with which I am acquainted. A bed we have here, ten feet wide by twenty-five feet long, is perfectly dazzling to look on, containing as it does almost every shade of color imaginable. The plants were planted out the first week in June, in rows a foot apart and six or eight inches from plant to plant. I may here remark, that to grow them really fine a foot is quite near enough together, but in planting at six or eight inches I had in view the removal of any single vari-

eties that might show themselves. Few of these made their appearance, and the bed is now one mass of bloom and the admiration of all who see it. I may add that the plants are from imported seed obtained through Messrs. Veitch, and although I have grown Zinnias for some years they are the best I ever had. I was hopeful last season of having an extraordinarily fine strain, by selecting for seed the largest and best of all the double varieties, but to my great surprise and disappointment nearly the whole turned out singles, and were the worst lot I ever grew.

Those who have only seen Zinnias in clumps of two or three, or in small beds, can have no idea of the gorgeous display they make when planted in large masses like the above. Zinnias are rather gross feeders, and to grow them large and fine they require very liberal cultivation. The beds intended for them should be trenched at least one foot six inches deep, and during the operation plenty of thoroughly decomposed dung should be worked in. Being natives of Peru they are somewhat tender, and should not be sown too soon in the spring. The middle of May is sufficiently early, as they grow rapidly and are fit for planting out in about three weeks after the time they are sown. The seed should be sown in pans or boxes in light vegetable soil, which should be placed in gentle heat till they germinate, and the moment this takes place much care is necessary to keep them from becoming drawn, which they soon do if not pricked out thinly and placed close to the glass, where they can have plenty of light and air. As soon as sufficiently established and properly hardened, advantage should be taken of a dull day to transfer them to the bed previously prepared for them. A good watering will then

be necessary to settle the soil about their roots, and a few Laurel or other evergreen branches stuck thinly between the rows will be of great assistance in giving them a start. They delight in plenty of sunshine and warmth, and a spot should be chosen to grow them where they can be favored in that respect. Very little labor or attention is required after planting, beyond keeping the bed free of weeds, as, on account of the stiff nature of their stems, the flowers are borne erect, so that they do not require staking or supports of any kind. Should extra-fine flowers be aimed at for exhibition or other purposes, the beds should be mulched over with short rotten manure, and during dry weather plentiful supplies of water must be given them. There is nothing in the whole range of annuals that can at all compare with them for brilliancy and general usefulness, and if treated as above they will afford a display of choice flowers from the end of June till destroyed by the autumn frosts.—*T. Sheppard.*

THE GUM FROM THE MESQUITE-TREE.

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BY BOTANIST.
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This gum, or substance, from the above tree is of importance as a substitute for gum-arabic. The tree which produces it flourishes extensively in the high and dry regions of the plains of western Texas, New Mexico, and the peninsula of Lower California and the adjacent Indian territories. It occurs in inexhaustible quantities, and will in time prove a valuable source of revenue to the inhabitants of Texas and New Mexico, besides affording employment to the different tribes of Indians roving upon the plains, many of whom will no

doubt be glad to gather and deliver it to the different frontier posts for a small compensation. "The tree from which this gum is obtained," says Dr. Shumard, "is by far the most abundant tree of the plains, covering thousands of miles of the surface, and always flourishes most luxuriantly in elevated and dry regions." The gum exudes spontaneously in a semi-fluid state from the bark of the trunk and branches, and soon hardens by exposure to the atmosphere, forming more or less rounded and variously colored masses, each weighing from a few grains to several ounces. These soon bleach and whiten upon exposure to the light of the sun, finally becoming nearly colorless, semi-transparent, and often filled with minute fissures. Specimens collected from the trunks of the trees were generally found to be less pure and more highly colored than when obtained from the branches.

The gum may be collected during the months of July, August, and September; but the most favorable period for that purpose is in the latter part of August, when it may be obtained in the greatest abundance, and with but very little trouble. The quantity yielded by each tree is found to vary from an ounce to three pounds; but incisions in the bark not only greatly facilitate its exudation, but cause the tree to yield a much greater amount. As it is, a good hand will probably be able to collect from ten to twenty pounds in a day.

The botanical name of this commonly known Mezquite-tree, as given by Professor Spencer F. Baird, of the Smithsonian Institution, is *Aglarabia glandulosa*. It is found on the river Gila, and plentifully on the Colorado. Like many of the plants of that latitude, its fruit is seen in blossom and in maturity at the same period. It is first recogniz-

ed by the Pacific-bound emigrant as a stunted shrub; but as he approaches his destination, it is seen only as a tree of twenty to thirty feet in height. The gum is not, however, the only valuable product of this tree. Mules devour with avidity the fruit, which is contained in a pod of a twisted appearance, being a berry of the size of a bean, each covered with a mealy pulp. Lieutenant A. W. Whipple, of the United States Corps of Topographical Engineers, observing its peculiar effect on them, was induced to examine it, and found that each berry possessed an intensely astringent property. The Indians and Mexicans are in the habit of boiling its chips in water, and with the decoction dyeing articles of apparel, etc. The tree certainly belongs to the *Mimosæ*, as does the Acacia-tree, from which gum-arabic is obtained; and from the similar properties, not only of the gum, but of the wood and bark, we may practically regard the two as alike.

We have inquired of an eminent druggist in San Francisco as to the qualities of this new gum, and he informs us that it is more adhesive than gum-arabic, although darker in color.

GRAFTING GRAPE-VINES.

It has been discovered after repeated trials that the Mission Grape is far inferior to many other varieties for wine-making, as well as for raisins. Most of the early vineyards consisted chiefly of Mission vines, and some proprietors have rooted them up by thousands to make room for valuable varieties. Of course a great loss of time and labor is involved in this course, which might be almost wholly avoided by grafting the desired kinds upon Mission stocks. The process is so simple and so certain,

that it ought to be generally practiced. Cions for grafting should be cut about the first of January and not later than February, and may be set any time between the 10th of January and the 10th of March. They should be kept alive and moist by burying them in a cool place so that they will not bud out. If so kept and properly grafted they will be almost certain to thrive, whether inserted in Mission or wild Grape-stocks, and will often grow fifteen or twenty feet and produce two or three bushels of Grapes the first season. The modes of grafting are various, the chief difference being in the rapidity of execution. A graft or cion may be inserted so as to grow upon any part of a vine, but should for practical purposes be inserted two or three inches below the surface of the ground, which is to be carefully pressed down around the stock after the operation. When vines are gnarly and not easily split, holes may be bored in the stump or stock with a fine cutting-bit, and the cion inserted two inches deep. The bark of the cion should be carefully peeled off as far as it is to enter the hole, and should fit it closely. The hole (one or more, as desired) should be as near the bark of the stump as possible, but it is not necessary that the bark of the cion should meet and coincide with it as in grafting trees.

The quickest and best way, however, especially where there is much grafting to be done, is to provide a wedge-shaped chisel about an inch wide. Bending back the stock on which you wish to operate, press the chisel into the side and downward. The cion should be previously cut to a wedge shape, a little thinner on the inner than the outer edge, and the bark of the latter should correspond as nearly as possible with that of the stock. When inserted in the cut let go of the stock,

and it will spring back, firmly holding the cion. No covering except the soil is necessary for the incision in the stock. One bud only of the graft should be left above the ground. As soon as it is known by the starting of the bud that the graft has taken—which will be on the last of April or first of May—the stock above the cion may be cut away with a fine saw, with an upward cut. This plan is almost certain to succeed, and even if it does not the vine will produce the usual crop, as if no attempt to graft had been made. This method is so easy that it quite does away with the necessity of dragging up growing vines in order to secure new varieties. Grafting will perfectly answer the purpose.—*S. F. Chronicle.*

THE APHIS.

BY ENTOMOLOGIST.

The *aphides* (or, as they are sometimes termed, the plant-lice), although individually insignificant, are vastly more multitudinous and very much more generally and minutely diffused than almost any other class of insects. It has been assumed by eminent naturalists that the number of the species may exceed fifteen hundred, although only about seventy have been accurately described and scientifically determined; as nearly every species of plant, from the stateliest forest-tree to the minutest grass, is believed to be infested by an aphis peculiar to itself, though many species of this insect feed on a wide range of different plants. Their astounding fecundity exceeds that of any other animal, not excepting the fish, and is effectuated in a manner otherwise unknown in natural physiology. Bonnet, the naturalist, selected a plant-

louse which he had seen the moment before born of a mother without wings, and placed it upon a leafy branch which he had carefully ascertained to be free from the presence of any other aphid. He completely isolated this branch from the atmospheric air by an inverted glass vessel, and, commencing on the twentieth day of May, watched this insect with a microscope hourly, from five o'clock in the morning till nine at night, till the first of June, when, having cast its skin four times, it produced a young living aphid. Within the following three weeks it thus produced no less than ninety-five aphides. Bazin discovered that plant-lice produce young without pairing. Let us pause a moment to contemplate the startling gross result of this fecundity. If we reckon with Bonnet an increase of ninety females at each generation, the progressive increase will stand thus:

First generation.....	90
Second generation.....	8,100
Third generation.....	729,000
Fourth generation.....	65,610,000
Fifth generation.....	5,904,900,000
Ninth generation.....	350,970,489,000,000

Flocks of insectivorous birds and myriads of other insects find in these aphides their natural food. The lady-birds, which in some places are met with in clouds, devour them in both the perfect and the larva state, depositing their eggs in the midst of their groups. The larvæ of some wasp-flies feed on the Cabbage aphid. We all know that we have an abundance of a species of aphides or plant-lice in our conservatories. These can be destroyed by fumigating with tobacco, but with parlor-plants they are not so easily disposed of. A large box, in which a number of plants can be placed and then fumigated, is a very convenient method, always selecting a warm day for the operation, or

using some room in which the smell of tobacco would not be objectionable. The soft-wooded or herbaceous plants are the ones most infested with this pest. Place the plants in a deep box, and then put a few live coals into an earthen or metal dish and throw a handful of fine-cut tobacco upon them. The box should then be covered up tightly, in order to confine the smoke about the plants. Allow the plants to remain in the box two or three hours, then take them out and syringe the leaves and stems with clear tepid water. Repeat this operation as often as this "green-fly" appears, if you desire healthy plants.

Another plan to successfully destroy these nuisances is to boil an ounce of quassia for ten minutes in one quart of water; then add soft or whale-oil soap, about the quantity of a small egg; apply this to the infested plants, and the destruction of the aphides will be certain. It will not injure the plants.

The mild climate of California is too favorable for the propagation of these troublesome insects, although they will stand a great amount of frost by sheltering themselves from it in the chinks and cracks of the branches of trees and shrubs, etc.

CALIFORNIA DRIED FRUIT.

The *American Grocer* of New York, speaking of some samples of dried fruit put up by J. Q. A. Ballou, of San José, says: "We were invited to examine some specimen boxes of California pitted Plums and Prunes shipped by Messieurs Auzerais & Pomeroy of San José, California, to Messrs. H. K. Thurber & Co. of this city. They were put up in neat boxes, holding 25 pounds net, and taking them in all, they were the finest fruit of the kind we have ever seen.

There were seven different varieties, some larger than others, but all of good size, well cured, sweet, and of excellent flavor. We would earnestly recommend our California friends, within whose easy reach is the entire dried-fruit trade of this country, to be extremely careful in giving uniformity of quality throughout in each box, and to avoid all appearance of evil in not making a particular selection of the finest specimens of each kind for the top layer of each box. Do not make the slightest attempt to mislead the buyer for appearance sake. The fruit is all good enough to stand on its merits, and its merits are strong enough to give quick success, without any fictitious aid. If we are thus critical, it is because we feel an honest and sincere desire to see California raisins, prunes, and all other kinds of fruit, take the place of the miserable trash that foreign countries have thought good enough to send us, and we shall gladly do all we can to promote this object. Would it not be well to adopt the patent process of drying? It is desirable to enter the market in competition in price as well as quality, and if that process were used it might enable the producer the better to do so."

YUCCAS AND ECHEVERIAS.

Two years ago, in studying the newer plants adapted to our rainless summers, I obtained through the kindness of Professor Grey, very fine additions to our stock of fleshy-leaved House-leeks and Sedums.

Every one is familiar with the humble *Sedum acre* so much used for our borders, and which bears neglect and drought admirably; but few are aware that there are some forty other species,

some larger and some finer foliaged, well adapted for the dry rockery. Upon the rocks at Humboldt Bay a fine silvery *Echeveria* abounds. We have another gorgeous flowering species to the southward; both are eminently deserving of a place in our garden. A corner can be given to this family of plants which would prove an interesting variation to the standard set styles now in vogue. Pretty high up, I would put a plant of variegated *Agave*, leaving room for it to spread on all sides, then a semi-circle of *Yuccas*, so selected that they would be likely to bloom together. Then a row of *Echeveria metallica* with any other *Echeverias*, and just on the edge *Sedums* and *Sempervivums*. A good name would be the "Live-for-ever garden," as two or three waterings in a season would carry it through, if the bed or mound was made of good rich soil in the first place. The little *Sedums* would creep in and out and carpet every inch of surface between the larger plants.

Yuccas are among the finest architectural plants; especially *Y. pendula* or *recurva*, which made such a splendid show in the grounds of the Military Academy last year. When the bloom-shafts are dried, the plant appears to be dead, but it should not be moved for three or four months, when, if lifted carefully a large number of fleshy buds will have protruded, and will already have strong roots. These may be separated and planted or potted at once. One should always have a supply in the reserve garden. The House-leeks may be divided at any time.—*Jeanne C. Carr, in Rural Press.*

GROUND BONES retail in England at \$30 to \$45 a ton in gold. The price in New York and other centres of the trade is about the same in currency.

THE PAPER-TREE.

The Paper-tree (*Tung tsan*), grows wild in the forests of Formosa, a beautiful island situated about eighty miles from the Chinese coast. It grows much like the Palm, with a slender trunk and corrugated bark, and often attains the height of thirty feet. Its top is crowned with a profusion of small but delicate yellow flowers, in clusters, below which are a number of large leaves. It is a fine tree in the flowering season, but its value does not consist in its ornamental qualities. Like the Elder it has a pith, which in the full-grown tree is not less than two inches in diameter. This is driven out by a punch after the tree has been cut into sections, and then put into hollow bamboos, when it dries straight. After it dries, it is cut into sheets about four feet long, by a machine something like that by which leather is split. These are pressed until they become firm and smooth, after which they are cut into sheets the desired size.

This makes a very good paper, and is extensively used in eastern countries. It has the peculiar quality of swelling when it is wetted, and then of retaining its enlarged size. This makes it very desirable for fancy work, such as taking the impression of leaves and flowers; also for drawings, as the moistened surface rises and gives the effect of relief.

This paper has been in use a long time by the Chinese, though they make other kinds of different material.

Paper of some kind has long been in use, but probably at first the skins of animals were used. We are told that the early Arabs made their inscriptions on the shoulder-blades of their sheep. The papyrus was early used in Egypt, and continued in use long after the Christian era. This was prepared by

separating the different layers of the bark of the Papyrus, a reed-like plant, and then pressing them together, with each alternate one laid crosswise. This is said to have made a very strong and durable paper.

The Buddhist priests still write their sacred literature on the leaves of the sacred Palm. I have often seen them reading from these books, and I have a part of one in my possession now. They are neat in appearance, and not inconvenient.

Modern invention has done much for the world, but not as much as one would naturally suppose. Most of us would be astonished to see how well the world got along, and how neatly paper was made before the days of paper-mills.

PERSIMMONS AS MARKET FRUIT.

The Persimmon, in its unfrosted state, is an austere harsh fruit, which no one, unless just learning to whistle, cares to indulge in. When, however, it has been exposed to some frost, it is generally agreeable to most tastes. A very large market could be found for them in the cities if they could be got in there without mashing, but this has been hitherto found impossible. A very short distance of travel over a railroad is enough to turn a basketful into a shapeless mass.

Now we think it is well worthy of thought by those practical minds that are always on the lookout for something on which to make, whether something can not be done to turn the Persimmon into practical account as a market fruit for great cities. Years ago it was thought that the Strawberry and Raspberry could not be grown to any profit away from large cities, because in bulk they mash together so. But Yankee

genius got over this difficulty by the invention of the berry-basket, by which the mass of fruit was divided into small lots and thus prevented from crushing on one another, in slatted crates. The same surely could be done with the Persimmon. Little shallow baskets could be provided, in which the Persimmons would lie only two courses thick. It is not necessary to wait till the frost softens the fruit before gathering them, as then they get mushy in handling. But they can be gathered before the frost while yet hard and firm, and put in the crates, and the crates allowed to freeze through. We are much mistaken if quite a good trade might not be got up in Persimmons in this way.—*Germantown Telegraph.*

ACCLIMATIZATION.

BY HORTICULTURIST.

This process may be described as rendering a plant, whether fruit, shrub, or flower, capable of yielding the production desired from it, in a climate different from that in which it is a native. In some parts of the climate of California (and it has many, chiefly according to elevation of localities) acclimatization is required, even in our warmest southern portion of the country here, to enable a purely tropical or even semi-tropical plant to endure a lower temperature than that to which it has been accustomed; and this, though most are somewhat intractable, is more easy than inducing the natives of very cold regions to live and do well in most of our latitudes, except in very high mountains. When a new and valuable plant, especially if it is a fruit, arrives from a tropical country, it is desirable to use every precaution to avoid its loss; but as soon as it has been propagated from,

and the danger of such loss is removed, from that moment ought experiments to commence to ascertain whether its acclimatization is attainable. This should be done, because the nearer such a desirable point can be gained the cheaper will be its cultivation, and, consequently, the greater will be the number of those who will be able to derive profit or pleasure from its growth. Hence it is very desirable that an extended series of experiments should be instituted, to ascertain decisively whether many exotic fruits and flowers which have been first tried in our greenhouses would endure exposure to our comparatively mild winters and early springs, although we have some frosts nearly everywhere on this slope.

It may be laid down as a rule, that all Japanese plants will do so in all our moderate elevations; but it is not yet quite ascertained to what exact degree of elevation on our mountains this endurance extends. As to the tropical fruits, such as the Orange, Banana, Guava, Date-palm, Tamarind, Chiramoya or Custard-apple, Licorice and Indigo plants, etc., we are beginning to discover that they are likely to be successful in more parts of our State than we have been in the habit of thinking, though some of these that are strictly tropical plants will probably require some slight protection during the winter in the central and northern parts of our slope, if not in the southern. It is certain that the Strawberry Guava brought here several years since has ripened its crop in Sonoma Valley. The Chiramoya-tree has also done the same. The Date-palm is, at any rate, as hardy as the Orange. It will not, though, bear fruit north of Point Conception.

A very interesting scope is afforded to Horticulture in these experiments,

and the acclimatization here of new trees, plants, and flowers; and even if the grower should not succeed with some varieties, if he should be able to do well with but one or two, and show that they can be made adaptable to the climate in some locations, he will be accomplishing a public good. Experiment and experiment only ought to be relied on; for we know that the Larch was once kept in Europe in a greenhouse, and within these few years such American plants as *Tropæolum pentaphyllum* and *Gesneria Douglasii* were found to survive the English winters (which are sometimes rather severe), in their garden-borders; the first even in the cold winters of Scotland. Many tropical plants, of every order and species, have been found to succeed with much less heat during the day, but more especially during the night, than gardeners of a previous century believed. Other plants than those already noticed have passed from the tropics to the parterres of England and even to those of higher northern latitudes. They are therefore much more likely to do well in the open air in California. The Horse-chestnut is a native of the tropics; but it endures uninjured the stern climate of Sweden. Every year in Europe and America renders us acquainted with instances of plants being acclimatized.

As to all plants of shrubby or tree character, there can be little doubt that a proper solidification of the wood—by gardeners termed *ripening*—is the true basis of acclimatization. The way to effect this is by encouraging a somewhat early and free growth, and an early and a decided rest. Light shallow soils, thoroughly drained, necessarily accomplish this, by promoting an earlier root-action, and by exposing the roots more to the influence of the atmos-

phere, whereby the very droughts of our summer season become beneficial, by checking luxuriance, and bringing on the resting period betimes. In annual plants it must be confessed that scarcely so much progress has been made even in our favorable climate with some few tropical plants as in those of a woody character. But we shall, as they do everywhere else, live and learn, and make good progress; as, I believe, we are now beginning to do.

DANGER OF TIN VESSELS FOR COOKING ACID FRUITS AND VEGETABLES.

In a paper addressed to the French Academy of Sciences, Dr. Fordos gives an account of some experiments on tin vessels used in laboratories and hospitals, and even in private families, for infusions and similar purposes. These utensils generally contain lead in certain proportions, and it was, therefore, desirable to learn how far that poisonous metal might be injurious to health in the long run. Dr. Fordos began by introducing water acidulated with one per cent. of acetic acid into a tin can provided with a lid. After letting it stand for a few days, he observed on the inner surface of the vessel a slight white deposit, which was soluble in the acidulated water, and communicated to it all the characteristics of a lead solution; iodide of potassium yielding a yellow precipitate, sulphuric acid a white one, and sulphureted hydrogen a black one. Nevertheless, the latter test is not reliable, since it causes a black precipitate with a salt of tin likewise dissolved in the liquid. The existence of a salt of lead in the white deposit is, however, sufficiently proved. It is confirmed in another way; if the inner sides of the vessel be scrubbed with a

piece of clean wet paper, a solution of iodide of potassium will turn it yellow. In certain experiments, a crystallized salt of lead was detected at the bottom of the jug. In other series of experiments, wine and vinegar were tried; they both became charged with lead, as they dissolved the lead salt deposited on the sides. Again, tartaric lemonade, left for twenty-four hours in the vessels, became impregnated with lead. Hence, Dr. Fordos concludes that in alloys of tin and lead both metals are attacked, the latter being generally the first, when in contact with the atmosphere and acid liquids, such as wine, vinegar, lemonade, etc.; and that consequently there may be serious danger in such alloys, either in the shape of vessels or in tinning culinary utensils.

PRESERVING WOOD.

A very simple and cheap mechanical process for preserving wood from decay is described in the *London Chemical News*. It was devised by Mr. Weatherby and verified by Mr. S. W. Moore, of St. George's Hospital. The process is as follows:

The wood is first kiln-dried, which deprives it of the moisture and volatile and inflammable matter; it is then put into suitable cylinders, in which lime and water with sulphurous acid gas are forced under considerable pressure into the pores; the sulphurous acid being a by-product from the roasting of pyrites.

When sulphurous acid is passed into lime under pressure, a sulphate of lime is formed which is soluble in water, capable of crystallizing as a bisulphite, which is readily oxidizable and convertible into sulphate of lime or gypsum. As this is insoluble it is not easily removed from the pores, and protects the

wood by its presence. The advantages presented by this wood are that its weight is less after treatment than that of the same wood before kiln-drying. The process is cheaper than any other; it is an admirable means for preventing dry-rot and decay from the action of water, as its pores are coated with an insoluble salt; it thus wears longer and vibrates less than ordinary Pine; it resists the attacks of insects, and from the removal of the volatile inflammable matter, as well as from the introduction of a non-conducting material, it is well able to withstand fire, the interior parts not giving up gaseous matter, which always so readily inflames.

The idea is much the same as that noticed accidentally during the Franco-Prussian war; many houses were found to have been protected from fire when they were largely built with plaster; lath-and-plaster walls were uninjured by fire when surrounding parts were destroyed.

HANGING-BASKETS.

Baskets of living plants may easily be had in perfection; select such kinds as will stand in rooms. As regards the baskets themselves I like to see the wire-work painted dark green. Some paint it with bright colors, which quite spoils the effect of the flowers, which should be gay enough as regards colors, without any addition in the way of paint. Inside the wire-work put a thick layer of green moss, so as to prevent the soil from dropping through; over this put some broken crocks, and then fill up with whatever compost is best suited to the requirements of the plants with which the baskets are to be filled. For summer decorations there are numberless plants that can be grown in baskets; but, for winter blooming nothing

is better, or looks more showy, than Rollisson's Unique Geranium or scarlet Tropæolum, both of which will continue in flower all through the winter, and droop down gracefully all around the basket. A basket, indeed, never looks well unless it is furnished with some drooping plant round the edge, as, for instance, with the variegated Ivy-leaved Pelargonium called L'élegante, while in the centre should be a nicely grown plant of Fuchsia. Pretty baskets may also be made of silver-variegated Geranium Lady Plymouth and bright blue Lobelia, or of blue Convolvulus, with Christine Geranium in the centre; in fact, any flower that suits, and if put in with good taste, will look well. For large baskets, suited for lobbies, mixed foliage plants, such as variegated Sedums, Echeverias, Iresines and Centaureas have an effective appearance. A window-box made of wood and lined with zinc, suspended by four cords or wires, up which can be trained creepers, also make a pretty room-ornament. The great point as regards keeping plants in baskets or boxes fresh and in good health is to give plenty of water during the growing season, but more sparingly in winter, and to keep the leaves clean. If baskets are hung high, there should be some means of lowering them, as it is troublesome getting up to them every morning with steps. If the baskets are small the best way is to carry them away and water them outside; but in the case of large baskets this can not be done, so a tea-tray or something of the kind should be placed under them to catch the drip. — *The London Garden.*

DOUBLE POINSETTIA.—Robert Buist is of the opinion that this plant can be flowered twenty inches across the crown and twelve inches high.

PRIMULA JAPONICA.

This Primrose, in England at least, has proved perfectly hardy, to which circumstance, as well as to its habits of bearing its bright, magenta-colored flowers in several planes or whorls, it owes the great favor with which it has been there received.

The floriculturists are indebted to Mr. Fortune for this, as for so many other flowers prized among the most desirable in cultivation—and to Mr. W. Bull, the distinguished London florist, as being the first to introduce it into Europe.

Its leaves are coarse, oblong, irregularly toothed, and the scapes, a foot and a half high, bear sometimes as many as five whorls of flowers, each flower an inch in diameter.

It is readily increased by division of the root. The seeds, according to the *London Agricultural Gazette*, from which we copy, are "sometimes long in germinating, and they have been known to remain in the soil twelve months and then to germinate. It is therefore, advisable not to be too hasty in emptying the seed-pan."

Mr. E. G. Henderson speaks of it as "one of the most attractive of new hardy herbaceous plants, and by far the most vigorous and robust kind in its family yet introduced to our gardens. Seed should be sown immediately it is gathered, otherwise it is most likely to lay a twelve-month and then come up like Mustard-seed, though a few may appear the first year.—*Moore's Rural New Yorker.*

THE varieties of *Amaryllis* raised from *A. pardina* are likely to form the most useful race of all. They flower very freely, which is not the case with the older and better known forms, and, too, in winter and early spring.—*Garden.*

Editorial Portfolio.

MANNA ON THE EUCALYPTUS.

At a recent meeting of the California Academy of Sciences, Mr. R. E. C. Stearns remarked, that he had recently detected a kind of manna on certain forms of the Eucalyptus-trees growing in the University grounds at Berkeley. Doctor A. Kellogg had previously noticed some in the same neighborhood.

"It occurs sparingly, but a very small quantity having been found on a narrow-leaved species, and not on the *Eucalyptus globulus*. In my paper on Australian forest-trees, read before the Academy in 1872, the following reference is made to the subject:

"However obnoxious to parasites in general this tree may be, it appears it nevertheless has its own species in the *Psylla Eucalypti*. This insect is an *Hemipteron*, and appears on the *Eu. dumosa*. It deposits a species of manna, called in Australia *Lerp* or *Laap*. It is a white substance, 53.1 per cent. of sugar syrup and 46.9 per cent. of a special modification of starch. This is prized by the inhabitants as a manna, and is greatly sought for by the bees, who convert it into honey. Dobson (entomology) describes it as the cup-like covering of the *Psyllidæ*, but Wittstein mentions six varieties of *Psylla*, and that one species produces a colored *Lerp* handsomer than the white, but as a deposit beneath the cup-like shields of the insect. (See annual reports of Wiggen and Husemann of progress in Pharmacy, etc., Gottingen, for 1870 and 1871.)

"I am not aware of the presence of manna upon any species of the Eucalyptus in California having been previously reported. It is not surprising, however, that with the introduction of exotic forms of vegetation we should

also introduce with them many species of animal life which are parasitic upon and to the same."

SLUGS.

These pests are one of the most common of injurious and destructive nuisances in our gardens. They are of several species here, and, generally, the worst of them are so small as to be not easily discernible until their ravages have effected the mischief on many kinds of plants, especially the Pansy. Their workings are also gradual, and a plant is often found irreparably injured before these troublesome creatures are detected. They attack more or less all flower-stems and roots. They are effectually destroyed by either salt or lime; and to secure the contact of these with their bodies, it is best first to water the soil where they harbor with lime-water in the evening when they are coming out to feed, sprinkling the surface at the same time with dry lime, and at the end of a week applying a small surface-dressing of salt. Frequent earth-stirring helps to banish them. By using lights at night they will be found on the leaves of plants, and then they may be destroyed by hand.

"FLOWER OF THE HOLY GHOST" AT WOODWARD'S GARDENS.

This beautiful flower (*Peristeria elata*) has been for some time in bloom in the tropical department of the conservatory at Woodward's. Its leaves are Lily-like. From the centre of these shoots up a straight stem about four feet high, and bearing toward the summit a row of white wax-like bells, shaped like the cups of Tulips and an inch

and a half in diameter. In the heart of these flowers sits the image of a dove, so perfect in outline and attitude that it can not fail to be recognized at a glance. It is immaculate in color, save a few purple dots on the wings and a delicate tinge of carmine on the tiny bill, while there is about it such an air of saintly innocence and repose that one can hardly help bowing before it, in imagination at least, as before a genuine vision of the Holy Spirit. Professor Asa Gray describes this plant as a native of the Isthmus of Panama, where it was discovered by an early Spanish Catholic. "No one," says he, "who has ever seen the flower can wonder that he who first beheld it, being a Christian, reverently dropped on his knees before the wonderful spectacle, murmuring, probably, as one can well imagine, in low, awe-struck tones: "*Ecce Spiritus Sanctus!*"

The *Peristeria* is found oftenest in low, marshy grounds, where it springs from decaying trees, or perchance from the crevices of rocks. The plant proceeds from a bulb, and vigorous specimens sometimes reach a height of six or seven feet. Its leaves are broadly lanceolate, developing in pairs, and its flowers are produced during the months of July, August, and September. Since the discovery of the native habitat of the *Peristeria*, its bulbs have been distributed among the conservatories of all parts of the world. Yet it is rather a difficult thing to bring the plant to the point of blossoming in an artificial soil and climate; therefore, it is nowise strange that cultivators, when they succeed in flowering it, regard their specimens with affectionate and peculiar pride and satisfaction.

PLANT BULBS.—Now is the time to plant out bulbs for early flowering—Crocuses, Hyacinths, Tulips, etc.

A GROUP OF HYACINTHS.

We are indebted to the kindness of B. F. Wellington, importer and dealer in seeds, bulbs, etc., 425 Washington Street, for the very handsome engraving of Hyacinths which is appropriate to Mr. F. A. Miller's article on the cultivation of bulbous plants. Both Miller & Sievers, 27 Post Street, and B. F. Wellington have for sale a very fine and superior assortment of bulbs and bulbous-rooted plants. The Hyacinth, common as it is, is a universal favorite in the most extended application of the word; the number of its varieties is now fully equal to that of any other florist's flower, and great improvement is observable in those of recent origin. They are usually grown for forcing into flower in early spring, when their lovely colored blossoms and rich fragrance lend a charm hardly otherwise to be found at that season; they are equally desirable for planting in the beds of the flower-garden. In glasses they are an elegant ornament in our parlors, and for this purpose occasion little trouble. This process is generally well known, but the above florists' firms will we know cheerfully give their customers instruction how to grow and manage them.

OUR FRONTISPIECE.

PAMPAS GRASS (*Gynerium Argenteum*).—This is without doubt the most noble, grand, and elegant grass for the embellishment of lawns and gardens in cultivation. It exhibits its beautiful and delicately pinkish-tinted tissue-like plumes the second year of its growth, and, though too tender for our eastern climate, flourishes with us, of course, in the greatest luxuriance. The orna-

mental grasses in the East which are most similar to it but more hardy, are the *Erianthus Ravennæ* and *striatus*, handsome perennials, but with plumes inferior to the Pampas in form, length, and fullness.

NEW AND RARE PLANTS.

Adiantum Seemannii.—Though not a new name among our garden Ferns, this is in reality a new garden Fern, and is described by Mr. Moore, in the *Gardener's Chronicle* of March 27, 1875, (page 396), as “a noble species of the Maiden-hair Fern, for which we are indebted to Messrs. Veitch & Sons, who gave us fronds from their specimen plant which are fully two feet long, with fertile pinnæ, three inches long and two inches broad. They have a comparatively slender glossy black stripe, bare at the lower part, and bearing toward the top from four to eight of the magnificent pinnæ already noted, which are attached by a slender petiole an inch long.” It received a certificate at the Royal Botanic Society's Fete, in June, 1874, under the name of *A. Zannii*, but the above has been proved to be identical with the Maiden-hair described by Sir W. Hooper, so long since as 1851, as *A. Seemannii*, the plant previously sold under this name being *A. Wilsonii*.

Poinsettia pulcherrima rosea-carmineata.—This fine variety of one of the most useful of winter decorative plants resembles the type form of *P. pulcherrima*, so far as regards growth and foliage, the difference consisting in the color of the fine-spreading head of bracts, which are large, smooth, and of a brilliant rosy-carmine hue. In the specimen from which those notes are drawn up, the crown of colored bracts

measured fifteen inches across; the inflorescence first branched trichotomously, and then each of these branches were forked. The number of bracts displayed on these six ramifications was forty-five, all perfect in form, and pure in coloring, the larger ones measuring seven inches in length, and upward of two inches in breadth. The bracts are much smoother and flatter than in the old form, and spread out so as to form a fuller and more regular crown.—*W. Bull.*

Stenospermium Wallisii.—Under the provisional name of *Spathiphyllum Wallissi* Messrs. Veitch have lately exhibited one of the most remarkable and beautiful stove Aroids known to us, and which was introduced from Colombia by Mr. Wallis. It is, we believe, new alike to science and garden, and forms a new member of a genus including only three or four species, from Peru, Colombia, and the Amazon district. As a decorative plant, its points are, its Cordyline-like habit, thick rich green leaves, and more especially its slender, whip-like, erect peduncles, bent over at the top, and bearing a nodding spathe of ivory-white color, like an open shell, and with an oblong spadix, which bears the same relation to the spathe that the clapper does to a bell.

Hibiscus (Rosa sinensis) Kermesinus.—A grand flowering stove-plant, with the foliage and general habit of other varieties of this extremely ornamental species. The flowers are large and showy, full double, the petals broad, round, and undulated, the three or four outer series reflexed, the central ones erect, the innermost consisting of the transformed column developed into numerous petaliferous lobes bearing stamens on their margins. The

color is a fine rich carmine crimson. The plant has been imported from the South Sea Islands.—*W. Bull.*

Camellia, Mrs. General Lee.—The Maryland Horticultural Society offered a handsome premium last winter for the best seedling Camellia. This was awarded to Mr. John Feast for the beautiful variety named as above. Baltimore has been celebrated in the past for its attention to Camellia-raising, and it is pleasant to find her yet boasting her laurels.

Another Large Water Lily.—It is reported that M. von Hulle, of Ghent, has recently received seeds of a Paraguayan Water Lily, which is said to eclipse the *Victoria regia*.

FLOWERS FOR TABLE DECORATIONS.—Flowers are the only decorations that may be used by rich and poor alike. They are more beautiful than the costliest service of silver or crystal for the table. A very handsome ornament for the dining-room or parlor table may be obtained at a small cost, by having made by any tinsmith two circular tin trays; one, larger than the other, has a socket upon the inside, and the other has a socket upon the outside of the bottom. The shaft to connect the two may be from ten to fifteen inches long, of glass which can be bought of a druggist or at a china store, or it can be cheaply made of wood and painted. The rod may be cemented into the sockets, or the ends can be wound with a yarn to make a snug fit; then it can be taken apart for putting away. Fill the trays with wet sand, and arrange the leaves and flowers according to fancy. A profusion of green wild Ferns and vines looks well with a few flowers, and a trailing vine should be wound around the rod.

Correspondence.

UKRAINA, CAL., October 1, 1875.

EDITOR HORTICULTURIST:—We have many different kinds of snakes here—gopher-snakes, adders, rattlesnakes, and other kinds. Rattlesnakes were plenty this summer. I killed one on the 23d of April, with seven rattles. I notice the old ones with many rattles are very fat and clumsy; the young ones are smart like lizards, and crawl into very small places. I have killed several in my chicken-house this summer. It is dangerous to put your hand into a chicken-coop without looking into it before you do so. I have remarked two kinds of rattlesnakes here—a small snake of grayish or lead color; the large of bright green and yellow colors. A neighbor of mine (Mr. Nibes) was almost fatally bitten by a small rattlesnake with two rattles, which was secreted under a piece of timber. He did not see the snake, and thought he had got a sliver into his finger.

In the month of July I saw plenty of tarantulas; they have great strength in their jaws; they can hold a half-pound weight.

Gophers this year were a great curse in the earth—I think on account of the dry spring. They effected great destruction in my vegetable garden. They know the difference between the kidney-potatoes and common blue. They destroyed more than half of my kidney-potatoes, and ate only a few bushels of the blue. They eat the branches of Currant-bushes, but not the roots; they eat the roots of Raspberry-bushes; they eat Pumpkin-roots, but will not touch the vines; they are very fond of Horseradish and Onions; they do not like Rhubarb or English Beans. I caught a great many in traps.

AGAPIUS HONCHARENKO.

FRUIT CULTIVATION, AND
REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

The time is fast approaching in California (indeed, it now in some measure has arrived) when manures and their applications will become a most important subject for fruit-growers as well as other cultivators. We shall not now discuss the nature and kind of manures to be applied to all sorts of fruits. The animal manures and their beneficial properties are pretty well known, and we shall confine our remarks to the proper time and manner of applying them to orchard and garden plants or fruits, whether they be large or small. Provided manure is of a fair permanent character, it does not very much matter at what time it is administered, because if it does not act at first it will sooner or later; but when it is of such a nature to be easily dissipated, like some of the lighter substances of fertilizing matter, a knowledge of the proper season becomes extremely necessary. Professor John Lindley observed that plants will not receive the influence of manure so readily at any season as when they are in the most rapid and steady growth, because at that time the absorbing force of their roots and their vital energies are all greatest. From this fact, then, we may reasonably judge that the proper time for a top-dressing of almost any kind of manure on this coast is just before or during our rainy season, generally from November to March. Of course, if applied during any time of our long dry season, when vegetation is more languid, especially herbage of all kinds, any sort of manure will be found of comparatively very little effect. All vegetation flourishes best in the cooler and more

moist seasons of the year. When a top dressing is applied in the rainy season, grass and plants profit by it so long as they continue to grow vigorously; but the quick approach of summer daily interferes with the force of vegetation and diminishes the effects of the manure. On the contrary, if October or November are the season chosen for the operation, grasses, especially (among them that valuable feed, Alfalfa), are beginning to grow steadily, and there are five or six clear months at least during which the effects of the manure continue to be felt. It may be, perhaps, a matter of indifference at what season such manure as bones, and other kinds of matter which decompose very slowly, are employed, yet there can be no doubt that upon every known principle they had better be given at a time when vegetation is most active; hence the every-day practice of digging manure into the borders of a garden in our rainy season, or shortly before an annual crop of vegetables or budding flower-plants are about to be committed to the soil.

As to the manner of applying manure, it must be obvious that it can be of no use unless it is in contact with the absorbing parts of the roots. Now, these parts are the young fibres and spongi-oles, and when trees or plants have arrived at any considerable size, the roots form the radii of a circle whose circumference is the principal line of absorption. This being so, if a plant has arrived at the state of a bush or tree, it is useless to apply manure to the base of the stem, because that is precisely where the power of absorption is the weakest, if it exist at all; and as the circle formed by the roots is generally greater than that of the branches, the proper manner of applying manure is to introduce it into the ground at a distance from the

stem about equal to the radius formed by the branches. And yet, although this is evidently correct, we have seen gardeners, who ought to have known much better, persistently administering liquid manure, by pouring it into the soil at the base of the stem—or at any rate pretty near it—which is much the same thing as if an attempt were made to feed a man through the soles of his feet.

With regard to the pruning of fruit and other trees, shrubs, or bushes, if well directed it is one of the most useful, and if ill directed it is among the most mischievous operations that can take place upon a plant. But we will defer speaking of this until another time, and will devote the remainder of our space in the present article to our usual subject, the market.

From about the last of September to the first week in October, the receipts of Strawberries were increasing, and aggregated from 35 to 65 chests of 80 lbs. each per day. No difficulty was found in disposing of the whole at rates which were remunerative to the growers. Never before had it been possible at this season of the year to place such large quantities at anything like the prices realized. The reason was found in the unusual scarcity of late Peaches; also, in some fruit-growers in San José and Santa Clara valleys paying great attention for some time since spring to the cultivation and irrigation of their plants, which were chiefly of the Hovey Seedling variety. As the season has advanced they seem actually to have increased in size and good flavor. We are enjoying almost a large crop, such as we have in spring, and at moderate prices compared with other seasons, at this time of the year. Plenty of Strawberries and cream in October and November. What say you to that,

ye eastern folk? Do you wonder that the inhabitants of California congratulate themselves that they are living in such a climate, and with such excellent, varied, and plentiful productions, to enjoy and revel in? Truly this is a highly favored portion of the world.

A few ripe Winter Nelis Pears came in about the 8th of October, but were selling at high figures. There was no falling off in the supply of Grapes, and the low rates at which they were attainable places them within the reach of all. The principal varieties were quotable as follows: Muscat of Alexandria, 10c. to 12½c.; White and Flame Tokay, 10c. to 15c.; Black Hamburg, Rose of Peru, Sweetwater, and Black Malvoisie, 6c. to 8c.; Isabella, 8c. to 10c.; Mission, 5c. to 6c.; Black Morocco, 15c.; White Malaga, 12½ per lb. Plums are scarce at 12c. to 15c. per lb., and Pomegranates at 6c. to 10c. each. Apples by the box retailed at \$1 to \$2; Pears, \$1 to \$3, delivered.

But little change took place in the prices of vegetables during the first of October. Asparagus was more plentiful, and sold at 35c. to 40c.; Summer Squash, 5c. to 6c.; Egg Plant, 8c. to 10c.; Chile Peppers, 12½c.; Rhubarb, 6c.; Horseradish, 20c. to 25c.; Marrowfat Squash, 2c. to 3c.; Green Corn, 20c. to 25c.; Artichokes, 25c. to 50c.; Kale, 50c.; Watermelons, 15c. to 25c.; Cantaloupes, 15c. to 25c.; Brussels Sprouts, 5c. to 6c.; Windsor Beans, 5c. per lb.

The arrivals of Strawberries were still quite liberal, and all went off quickly at fair prices. Grapes were abundant, and all the varieties were to be had at former rates. The principal kinds were as follows: Muscat of Alexandria, 10c. to 12½c.; White and Flame Tokay, 10c. to 15c.; Black Hamburg, Rose of Peru, Sweetwater, and Black

Malvoisie, 6c. to 8c.; Isabella, 8c. to 10c.; Mission, 5c. to 6c.; Black Morocco, 15c.; White Malaga, 12½c. per lb. The supply of mountain Peaches ceased, and the few in market were inferior in quality and were neglected by purchasers. The market was scantily supplied with good Pears, doubtless owing to extensive shipments of the best fruit to the East. A few ripe Winter Nelis were coming forward and were bringing high prices. A few late Plums were sold at 12½c. to 15c. Pomegranates were abundant at 6c. to 10c. each. Apples by the box retailed at \$1 to \$2; Pears, \$1.50 for cooking, and \$2.50 to \$3 for choice eating.

Strawberries were very abundant during the second week in last month (October), the daily arrivals having ranged from 50 to 100 80-lb chests. The supply has been so large, for more than two months past that people are almost becoming tired of them, and, notwithstanding the tenderness and superior quality of the fruit, the demand is becoming less active and prices are beginning to weaken. A few Raspberries were still to be had about the third week in last month at 40c. There was no diminution in the supply of Grapes. The different varieties are quotable as follows: Muscat of Alexandria and White and Flame Tokay, 8c. to 10c.; Black Hamburg, Rose of Peru, Sweetwater, and Black Malvoisie, 8c. to 10c.; Isabella and Catawba, 10c. to 12½c.; Mission, 5c. to 6c.; Black Morocco and White Malaga, 12½c.

Choice eating Pears are in better supply, and Winter Nelis and Beurre Clairgeau are obtainable at \$2.50 per box. Cooking Pears sell at \$1.50, and Apples at \$1 to \$2 per box, delivered.

Green Corn was more plentiful than at any previous time this season. Much of it, however, was very wormy, and

was neglected by consumers. Some other varieties of vegetables, including Lima Beans and Cucumbers, began to show signs of giving out, and prices were advancing. Tomatoes were still abundant, and were it not for the large quantities taken by the canners, prices would have been the lowest of the season. Asparagus retailed at 35c. to 40c., Summer Squash, 5c. to 6c.; Egg Plant, 8c. to 10c.; Chile Peppers, 12½c.; Rhubarb, 6c. to 8c.; Horseradish, 20c. to 25c.; Marrowfat Squash, 2c. to 3c.; Green Corn, 20c. to 25c.; Artichokes, 25c. to 50c.; Kale, 50c.; Watermelons, 15c. to 25c.; Cantaloupes, 15c. to 25c.; Brussels Sprouts, 5c. to 6c.; Windsor Beans, 5c. per lb.

About the middle of last month (October), small quantities of Raspberries and Blackberries of the second crop were for sale at the fruit-stalls, the former at 40c. and the latter at 35c. to 40c. per lb. It was thought about ten weeks ago that we had seen the last of these berries for the season, but it seems that the same influence that has brought in an abundant late crop of Strawberries has had a similar effect upon these. The Strawberries appear to become larger as the crop advances in age. They are of good size and tender, but rather acid, making a fine berry with sugar and cream. They will, no doubt, last in good quantities until the regular rainy season arrives, when they will probably rot gradually.

Grapes were little less abundant; no change was made in prices. We quote Muscat of Alexandria, 10c. to 12½c.; White and Flame Tokay, 10c. to 15c.; Black Hamburg, Rose of Peru, Sweetwater, and Black Malvoisie, 6c. to 8c.; Isabella, 8c. to 10c.; Mission, 5c. to 6c.; Black Morocco, 15c.; White Malaga, 12½c. per lb. There was a better supply of eating Pears, though prices for

the choicest were unusually high. Winter Nelis and Beurre Clairgeau are the best, and sold by the single box at \$2.50 to \$3. Cooking Pears were plentiful at \$1.50 to \$2. Apples by the box retailed at \$1 to \$2.

Tomatoes, Green Corn, Cucumbers, and Summer Squash are still coming forward in liberal quantities. Asparagus retails at 35c. to 40c.; Summer Squash, 5c. to 6c.; Egg Plant, 8c. to 10c.; Chile Peppers, 12½c.; Rhubarb, 6c. to 8c.; Horseradish, 20c. to 25c.; Marrowfat Squash, 2c. to 3c.; Green Corn, 20c. to 25c.; Artichokes, 25c. to 50c.; Kale, 50c.; Watermelons, 15c. to 25c.; Cantaloupes, 15c. to 25c.; Brussels Sprouts, 5c. to 6c.; Windsor Beans, 5c. per lb.

Editorial Gleanings.

LARGE-FLOWERED PELARGONIUMS.—Cuttings of these should now be taken, if not already done, in order to have a supply of young plants for the following season. Our plants have been standing in the open air to ripen their growth before being cut down for cuttings; for it is important that the wood be thoroughly matured of which it is intended to make cuttings. Our cuttings have been pricked off into our cutting-box, which is somewhat elevated under a north wall and well drained. They can also be inserted in 48-pots, putting eight or ten cuttings into a pot, and placing the pots on a shelf in the greenhouse. The cuttings are not long in making root, and when they begin to show they have struck root by making an upward growth they may be shifted singly into small 60-pots, using a soil made up of fibery yellow loam, plenty of leaf-mold and sand. Care must be had that the pots be well drained. The pots can be safely wintered on a warm

shelf in a greenhouse, or in any dry place that is moderately airy, and where frost will not harm the plants. If green fly affect them during the winter, as it will plants that are kept close, a little soft-soap and water will soon cleanse the leaves, or they may be fumigated with tobacco-smoke, which will not only rid the plants of this pest, but slaughter the fly into the bargain.

M. JEAN SISLEY'S NEW DOUBLE PELARGONIUMS.—These varieties are a very great acquisition, all of them being exceedingly beautiful, and quite a distinct race of plants from the double sorts which have originated in this country. I have succeeded in flowering four of them which M. Sisley kindly sent me for trial. They are all of a dwarf and compact habit of growth, with foliage of medium size, and distinctly zoned; the flowers are all semi-double and large, with the centres loosely filled up with smaller petals than the outside ones, and in every instance they form large globular trusses thrown well above the foliage, supported by stout flower-stalks. In color they are novel and distinct. Louis Agassiz has light shaded pink flowers, which are really very beautiful. Louis Ruchner: flowers with salmon-colored centre, the outside petals being of a light bright pink color. Henri Lecocq: flowers of a salmon-shaded pink, the plant being of dwarf habit, with heavily zoned foliage. Sylphide is, perhaps, the most beautiful of all, the flowers being of a rich mauve or rosy-pink color. Of older sorts by the same raiser, George Sand is a magnificent variety, being a great advance upon Aline Sisley. The flowers are exceedingly large, with the outside petals well rounded; the color very light rosy pink, or nearly white. When grown

under glass the plant is of dwarf habit, with somewhat small and peculiarly formed leaves, slightly zoned. Francois Pertusati: centre of the flower salmon, with lighter colored marginal petals. Talabot: the flowers of this variety are of a rich velvety deep amaranth color, and are an improvement upon those of the older variety—Gloiré de Lyons.—*Gardener's Chronicle.*

THE preparation of Figs for market is given as follows: Sheets are held under the trees—clear of the ground—and the fruit is shaken into them. They are then placed into baskets and dipped in a bath of strong potash lye for about two minutes, and then dipped into clean water. This is to remove the gum on the outside of the fruit and to improve the color. They are then placed upon hurdles to dry in the sun, or in a dry-house, and when soft enough to pack closely are pressed tightly into wooden drums or boxes. The drums hold about fifteen pounds, and must not be made of pine, as it injures the flavor.

HOP-GROWING. — A correspondent of the Syracuse (N. Y.) *Journal* gives some hints upon this subject that may be interesting to the Hop-growers of this State: "In setting new yards, the hills should be seven feet by eight or eight feet by eight, the roots set with a bar just as early as possible. Potatoes are a better crop to go with them than Corn, and one large hill between each way is enough, for the crop we are seeking for is Hops, and by not crowding them this year there will be a good crop next. Tie up medium-sized white vines, three to large poles and two to small ones. If they run too fast, particularly in tent-yards, check them by

cutting off the hoods. This will give more branches on the strings and less of a cluster at the top of the centre pole. Cultivate every time it rains, or oftener, till harvest, but shallow in August. After picking, fill up the pole-holes in the hills, to protect the roots from water and freezing. Plant nursing hills with summer-grown sets in the fall. New yards should be grubbed in the fall and all surface-roots cut off, for the plowing will be likely to tear them off next summer. In harvesting it is very important to begin the picking well at the very first; start and go from box to box as fast as possible, for several hours, to get them started right. Be careful to secure good box-tenders, and have them do their duty well, for this is only justice to the pickers. They can get along so much faster with just the right kind of tending. It is well to have pickers enough, so that we can afford to lose a few discontented grumblers or turn away some poor ones. Finally, the strictest diligence and good nature must be practiced from first to last.

THE PAPAW.—The Papaw of the United States (*Asimina* or *Anona triloba*) is one of our fruit-trees, common in the forests and swamps of the Western States, and it bears a Banana-shaped fruit three or four inches long, which is quite palatable.

This tree, when planted in Louisiana, thrives well in any soil, and under every exposure, and produces every year large quantities of fruit which, by cultivation, can be improved as to size and flavor; these bear when four or five years old. The Papaw is almost unknown in this city, and but few specimens are to be found in the State. This fruit-tree certainly deserves a place in every orchard, and even in every gar-

den. The following are the advantages I have found it to possess over other fruit or ornamental trees: First, it requires no extra care in planting or afterward. Second, it will grow in any soil. Third, it requires no training or pruning, the plant always growing in a symmetrical form like the Magnolia, and generally growing no higher than fourteen or fifteen feet. Fourth, it never fails to produce yearly a large crop of fruit in July and August. Fifth, it is free from all insects.—*Eastern Ex.*

FRESH FLOWERS.—Fair readers, do you wear fresh flowers in your hair every evening at dinner? It is a charming custom. They are lovely to look at, delicious to smell. Ladies are (mercifully) made as a rule shorter than the less worthy sex; and when you take a pretty girl to dinner, the Moss-roses and Honeysuckle in her hair heighten her fascination. The scent blends with that of the Pine-apple at dessert and of the fragrant Mocha in the withdrawing-room in an exquisitely magical way:

“And whiff of Eglantine from ladies' tresses
A most magnetic mystery possesses;
Twined in soft hair, the happy floweret tries
To imitate their beauty, fails, and dies.”

THE PASSION-VINE OF AUSTRALIA.—The introduction of new plants and fruit-trees adapted to the climate of California is deservedly receiving considerable attention at the hands of our seedsmen and nurserymen. The latest importation of the kind to come under our notice is the fruit-bearing Passion-vine, seeds and samples of the fruit of which were received by O'Connor & Co., 426 Sansome Street, by the last Australian steamer. This variety (*Passiflora edulis*) is the most hardy of the fruit-bearing

kinds, and will succeed and give bountiful crops of its agreeable subacid fruit in sheltered locations in most portions of the State. A few plants have been already introduced, and have fruited in this city and at San Rafael. There are others of the two hundred species of the family that produce finer fruit than this, but will not endure our frosts. The fruit of *Passiflora edulis* is of purple color, oval in shape, about the size of an egg, and containing an agreeable, cooling, subacid pulp. The vine is an evergreen, and in localities subject to frost should be trained up the side of a building or piazza.

SOME curious experiments have been made in France to test how far the humidity of the atmosphere is affected by forests. Two sets of instruments for recording humidity were provided, one in a forest, and the other in the open air, a short distance off, each set being placed about fifty feet from the ground. The records show that during the first six months of 1874 more rain fell in the forest during each month than in the open field; the total rain-fall in the forest was $7\frac{1}{2}$ inches, and in the open field a fraction less than seven inches. The difference each month was favorable to the forest.

CATERPILLARS, when in their nest, can easily be killed, if within reach even by climbing. Use slippers, or stockings only, in climbing, so as not to injure the bark of the tree. Those out of reach on the extremities of limbs may be killed by burning, if the injury or death of the ends of the limbs is not objectionable. Wind and tie a woolen cloth around the end of a pole (making a ball as large as a pint bowl); saturate

the cloth with kerosene oil; set fire to the oil and hold the burning mass under the nest.

TULIP BEDS.—These are often planted without order or design. By a proper arrangement of the colors, a greatly improved effect is produced. If you have a sufficient supply of bulbs at the present time, properly assorted, you may divide them under the four principal heads of red, purple, white, and yellow. The beds should be circular or elliptical. If circular, they are more easily marked out. Set a small stake in the centre, and then begin to plant the bulbs in successive circles, working outward. There should be about three circles of each color, to make them appear in broad distinct bands. If there are several shades of color in your supply, keep each single circle distinct, and let the different colors blend or pass into each other, arranging them like the shades of the rainbow. If you have beds from which bedding plants are about to be taken within doors, you may set Tulip bulbs in these, and have a brilliant display early next season.

VARIOUS PERFUMES OF ROSES.—A writer in the *London Garden*, after remarking that Mignonette, Heliotrope, Verbena, Violet, Orange-blossoms, etc., has each its peculiar odor all the world over, speaks of the endless variety in the scents of the Rose, and he mentions seventeen distinct sorts, among which are the Sweetbrier scent, the Moss Rose scent, the Myrrh-scented Ayrshire, the China Rose, Damask Perpetual, Scotch Rose scent, Old Tea scent, etc. Another, termed the Verdier scent, and which takes in many newly introduced Roses, is compared to that of Apple blossoms,

or perhaps more correctly to a delicate Rose scent, with a suspicion of turpentine about it, pleasantly blended. Roses give off more perfume after having been gathered a little while.

“CHESTNUT-TREES two years old, which were transplanted last Spring,” says the *Nevada City Transcript*, “can be seen around town with nuts growing on them. In some cases the trees have grown six feet in height the present season. Their condition explodes the theory that those kinds of trees will not bear transplanting.”

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING OCTOBER 31, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.12 in.
do 12 M.....	30.12
do 3 P. M.....	30.11
do 6 P. M.....	30.10
Highest point on 29th, at 12 M., and 30th, at 9 A.M.	30.20
Lowest point on the 6th, at 6 P. M.....	29.96

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	62°
do 12 M.....	68°
do 3 P. M.....	68°
do 6 P. M.....	61°
Highest point on 6th, at 12 M., and 7th at 3 P.M.	80°
Lowest point on the 14th at 6 P.M.	54°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	53°
Highest point at sunrise on the 8th and 27th.....	58°
Lowest point at sunrise on the 29th.....	47°

WINDS.

East and north-east on 9 days; north-west on 6 days; south-west on 5 days; west on 11 days.

WEATHER.

Clear all day 10 days; cloudy all day 4 days; variable on 17 days.

BAIN GAUGE.

	Inches.
27th.....	0.18
28th.....	0.04
Total.....	0.22

Sharp earthquake shock, lasting 2 seconds, on the 14th at 5.55 P.M.



LOMARIA GIBBA.

(Dwarf Tree-fern).

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. V.

SAN FRANCISCO, DECEMBER, 1875.

No. 12.

SALMON FISHING AND RURALIZING ON THE NOYO RIVER ON THE NORTHERN COAST.

BY E. J. HOOPER.

In our angling articles we have several times referred to the kindred character and near relationship of angling with Horticulture, and its close connection with the examination of the beauties of nature and various kinds of vegetation. In our late trip to the north, with a congenial companion, for the main purpose of beguiling to our creel the lordly salmon, we had many opportunities not only of becoming acquainted with a species of that fish which ascends the rivers of our coast at this season of the year, but likewise of learning something of the trees, shrubs, and flowers which have their habitat in that portion of our slope.

With regard to the kind of *salmon* family which we had the pleasure of capturing in very considerable abundance from a boat by the use of the rod and reel, and trolling with what is termed the spoon-bait, we found it to be the hook-bill, of the *quinnat* genus, which invariably runs up all the rivers emptying into the Pacific above San

Francisco Bay, about the month of November. Of these fish we took in the space of seven days, by means of the spinning-spoon armed with a triangle of moderately sized hooks, seventy-three fish, averaging about nine pounds each, and weighing $642\frac{1}{2}$ pounds. These game fellows afforded us ample sport, labor, and occupation, in first playing with them till they became worn out or "drowned," and then lifting them into the boat by means of the landing-net, or hooking them under the gills by a hook attached to our weighing-scales, improvised sometimes for the emergency, as we often found that the spoon-hooks became most provokingly entangled in the meshes of our net; which led to our resolving that, on all future piscatorial occasions, we would provide ourselves with a sharp gaff or hook to pierce the captured fish and lift them into our skiff. The largest two fish we secured weighed each thirteen lbs, and the smallest two (*salmon-trout*) one pound and a half each; all the rest varied from six to twelve and a half lbs. The hook-bills were nearly all white or silvery on sides and belly, with dark black-spotted backs, the exceptions being those which were of a pink or red-

dish color, and which were declared by some of the inhabitants on the Noyo to be those just fresh from the sea, but by others, those which had been for some length of time dwellers in the fresh-water of the upper part of the river. Of the truth of either of these statements we were not at that time capable of deciding. We observed that the female fish were more marked along the back with dark spots than the males. The males have much more of the hooked bill than the females, and have longer prominent tushes at the extreme ends of their jaws; the females having much smaller hooks and teeth. As is usual with all the salmon tribe, the male is longer and more slender in the body, while the female is shorter and deeper or broader. The flesh of these hook-bills for the table is much inferior and more dry than the larger and bluer variety of salmon which follow them next flood, and which are similar to the handsome and better-flavored Sacramento River fish. The average weight of these latter is twenty-seven pounds, and they are darker in color, the females having dark red spots. These spawn in eddies of the stream among rocks and small stones, as well as clear sand. The spring salmon are the last that come up, and are found and remain in some small stream, or the smaller portions of some large rivers. They generally average thirty-two inches in length, and weigh twelve and a half lbs. These are similar to some of the San Andreas lake "salmon-trout," and are far superior to the other fish before described. Some persons term them salmon-trout, and we think this is their proper name. These are smaller, more slender, and longer and rounder than the other two sorts. The females are sometimes named "silver salmon." They are very rapid in

action, and their flesh is of a light red, that of the male being yellowish red. We found that none of the salmon will take the artificial or natural fly except in the spring of the year. The salmon-trout that come up the river Noyo in January or February are the best to eat. These fish are very nearly square in the tail, but the outside color is the same as the salmon. They swim deep, and are hard to catch with any bait except in January, but are mostly taken in nets. The hook-bill or hook-nose salmon come up into the Noyo, Navarro and Big rivers after the first copious rains. There they remain near the mouth until subsequent and frequent rains, when they proceed upward to spawn. Very large salmon-trout go up the rivers in January or February, as above stated, and they are the best fish of the above named kinds. None of these salmon are so good after much rain creates great floods. They then change both their color and appearance to a considerable extent. The hook-bill take the trolling or spinning spoon with red and white feathers, or red worsted covering the hooks; one side of the spoon should also be red. They are much speared by some people—also shot. In the neighborhood of the Noyo there are plenty of large brook-trout—indeed most of the northern coast abounds in them. The salmon-trout are captured with various baits in January. Sometimes they are caught at that time from the Pacific Ocean shore with a spoon and a long rod. The Noyo River is a beautiful stream clothed on both shores with an abundance of varied vegetation.

Now for a few remarks upon the abundant, beautiful and remarkable vegetation that almost entirely covers these northern regions. From the town

of Cloverdale, where we took the stage the first day for the North Fork of the Navarro River, the country is hilly and mountainous, and robed in most parts in lovely deciduous and evergreen trees and shrubs. The next day's journey toward the coast to the mouth of the Noyo River was through the magnificent Redwood forests, many of the trees of which were 300 feet high and from 12 to 14 feet in diameter at their base. The whole of this country and the redwoods extending about 150 miles north and south, and 50 miles east and west, abound in numerous deer, with numbers of brown or cinnamon and black bears, and the more northern parts with elk and grizzly bears, of which the two former feed in the summertime on the vast quantities of blackberry and raspberry bushes, and in the fall on two or three kinds of huckleberries or whortleberries (*vaccinium*) on the many prairies, when they are chiefly shot by the hunters. The Salmon-berry is not good to eat, being insipid in flavor. It is up to July about the size of a pigeon's egg and nearly quite red in color. There are at least three kinds of Huckleberries. One is small and black with rather a tough skin and large seeds, and not very sweet. Another is blue or purple, larger, more sweet and juicy, with smaller seeds and thinner skin. The third is of a bright clear crimson and almost as good as the blue or purple sort, with leaves as large as the eastern kind. All the above mentioned Huckleberries are fall fruits.

Besides plenty of small game there are vast numbers of water-fowls. The ducks up toward the north are much finer for the table than farther south, because they feed upon a kind of duck-grass which has a small tuber on its root rather like a potato, but much

smaller. They are great destroyers of salmon-eggs. The widgeons we found peculiarly tender and delicious to the palate. A species of grouse frequent the small prairies. The immense mill and lumber trade is very interesting here, at the mouths of all the rivers, and the lumber-camps in the forests.

I cannot close this, perhaps, already too long article, without bearing testimony to the excellent accommodations at the comfortable Noyo Tavern kept by the obliging John Byrnes. The fare was the best that we ever experienced out of San Francisco; and the terms quite moderate. The cost of the whole trip for two persons for two weeks was about \$100.

THE USES TO WHICH SOME WILD FRUITS MAY BE PUT.

BY A FRUITIST.

In the last number of the *HORTICULTURIST* was presented a list of the wild fruits of the West. The list was a limited one, and may be much enlarged, and might include many wild fruits of other parts of the world, such as those of California, which were only slightly alluded to. It would be interesting, also, to touch upon their profitable economic uses. That valuable fruit the wild Blackberry, independent of its great value in its fresh state, is of great importance as a preserve. In that relation it deserves to be largely employed. Everybody is willing to admit its excellent qualities. In many country places, both in Europe and the United States, in families a nice jam is made of this fruit, mingled with Apples. The excellent flavor and wholesomeness of Blackberries are hardly ever sufficiently appreciated. Blackberries, with only a little time and care, may be converted into excellent jelly as nice and firm,

with their own peculiarly delicious flavor, as the much praised "cheese" which was once, if not now, popular in England, made of Damsons. In California all our Blackberries, wild and cultivated, ripen generally early in July. Blackberries are often dried, and used medicinally from their astringency, and a syrup is prepared from them which is considered cordial and refreshing. Millions of bushels are also canned.

Wild Strawberries, Raspberries, and Huckleberries or Whortleberries, as well as Cranberries, are also dried for keeping by the late improvements in drying-machines by rapid evaporation with artificial heat.

Elderberries (*Sambucus nigra*), which ripen in this country in July, are made in many places into a home-made wine, in the old and cold countries and the East, mulled in the winter; but, in the mild winters of California it is not quite so appropriate a comforter.

In a late salmon-fishing trip to the northern portion of this State, by the writer, three species of the Huckleberry were met with: the large bluish species (*Vaccinium tenellum*) very rich and juicy, with rather a tender skin; the black sort, smaller, with larger seeds than the above, and thicker skin, with less juice; and a blood-red sort, similar, it is said, to the Mount Ida variety (*V. vitis Idæa*) scarcely to be eaten raw, but they are made into pies, and a jelly is made from them which is eaten with baked meat or venison. This preserve is also considered by the country people an excellent medicine in colds, sore throats, and all irritations of the mouth or fauces.

The large-fruited American Cranberry (*Oxycoccus macrocarpus*) has round red berries, which are better flavored than the European varieties. The erect or upland Cranberry, another species, has

scarlet or purple berries, quite transparent, and of an exquisite taste.

The most common American Cranberries are of a slightly oval shape, and a bright red color. They somewhat resemble Currants, but are more than twice as large, and have no remains of the calyx at the top of the berry. The berries are mostly picked by the Indian squaws, though Cranberry rakes are now much used. The business commences in September, and may continue until the marshes are frozen. In some years more than 10,000 bushels of Cranberries are shipped from St. Paul, which find a market all the way down the coast of the Mississippi River to its mouth, and in the West India Islands. They are also found in British Columbia, and are exported for about \$10,000 annually.

In the United States wild Crab-apples and sour Pears and Apples are, like their Huckleberries and Blackberries, preserved by boiling for five or six minutes in cans, adding from four to six ounces of sugar to the quart as to the Huckleberries and Blackberries, but as to the Pears and Apples with the addition of a greater quantity of sugar.

The Bilberry (*Vaccinium myrtillus*) is considered superior to the Huckleberry in general. It is very widely diffused over all the northern countries. Its color is bluish-black, about the size of Currants, covered with a mealy bloom, ripe in October or November. The berries are eaten in tarts, or with cream, or made into jelly or puddings.

The snowy-flowered Currant, like the Gooseberry (*R. niveum*) of the north-west coast of this continent, has deep rich purple fruit, about the size of the Cherry Currant, which ripens in July and August. The flavor is entirely destitute of the flatness which is more or less perceptible in even the best En-

glish Gooseberries; in lieu of which it has a rich, subacid, vinous, rather perfumed flavor, which is extremely agreeable. The fruit is rather too acid to be eaten raw; but when ripe it makes delicious tarts or pies.

The principal food of some of the northern Indians of this continent consists of small wild fruit, such as Cherries, the Salmon-berry, and all the wild berries, many of which the writer has already named, with the Service-berry, etc., which they dry and make into cakes.

The Persimmon, a well known wild fruit in many of the States eastward of the Rocky Mountains, is much eaten. In some States it is kneaded with bran, made into cakes and baked.

The red berries or fruit of the Mountain Ash (*Pyrus Aucuparia*), which ripens in September, are dry and abound in malic acid, but, in times of scarcity, they have been dried and ground as a substitute for flour. (In Scotland the fruit is made into a jelly, which is eaten with venison).

The fruit of the Choke-cherry (*Cerasus virginiana*), can scarcely be said to be edible in itself, but it is often pounded, stones and all, and mixed by the Indians with pemmican.

This inquiry and research into the many wild fruits in all parts of the world might be much further enlarged, and the results are certainly interesting and rather curious.

WEEDS are probably about the most prolific things in the world. It is estimated that one plant of the red poppy bears fifty thousand seeds, one sow-thistle eighteen thousand, one corn-cockle twenty-five hundred and ninety, the charlock four thousand, a groundsel six thousand five hundred, and the black mustard twelve thousand.

A NOTICE OF SOME OF OUR USEFUL BIRDS.

BY AN ORNITHOLOGIST.

Many kinds of our smaller birds are looked upon by our fruit cultivators as a great scourge. Thus it has been for many years that the poor despised and hated blackbirds, both the red-winged and others, have been regarded as great pests. Means of various kinds are devised to prevent their approaching to the orchards and vineyards, but independent of their vast numbers in California, this has been to little or no purpose, and nothing short of the entire extermination of their race, which is quite impossible at present, could be regarded by any sensible persons as a remedy for the evil, if it is an evil, of their existence; consequently the havoc which is continually being made in their ranks by the murderous gun is great, but, perhaps, happily ineffectual. People are beginning to look upon these birds and many others in a different light from what they formerly did. It has been observed by those who have carefully examined the habits of several genera or families of birds, that the amount of good they do silently in the spring and summer, and probably nearly all the year in the mild climate of California, more than compensates for the mischief they do to the fruits and grains. If a flock of birds alight upon a field of standing Wheat or Corn, or upon a Cherry orchard, the inference is they have come to steal; while if the same flock should settle upon a piece of fresh-ploughed ground where there is no crop to suffer from their depredations, but little notice is taken of it, when perhaps they may be rendering us signal service. So for years these blackbirds and meadow-larks, etc., have most probably suffered from the

unjust conclusions which we had drawn in reference to their real merits.

Every farmer or horticulturist knows that fresh plowing at any time in the year in this State turns up many grubs, worms, and the larvæ of thousands of insects, which, if left to themselves, would be sufficient to destroy a large portion of whatever crop the ground would produce. But just at this time come the immense flocks of blackbirds, meadow-larks, with many other still smaller birds than these, which have been equally objects of the farmer's or fruitist's aversion, and, as they subsist almost exclusively upon this kind of food, they resort at once to the open fields and cultivated grounds, where they fully compensate, in all probability, for the few ears of grain or corn or fruit which they destroy when these are ripe.

There is another bird which, among the orioles, enjoys a wide range on our coast, from this State northward to the Columbia River—Bullock's oriole—which seems to fill the same position as that occupied to the eastward by the Baltimore oriole, which it very much resembles in appearance as well as in habits.

This orchard oriole I have frequently observed a familiar occupant of our orchards and gardens in summer, where it renders signal service by ridding the fruit-trees of hosts of worms and noxious insects and their larvæ, albeit it does help itself to a slice from many a Cherry, but what of that? The best way is to plant enough fruit for the birds as well as ourselves, for they well repay us for the fruit they destroy in the vast number of insects, etc., that they devour. The meadow-lark is one of our prime favorites, as it justly merits a prominent place among our comparatively few song-birds on this coast, for

the sweetness and plaintive melody of its few simple notes, with which, in company with some other much smaller birds, it is among the first to welcome the dawn. The notes of our oriole, too, are few and simple, but their peculiar sweetness and harmony can not fail to charm the ear. The insector, or perching birds, embrace a vast variety of birds exhibiting a corresponding variety of form. A large majority of them feed upon insects and their larvæ or eggs. The swallows, fly-catchers, etc., pursue their food upon the wing, and destroy vast numbers of mosquitoes, etc. These offer but little inducement for shooters, gunners, or "pot-hunters," but many of the thrushes, such as the robin, and even the mocking-bird, with the meadow-lark and the common dove, seed as well as insect-eaters, are unfortunately often made victims of these aspirants to be sportsmen, for the sake of the provender they afford for the kitchen. All the above-named birds, except the meadow-lark, seek their food among the branches and leaves of the trees, feeding mostly upon worms, the chrysalis, or the eggs. On this account, if not for their delightful songs, they should be protected as much as possible by us all against the indiscriminate slaughter of the gunners who are not contented with the privileges of the legitimate killing of the game-birds proper in their appointed and several seasons.

HYBRID PERPETUAL ROSES.—A late writer says, "In autumn trim them close, within four inches of the ground, and cover with leaves and litter. In spring, clean off the ground, manure well, and when they are done blooming cut off the flower shoots." This treatment is well adapted to cold regions, and it will give an abundance of flowers.

THE BULB SEASON.

BY F. A. MILLER.

Referring again to my remarks on "Hyacinths," in the last month's HORTICULTURIST, it may be proper to add that the early forcing of Hyacinths is much easier accomplished with bulbs which have been cultivated here for several years than with those of recent importation; and while freshly imported bulbs will hardly ever bloom by Christmas, those taken up from the ground here can easily be had in bloom by that time. The cause of this difference is plain enough to be seen. All imported bulbs will flower under very ordinary treatment in or out of doors during February and March, while in colder climates under the same treatment their flowering is retarded. Soon after the flowering season the leaves begin to decay, and the bulb has become dormant again by the 1st of May. It being necessary that the bulb should remain in dormant condition for five or six months, we may have those cultivated and ripened here, in bloom in November and December. I think if this result can be attained by the cultivation of the Hyacinth on a large scale, eastern florists would gladly pay a better price for the bulbs than they are accustomed to do now, for the sake of having Hyacinths in bloom on or before Christmas. The same may be said of other bulbs, particularly Lilies, which are also very useful for florists, if they can be brought into bloom during the earlier winter-months. An experiment of this kind would be desirable. Certainly our old stock of Hyacinths flowered last year exceedingly fine in the open air during the month of January, and they were ready to dig up again in April, if it were desirable.

Another early flowering bulb is the

Narcissus, which, unfortunately, has come into disrepute here, on account of the extremely inferior Chinese Narcissus, peddled in our streets so largely and cheaply. The Narcissus now cultivated in Europe for the market comprises many beautiful varieties, and these are hardly ever seen in any collection here. Those known as "Tazettas" are either white or yellow, single or double, the cups being of a different and distinct shade. The flowers of these are large and very fragrant. Another class of them are popularly known as "Jonquils," all of which are yellow, single or double. The flowers are small but also sweet-scented; five or six bulbs should be planted in a five-inch pot. The third class comprises a number of other species, among which we find the old-fashioned "Daffodil," large double yellow flower; the "Pheasant's Eye" (*poeticus*), pure white, with red crown, a very beautiful variety; the "Incomparable," primrose and yellow crown; and other most desirable varieties. The treatment of the Narcissus is not connected with any difficulty whatever, either in pots in the house, or in the garden. They do not require any protection, and will flower early without forcing, in this climate.

A great number of failures in bulb-culture must be attributed to excessive watering. If the soil is dry when bulbs are potted, it is desirable to water after planting, but no more water should be given until roots are formed, and the foliage makes its appearance. It should always be remembered that only a growing plant needs water, and no plant can be considered in a growing state unless roots are forming.

Crocuses are also very desirable for early flowering, and while they seem better adapted to a cold climate, we have no difficulty in flowering them dur-

ing December and January. They require to be planted early in autumn. If grown in pots, at least five bulbs should be planted in a five-inch pot; if grown in the garden, they should be grown in clumps or masses, as they produce a much better effect this way, than if planted singly. The bulbs of Crocuses are cheap, and one can afford to plant them in large numbers.

We should not lose sight of the old-fashioned Snowdrop. Like Crocuses, they are much better adapted to cold climates, but nevertheless, they do very well with us under ordinary treatment. A cool temperature, such as one enjoys out of doors during our winters, will bring them into bloom very rapidly. From five to ten may be planted in a pot; and if grown in the garden, they should also be planted in clumps.

THE VINTAGE OF FRANCE.

PARIS, September 27, 1875.—The vintage season has again arrived and all France is engaged upon this rich and important harvest. In two-thirds of the communes of France the opening of the *vendanges* is the great event of the year, and the official and religious forms with which it is surrounded contribute largely to the public interest in it. There are no vineyards in the Department of the Seine; but in the Department of Seine-et-Oise, at Suresnes and Argenteuil, the eastern slopes and hillsides are covered with vines, producing a wine known as *le petit bleu de Suresnes*. It is little better than vinegar. The most of it is used for the manufacture of this necessary article, but the better classes of wines made in these localities are sold in the cabarets under the name of "little blue." During the past few years the Parisians have taken to the habit of visiting

Suresnes during the vintage, not alone to witness the curious spectacle of the *vendangeurs* at their work, but for the more prosaic object of taking a purge. When the juice of the grape is first pressed out, before fermentation has fairly begun, the effect of the wine is like that produced by sweet cider when taken in considerable quantities as it comes from the press. Three or four glasses of new wine have the medicinal effect required, and its action is not accompanied by the colic or cramps produced by most of the purgative waters of Europe. Indeed, the effect produced is similar to that of a good dose of castor-oil, and at the same time the medicine is very agreeable to the palate. Thousands of persons here have great faith in this sweet wine cure, and not for the world would they miss their annual visits to wine-presses of Suresnes as soon as the vintage has been officially opened. All who try it express themselves in enthusiastic terms regarding the good effects of this species of cure, and while I should not like to take the responsibility of recommending it, there may be some doctors who would think it worth while sending a certain class of patients here by way of experiment. The grape cure, which is pretty much the same thing, has become exceedingly popular, and Prince Gortschakoff has found it so efficacious in his case that he tries it every year. By going from place to place the cure can be continued for nearly a month, as the vintage opens at different dates in the different sections. Yesterday I went out to Argenteuil and saw the *vendangeurs* at work. It is always a curious sight. Still more curious was the scene at the wine-presses, where hundreds of Parisians were assembled and waited to take their turn at the gourd after the payment of a few sous. I need not specify

the character of the jokes, worthy of Rabelais oftentimes, that were freely circulated in the crowd, but gayety, good humor, and frequently great hilarity everywhere prevailed.

It may not be generally known that the harvesting of the ripened grapes is not left to the will or caprice of the wine-grower. No one has a right to begin until the publication of what is called the *ban des vendanges*. Before the revolution the vintage bans were issued by the feudal lords of the district, but since the abolition of the old feudal laws the bans have been preserved as a police regulation. Every year, therefore, the Prefects in the seventy-six departments in which wine is grown, issue a decree, stating that the vintage will commence in fifteen days, and designate the precise day for each of the communes under their jurisdiction. Due regard is had, of course, to the maturity of the grape in each locality, and also to the necessities of labor. Whenever possible, the schedule of the bans is so arranged that the *vendangeurs* can begin in the commune where the grapes are supposed to be ripest, and go straight through the department, thus avoiding the long night journeys they would have to make if the bans were issued in a hap-hazard fashion. In the large towns, like Bordeaux, Toulouse, Lyons, Marseilles, Dijon, and Auxerre, the opening of the vintage is announced by prefectural decree, printed upon white paper and posted up throughout the department in the same manner as the laws. As I have more than once remarked, in France white paper for posters is reserved for the use of the Government, and all other placards, whether electoral addresses or business announcements, must be printed upon colored paper. In smaller places it is the Mayor who announces

that the Prefect has ordered the opening of the vintage, and in the villages and hamlets this is done by the public crier, who appears with his drum, generally when the people are coming out of church, and, after beating it until he has collected a crowd about him, the crier reads the Mayor's order from the manuscript. This habit is still preserved in many places of considerable size. At Clisson, in La Vendée, where I happen to be a small proprietor, the habit of having the decrees of the Administration, auction sales, and other public items announced by the town crier is retained by tradition, although the same thing is published by printed placards posted upon the walls. There is a certain amount of utility in this double publication, for it prevents persons from pleading that they cannot read, an excuse for a violation of the Mayor's orders. The crier is bound to beat his drum at the door of all the churches and in the public place of every hamlet or bourg in the commune. The bans must be published fifteen days before that fixed for the opening, and in wine-growing hamlets, the visit of the crier is awaited with anxiety. As soon as he appears, a crowd collects about him. He makes his solemn entry accompanied by a large escort, and, proud of his uniform and of the importance of his mission, he beats his drum longer than necessary, perhaps, for the amusement of admiring children, then draws a formidable looking document from his belt. "*Oyez, Oyez, Oyez!*" he cries three times, then announces that "in the name of M. le Maire, the vintage will be opened on and after" such a date.

In Burgundy and the south of France, where the people are all religious, the ceremony of publishing the vintage bans is regarded as a public fête. Af-

ter the morning mass all rush to the spot where the crier stands beating his drum, and after the reading there are cries of *Vive M. le Maire*, when that functionary is popular; great joy prevails, and the bells of the church begin a lively carrillon. This is heard by those in the farm-houses, who get out the baskets and casks used for the vintage, and set them upon the grass to greet the eyes of those returning from church. The evening is passed in festivities. During the fortnight that elapses everything is prepared, and when the important day arrives every one is in readiness to begin work at two o'clock in the morning. The masters then go to the public place to recruit their force from the *vendangeurs* who have arrived during the night, some of them coming from distant parts of the country. Hundreds of nomadic harvesters come from districts where wine is not cultivated, on account of the superior wages paid during the grape harvest. This force is composed of old men, robust women, and young girls with stout backs, solid shoulders, a well-developed biceps, and sometimes with remarkable pretty faces. They have to have stout legs as well, for it is no easy work to climb the steep hillsides, carrying upon the back a hod of grapes that grows heavier and heavier every moment. In the Bocage and some other places the masters take their hands to a mass said at five o'clock in the morning, where all are expected to pray for bounteous vintage. After mass all go to the vineyards, and after strapping the wooden hods upon their backs, they wait until the master indicates to each his range of vines. This is for the purpose of placing the young strong men in advance, so as to leave, for modesty's sake, the young girls behind them in mounting the steep ascent.

But, when fired by emulation, and only intent upon their work, the girls are apt to pass the laggards, and think of nothing but the glory of coming out first at the end of their line of vines. The same feeling animates them that is seen in mowers, and every one knows what burdens of ridicule are heaped upon the head of the man who lags behind and comes in after his companions have taken a momentary repose and sharpened their scythes for a fresh start. When the *vendangeurs* have been placed, the master gives the signal to begin; all strike up a lively harvest song, and go at the work with a will. When the wooden hods are filled they are placed in a cart and sent off to the press. The hods are water-tight like casks, for the weight of the grapes presses a great deal of juice from the bunches first thrown in, and this has to be preserved. At night, despite their fatigue, the *vendangeurs* enjoy their harvest feast, always ending in a dance, which recalls the ancient bacchanales; but instead of being licentious, as in pagan days, these dances are simply gay. The ancient Gauls, we are told, were in the habit of carrying their gods about the vines before beginning the vintage, and some vestiges of the ancient customs are still preserved in Languedoc, where the priests are called out to bless the vines, and where the people carry the sacred relics of their church or the statue of the patron saint of the locality through their vineyards. These statues are covered with vine leaves and bunches of grapes, and resemble the picture of Bacchus, or of the bacchantes. In many of these vintage scenes we find relics of the customs of more than two thousand years ago.

A few words about the superior quality of wines may be found of interest. Great precautions are taken with three

or four vintages in France, and the *vendangeurs* are not recruited from the ordinary run of such laborers. They are all picked men, very well paid, and are made to understand that they occupy positions of trust. Take Clos-Vougeot for example, the first quality of wine produced in the world, and held at a price which places it beyond the reach of all but a few crowned heads and archi-millionaires. The vintage of the Clos-Vougeot is as solemn as a religious ceremony, and the men are made to understand that every cluster of grapes is worth about its weight in gold. Yet even the confidential agents employed to gather the grapes have to do so under the eyes of inspectors, and a strict guard is kept over the baskets. Every year a company of soldiers arrive from Dijon, and are posted as sentinels about the vineyard and about the buildings in which the grapes are stored. A powder magazine or a lot of cavalry forage could not be more carefully guarded. This guard is kept up until the wine is put in bottles. As Clos-Vougeot is sold all over the world, and at prices far below those paid for it on the spot, one naturally presumes that it is not all genuine. I should be extremely suspicious of almost any Clos-Vougeot offered for sale at reasonable prices, and perhaps those who do not know the peculiar marks of the vintage, would do well to take some other brand. But there is an excellent wine grown in the immediate vicinity which may bear the name out of France, and which is really a superior wine. There is Chateau-Lafitte, also, of which enormous quantities are sold. That wine, on the spot, at wholesale, is worth from \$3 50 to \$4 per bottle, but yet genuine wines of this vintage can be purchased for less. The secret is in the different pressings. The first quality is made after a very

light pressing of the grapes. The second quality is made from the juice that comes from a harder pressing, and which contains some of the pulp of the grape, and a slight flavor of the skin. A harder pressing crushes some of the seeds as well as the skins, and this forms a genuine Chateau-Lafitte, but of the third quality. The greater portion of the wine sold under this name, however, comes from the surrounding vineyards, all of which produce an excellent quality of wine.

It is needless to say that the wine crop is the most important of all in France, its value largely exceeding that of all kinds of grain. In ordinary years it is estimated at considerably over two milliards of francs. For twenty years its exportation alone has had a mean value of two hundred and fifty millions of francs, and in 1873 France sold three hundred millions' worth of her wines. In addition to this there is sixty millions' worth of brandy. The vintage contributes three hundred and fifty odd millions to the budget of the State, besides paying large sums in octroi taxes to the towns in which it is consumed. From these estimates one can readily comprehend the general interest taken in the annual vintage, for a superior wine crop means national prosperity. When the vintage is poor the whole country is pinched; when it is good the entire nation feels at ease. Fortunately for us the present wine crop promises well, and it is supposed that 1875 will count among the notable years.—*New York Times*.

THE ROSE-SLUG.—Put the fourth of a pound of white hellebore and half-pint of soft soap in a pail of water, and mix well together. Apply this with a garden syringe every morning to the under sides of the leaves.

DODDER, OR LOVE-VINE (*Cuscuta*).

BY DR. A. KELLOGG.

Of this infestor of Alfalfa or Lucerne fields we have several species. The beautiful orange patches seen in our salt marshes is the *Cuscuta subinclusa*. *C. ceanothi*, Behr, infests such bushes as the Tea-tree or Wild Lilac. *C. Californica* preys upon a much wider range of promiscuous vegetation. *Cuscuta epithymum* is also liable to be introduced with Alfalfa.

As we are often interrogated on the subject of these curious plants in a manner that implies a degree of ignorance of their natural history, which if better known would enable the inquirer to see the reason why certain directions given for their extermination should be observed, we preface a word on this point.

Love-vines belong to the *Convolvulacæ*, or Morning-glory family. Of course they have flowers and seed. They look like a mass of orange-colored threads or brass wires; leafless, save a few scales; whitish or creamy flowers in clusters, and, like Morning-glories, twining always against the sun, or from the west, south to east. We have observed it in all stages of growth. First as its silk-like thready root descends into the earth; and then as the little translucent orange thread ascends in search of some living plant. Finding nothing to feed upon it dies; or found, it seizes its prey, and then throws out tiny cuttle-fish-like hollow cupo or suckers, through which it sucks from the bark or stem the sap of the plant attacked. This established, the root dies, or, as we may say, lets go at the ground. After this stage its career is too manifest.

First, then, if it has seed like any other weed or tares, the farmer and herdsman must *sift* his alfalfa-seed well

in a fine sieve, in order to get rid of any dodder-seeds. Having clean ground, etc., that is common sense. Next the ground must not be unduly irrigated, for many reasons—of which we forego particular detail in this short note. Indeed, little that is new can be offered relative to this great nuisance; certainly not in empirical ways. Nor do we place much confidence in these, except as subordinate and co-operative means. Perhaps drilling nine or ten inches apart, and so keeping clean, would be well. Thus, also, from eight to twelve pounds of seed only are required to the acre, instead of twenty to twenty-five pounds. But whatever method of seeding is adopted, if already invaded, the patches must be *mowed out before the seed ripens, and packed off the ground*, and better burned. Some pasture close, for the same reason, and then allow crops for the mower afterwards—this is not always convenient. There are other modes, such as continued breaking with a rake, etc., but I pity the man who rakes it about much. Finally, will any of your readers give us their experiences?

THE BOUQUET PEA.—Peter Grieve, to whom we are indebted in a great measure for the beautiful variegated *Pelargoniums* of which Mad. Pollock is one of the earliest as it is one of the best, describes in the *London Garden* the Bouquet Pea as having red and white flowers exceedingly pretty, each spike forming of itself a bouquet as it were, so that it well deserves its name. It grows two and a half or three feet high, and the stems at the bottom are not thicker than a straw; but nearer the top, where the flowers are produced, it acquires nearly the thickness of a man's finger. The spikes of bloom when cut keep well in water.

GRAPES.

BY EDGAR FAWCETT.

Amid the arbor's amber-tarnished vine,
 Faint fluttering to the south wind's languid sigh,
 Under this drowsy haze of mellow sky,
 The ripe grapes droop their clustered globes of wine!

And even amid these bland luxurious hours,
 They seem like exiles reft of cherished rights,
 Here in our treacherous North, whose autumn nights
 Drop chilly dews upon the dying flowers!

Fair clusters, while our woods in ruin flame,
 Do yearnings through your rich blood vaguely thrill
 For glimmering vineyard, olive-mantled hill,
 And Italy, which is summer's softer name?

Or do you dream of some old ducal board,
 Blazing with Venice glass and costliest plate,
 Where princely banqueters caroused in state,
 And through the frescoed hall the long feast roared?

Or how brocaded dame and plumed grandee
 Saw your imperial-colored fruit heaped up
 On radiant salver or in chiseled cup,
 Where some proud marble gallery faced the sea?

Or yet do your strange yearnings, loth to cease,
 Go wandering on, till dearer visions rise,
 Of the pale temples and the limpid skies,
 The storied shores and haunted groves of Greece?

Greece, where the god was yours, of such renown—
 That sleek-limbed reviling boy, supremely fair,
 Who, with the ambrosial gold of his wild hair,
 Would wreath the your purple opulence for a crown!

Atlantic Monthly.

WINE-MAKING IN CALIFORNIA AND IN FRANCE.

A correspondent of the *Sonoma Democrat* thus compares wine making in France and in California:

Experience warrants me in stating that the causes which have prevented California wine-growers from obtaining similar results are manifold, and may be classified in two different orders, viz: 1. The bad choice of the variety; the wrong culture of the vine. 2. The faults in the process of wine-making and wine preserving.

It would be too long here to treat thoroughly the question. This is a work that we are now elaborating in a careful manner which will eliminate all doubt or objection; I shall simply point

out at present the error made in the selection of the variety.

The rules for the culture of the vine and the making of wine are far from being immutable. They must be modified according to the nature of the variety of grape, and the soil upon which it is grown. To merely copy what is done in European vineyards, is to expose one's self to deception, for it does not follow, because a certain grape is a native of Bordeaux, that the culture must be identical with that it received in that province. Moreover, the wine that it will produce here will not have the same qualities it had at home. It will acquire other qualities and defects, to a greater or less degree, according to the more or less favorable conditions in which it will be placed.

It is a well grounded fact that a tree or shrub transplanted from a warmer into a colder climate will lose all its former qualities; its decay will be rapid, and soon its fruit will bear but little resemblance to what it once was. On the other hand a variety transplanted to a milder climate than its own will not preserve its natural qualities, but will acquire the faculty of elaborating others, equal, if not superior, to those it lost.

This is a rule of vegetable physiology which, unfortunately, seems to have been overlooked here, and which explains why the excellent varieties of Muscat and Malvoisie can never be compared, in certain regions of California, to what they are at home, and in most cases prove worthless, while others, imported from colder climes, prosper and offer products such as people were far from suspecting them of yielding. Among the latter are the varieties of Zinfandel and Reisling. In Germany the former is held in good repute, but is far from occupying the first rank, al-

though it forms the base of several vineyards, such as that of Gumpold Kirchen. We do not hesitate to say that in California it has acquired such exceptional qualities that it will be in a short time the basis of all California vineyards. Its grapes, attended with proper care, give a wine resembling neither the Burgundy or Bordeaux, but are flavored with qualities *sui generis*, which placed it on a par with these famous brands. That which we have made in Wm. Hood's splendid vineyard, at Los Guilicos, in 1874, has surprised many connoisseurs. It recommends itself by its strong and neat color, its perfect clearness, and its exquisite bouquet, recalling the perfume of rose. We have submitted it to several experiments, and can certify that it is abundantly supplied with the elements proper to a long conservation, and will bear without the least detriment to be shipped for distant voyages.

Why has not such a grape the place of honor here instead of the Mission grape, which gives good products but of a nature that will compel the greatest pains to preserve? It yields abundantly, but so does the Zinfindel; but what benefit is quantity when quality is lacking? The Mission vine blooms two weeks later than the Zinfindel, and therefore remains exposed to the influence of tardy frosts, and then again it ripens a fortnight later. The Zinfindel has another advantage—it accommodates itself very well to the cheap mode of culture adopted in California. This would not be the same with the Clos Vougeot, Chambertin, Montrachet, Nuits, Beaune, etc., that we dare not advocate unless they receive the same extreme care lavished upon them at home. But we have no doubt that one who would incur the expense of such a culture would be rewarded by a full

success that would become an immense source of profit to him and this country.

To those, then, who contemplate establishing a vineyard, we shall say, plant the Zinfindel. To the proprietors of vineyards already planted, we advise them to do away, little by little, with their bad vines and replace them by the Zinfindel. It is important of course, to reap an abundant crop, but above all it must be a good one. Thus your wine will never encumber you. Let it have the flavor, clearness, conservative properties required, and people will come from far and near to buy.

In France, where so great a production is made of that healthful beverage, wine-growers are never embarrassed with their products. Such should be the case here, and the best means to produce that result is to open a source to good products.

THE "BOSS" TREE OF CALIFORNIA.

There arrived in this city, this morning, from California, a curiosity for the Centennial at Philadelphia next year. It is a section of one of the "boss" trees of the Golden State, and is owned by Mr. M. Vivian and his son, Mr. T. Vivian, from whom we obtained some interesting particulars concerning it.

The common name of this wonderful tree growth is the "Big Tree," and the botanical name is *Sequoia gigantea*. The tree from which this section was cut grew in the Kaweah and King's River grove, near the line of Fresno and Tulare Counties, California, on the west slope of the Sierra Nevadas, at an elevation of 6,500 feet above the level of the sea, forty-five miles from Visalia, the nearest railroad station.

The age of the tree, as indicated by the yearly rings, was about 2,250 years, the rings being so close on the outer

edge that it was almost impossible to count them. The height was 276 feet; the diameter, at the surface of the ground, was 26 feet; ten feet above the ground the diameter was 20 feet; 100 feet above the ground, where the first limb projects, the diameter was 14 feet; and 200 feet above the ground the diameter was nine feet.

It was perfectly sound and solid. The bark averaged one foot in thickness, and in some places it was sixteen inches thick. The bark of some of this species of tree is three feet thick. The estimated number of lumber feet that it would make was 375,000, and the number of cubic feet about 31,000, sufficient to make lumber and posts enough for sixteen miles of ordinary fence. The weight of the wood when first cut was seventy-two pounds per cubic foot, making this weight of the lumber producing portion 2,232,000 pounds.

It took two men, splendid axemen, ten days' hard work to fell the tree, and when it fell it broke in several pieces, with a terrible crash. This section was taken from the tree ten feet above the ground to twenty-six feet above the ground. The diameter at the base is twenty feet. It was hollowed out into a cylinder, and then cut into sections, making, when put together, the body of the tree complete, the wood thus left being from six to eight inches thick, exclusive of the bark. It cost \$500 to cut it down and haul it to Visalia, and \$700 from there to Omaha, two flat cars being used for its transportation.—*Omaha Bee.*

PEACH CULTURE.

Good and liberal cultivation of the soil will pay as well with Peaches as any other crop, and the intelligent planter well knows that if he expects a good crop of fruit from his trees, he

must treat them well and feed them too, as he would feed his cattle and hogs, to get a return from them. As soon as a crop has been gathered it is well to turn the hogs in to eat up the refuse fruit. This will help to make pork, as well as destroy multitudes of insects that remain in embryo in the fallen fruit. They will root about the trees and destroy a multitude of grubs that would be injurious to the trees. The next step is to carefully remove all broken and dead limbs. Many of the limbs nearest the ground will be found feeble and bent, and may be removed with advantage to the tree. This will cause new branches to put out and stimulate to extra growth those remaining. If some of the trees are of natural growth, and it be wished to transform them into new and choice varieties of budded fruit, it is well, as soon as the leaves fall, to cut off the entire top, just above where the branches form. Allow four or five of the most vigorous shoots to grow the next spring, and toward fall bud into the young wood. In the fall following cut off the shoot above the bud, and in two years the top will be larger and handsomer than when removed.

After cutting out the dead limbs give the orchard a liberal dressing of barnyard manure, and a few shovelfuls of lime or ashes, about the roots of the trees. Whatever top-dressing the orchard gets it should be put on in the fall, as the fertilizers will be dissolved by the winter's rain, soak in and about the roots, and stimulate the next year's growth, and add very much to the next year's crop. As soon as the dressing is put on, the orchard should be thoroughly and carefully cultivated. Mulching the trees in the spring, just before the last rains, should not be omitted, as it adds very much to the vigor and growth of the trees, equalizing the temperature

of the soil about the roots, and retaining the moisture by checking evaporation. The best mulching, if at hand, is the scraping of the barn-yard, as it answers two purposes—protecting the roots and enriching the soil when plowed under. Coarse straw and grass or weeds answer, if nothing better is to be had. Mulching is not equally beneficial on all soils; in fact, some of our farmers attach little or no importance to it. These different opinions are brought about by the different kinds of soils cultivated. We will admit that clay soils need mulching much less than light sandy soils, though much benefit is derived from mulching trees planted in clay soils, which are more retentive of moisture. Trees should be mulched from three to four feet around from the tree.

The varieties of the Peach are very numerous, and within a very few years our nurserymen have increased them by hundreds. Were three-fifths of them rejected, it would be much to the benefit and profit of the orchardists, as only a few, comparatively, are valuable and worthy of extended cultivation. We wish to impress upon the minds of inexperienced planters that it is best to plant but few varieties, and those that are known to succeed best in that particular locality. Consult with those growing fruit in the neighborhood as to the sorts that do best in that locality and command the highest price in the market. If there is a demand for canning, ascertain what varieties bring the highest prices at the canning establishment, and if the demand will justify growing any particular sort for that purpose. Many of our standard sorts have been of late years discarded, as new and better sorts have been produced which ripen about the same time, having peculiarities which make them

more desirable. Among the new varieties of early sorts we would mention the following: Early May, Alexander, Beatrice, Louise, Rivers, and Hale's Early. The latter sort has been well tested in different localities throughout this State, and we do not hesitate to say that, all things considered, it has proved to be the best early Peach grown in the State. For medium varieties, we have the Crawford Early, Old Mixon free, Foster, Richmond, Jones' Seedling, Moore's Favorite; and for late sorts we mention Ward's Late Free, Salway, Freemason, October Free, and Day's Cling. There are other varieties we might mention equally as good as the above, and in some localities might prove better.—*Sacramento Record.*

MAKING TOWNS ATTRACTIVE.

Mr. Henry C. Bowen delivered a brief, practical, and suggestive address at the Woodstock Fair, in Connecticut, the other day, closing as follows:

“The time is coming, and is not far distant, when the people in all these New England towns and villages will organize and go joyously and systematically to work in making public improvements. Those places which move the soonest will reap the earliest and greatest renown, for they will gain in population the refined, the most enterprising and wealthy, and make permanently secure their prosperity. Real estate will increase in value, taxes will decrease because of the increased value of population, and everybody will be made happier and better by the change. It is time to think of the improvement of your public streets and highways. It is time to think of sidewalks and shade-trees along all your highways, of public parks and fountains, of bathing-houses and boat-houses, of flowers and shrub-

bery—of grading and leveling, of doing everything in your power to make all these beautiful hills and valleys bud and blossom as the Rose, and be more and more your pride and joy. In this good work you must be united, harmonious, and persevering, and the blessed yearly investment of time and money you will make will pay you a dividend every day the year round and all your life long, and thousands shall share in your investment when you are dead and forgotten. Let every man, woman, and child do something in this matter, and do it promptly. You can at least plant an Elm or a Rose-bush every year, and you will not have lived entirely in vain. A single word more under this head. I hope the time will speedily come when it shall be called a punishable offense for any man to make the public highway a depository for all his old broken carts, and stone heaps, and old rubbish from his garret and barn, from cellar and door-yard. Such action is harmful, demoralizing, and a public nuisance, and it should be rigidly prevented and forbidden. You have the power thus to do, and I hope you will have the disposition to enforce it. It is for the public good that this should be done, and that is reason enough. And hereafter, if a man wants a nuisance, let him have it at his own door-yard, where he can see it, ponder over it, and smell it every-day, all by himself. Those towns and villages will most prosper which fastest multiply their local attractions. You will all, of course, vote for schools, churches, and work-shops, and this is right, but you must march beyond these points as fast as you can with a proper regard to other duties. Look out for public institutions and endow them. Look out for your streets and highways and improve them. Make your town and home more and more beautiful

every year. Your hearts will be made better, and your souls will be richer for so doing. Pardon this friendly criticism, and accept my best wishes for your continual prosperity.”

WEEDS AS WATER PURIFIERS.

Mr. J. J. Mechi writes as follows to the *London Agricultural Gazette*: Into my pond runs a stream of twenty-five gallons per minute of pure water from a drain which I cut twelve feet deep some thirty odd years ago. Weeds will thrive and grow in this pond, and we have annually to take out large quantities of them. They look very beautiful as they grow in the pellucid water, which is used for household purposes. Said a visitor to me one day: “If you had a pair of swans, your pond would be free from weeds;” so a kind friend presented me with a pair, and very soon they cleared the pond, pulling the weeds up by the roots and feeding on them. My family were delighted with the graceful swans and the removal of the weedy obstructions to boating; but although the pond was free of weeds, the water was no longer pure and pellucid, but most decidedly muddy in taste, and when the steam issued from the kettle, the smell of mud was unmistakable. Well, no one thought it could be the swans, but at last I came to the conclusion, and, despite family and other remonstrances, returned them to their original owner. After a short period the weeds re-appeared, and as they increased in bulk, the water gradually assumed its pellucidity and purity, and “Richard was himself again.” What the weeds do for the water and its occupants the land vegetation does for the air; men, animals, and other living creatures poison it, while vegetation absorbs the injurious gases, and reconverts

them into wholesome food and fuel for man and beast, filling the atmosphere with that precious oxygen without which men and animals and other living creatures could no longer exist. So it is in the vast ocean, whose living occupants and vegetation probably exceed in quantity that which is on land. We owe to the river vegetation much of the purity of water. It is the excess of impurities from our towns which are beyond its powers of appropriation.

ORANGE CULTURE.

Dr. Strentzel delivered a lecture at the State University recently on "Orange Culture," which contained much valuable information concerning the cultivation of that succulent fruit.

He advised selecting the plumpest seeds and the planting them fresh in boxes with perforated bottoms, filled up with rich mellow soil that will not bake, dropping the seeds five inches apart, covering one inch. Keep the box in a warm room and the soil damp. When the young plants appear, give them plenty of sunshine and air, and sprinkle them every evening with slightly tepid water. If there is no frost apprehended and the nights are warm, keep your boxes out of doors, sheltered from the wind and the burning sun. A screen made of unbleached muslin will answer for both. Fork over the surface between the plants occasionally, and enrich toward midsummer with well-decomposed manure. The seedlings should attain the height of 12 or 18 inches during the season, but be not too ambitious to stimulate the exuberant growth; rather shorten in the rampant shoots, and secure a stocky, symmetrical growth. During the winter keep them in a dry airy place, with a temperature never under 30 deg., and not

much over 60 deg.; and in the spring transplant them to larger and deeper boxes. This is the time to graft them over, if you know of a tree bearing superior fruit, even if it is a seedling, or a particular foreign variety from which you could obtain scions. Do so at once, as the early grafted trees make a healthier and more rapid growth than those grafted when the tree is older. Except in very favorable locations, the young trees should remain in boxes the second year, affording a greater facility for sheltering during the winter, and be transplanted to the open ground the third year. The distance between trees planted in a grove will be controlled by the space at command. If twenty or more feet are required in large plantations and a southern clime, a small grove will do well if planted twelve to fifteen feet apart, as it will require ten to twelve years to fill that space. The Orange is a rapid grower under favorable conditions, but may remain stationary if treated inconsiderately. Holes for the reception of the trees should be at least four feet in diameter, and as many deep, and more if the ground has a hard clay substratum, not draining well, as stagnant water around the roots is very injurious. The bottom of the hole, if covered several inches deep with broken bones, charcoal, etc., would facilitate drainage. Then fill up with the richest top-soil, and compact it in the hole by pressing down with the back of a hoe, and not by solid treading. Young Orange-trees can be transplanted almost any time if known precautions are observed to move them with the adhering ball of earth covering all the roots. Plant them about six inches higher than the surface land to allow for gradual settling of the loosened soil. Deep planting should be guarded against, as it sickens the trees and retards their

growth. The ground should be mixed with partly decomposed long manure and kept moist, and the trees in a growing condition. Check exuberant growth by nipping the ends of the shoots, building up a symmetrical, slightly pyramidal form. Nothing secures early bearing more than judicious pruning of the leading shoots, thus checking the sap from production of superfluous wood.

THE CULTURE OF RAMIE.

Ramie (*Rohemaria tenacissima*), the nettle of the east, has for centuries been used in China, India and Japan, as the basis of many fabrics. The discovery of this "brilliant product," says Lefranc, which is called "Kara" in Japan, "Ma," or "Chu-ma" in China; "Rhea," in India and "Ramah" or "Ramie" in Java, is credited to Jesuit missionaries.

Of all long textiles, Ramie, for strength and brilliancy, ranks next to silk. Its manufactures are known as Japanese silks, Canton goods, grass cloth and nankeen linen. It is also mixed with various other materials in the manufacture of goods, of all which the United States annually imports \$5,000,000.

Leeds and Bradford are the principal towns in England where Ramie is manufactured, being extensively used in the manufacture of silk. There, in its raw state, Ramie is worth £55 to £75 per ton (\$325 to \$375 gold.) Here it is worth about twenty cents per pound. The annual consumption of Ramie in France in manufactures must amount to 15,000,000 or 20,000,000 pounds.

A few years ago, it having been satisfactorily ascertained that Louisiana had a soil and climate well adapted to the cultivation of Ramie, Emile Lefranc, of New Orleans, with true patriotism,

undertook (in connection with the Hon. Fred. Watts, United States Agricultural Commissioner) its extensive introduction into that State; surmounting every obstacle, complete success has rewarded these efforts, and the culture of Ramie in Louisiana may now be regarded as "a fact accomplished."

For Ramie culture, says Lefranc, the soil must be deep, rich and moist, like the sandy alluvion of Louisiana; manure supplies the defects in some lands in these respects. The best time for planting is in December, January, and February.

A peculiarity in the Ramie fibre causes the Chinese to prepare it for manufacture in the green state, by a hand-process of scraping, one hand doing only one to one and a half pounds per day, and the absence of machinery in the United States to fix Ramie and overcome the comparatively valueless labor of China and India, seemed a serious obstacle to its being added to the list of American products.

A labor-saving machine was required that would give 2,000 to 3,000 pounds of marketable raw product per day, and seven years' arduous labor and perseverance have enabled M. Lefranc to produce his patent Decorticator, which is now in successful operation in New Orleans. The Decorticator, although specially constructed for Ramie and Jute, is equally applicable (says Lefranc) for Flax and Hemp.

We believe this machine will prove invaluable in the development of Flax, Hemp, Jute, and Ramie, and that it will raise the name of Lefranc high on the scroll of America's benefactors.

LYCOPodium DENTICULATA is used in immense quantities around London for decorative purposes, one florist there purchasing annually \$3,500 worth.

THE PAPAWE TREE OR SHRUB.

The Papaw, which is very common in the Western and Southern States, is not, so far as our observation extends, to be found in California. The fruit is very nutritious and palatable, much resembling the Banana, and we consider its introduction here would give us a desirable addition to the number of our fruits. The Papaw is pulpy and soft, and probably could not bear long transportation or command an extensive sale in the market, but it would be a very acceptable fruit for home consumption. There are several varieties, some of which grow to the height of ten or fifteen feet, while others are low shrubs. The fruit of all of them is sweet and very fragrant, and the product very abundant. The Papaw generally grows wild, along the banks of streams, and sometimes forms thickets of several acres. It is much improved by cultivation, and we think the experiment well worth trying in California. It is possible that it may have been introduced here, but we have never met with it, either wild or cultivated. We think it merits a place in our orchards and gardens. The Papaw will grow in almost any soil, and grows symmetrically, without pruning, requiring no special cultivation or attention. The fruit is very abundant, and the tree is attractive in appearance and free from insects. We imagine that California would be well suited to the Papaw. Every circumstance of soil and climate would seem to be favorable, and it would be a very good substitute in the northern counties for the Banana.—*Call.*

[NOTE.—We learn that James Lick, Esq., has Papaw trees growing well and bearing good fruit, on his estate at San Jose.—ED.]

LOBELIA SYPHILITICA.

One of the prettiest wild flowers that we have ever gathered or seen, not in general cultivation, is the blue Cardinal Flower—and we can assure our readers that its singular beauty will well repay the trouble of a trip on the lowlands or shady fields where it is most likely to be found.

We may call the plant two feet high, though it varies greatly in different situations. The flowers have the effect of a raceme, though they are really solitary in the axils of each leaf which subtends them like a bract. The general shape of the flower is that of a tube an inch long parted at the top into two lips, at right angles to the tube, of two and three lobes, each margin coarsely toothed. The lobes are a vivid blue, while the tube as the sun shines upon it is alternately a changeable bluish-purple and white in parallel lines. There are about twenty-five flowers in the terminal leafy raceme as it may be called.

Mr. Darwin holds that all bright flowers are fertilized by insects; while small, dull flowers are fertilized by the wind. Hence, the terms *anemophilous* (wind lovers) and *entomophilous* (insect lovers). But this plant owes thanks to neither wind nor insects for the formation of seeds. Botanically speaking, the stamens are *nonadelphous* as well as *syngenesious*—i. e., the filaments as well as the anthers are united about the pistil. Just before the flower opens, the stigma is inclosed by the anthers, which then shed their pollen. Subsequently, the anthers remaining coherent, the pistil makes a growth which forces the stigma through the staminate tube and beyond the anthers nearly the sixteenth of an inch. Fertilization, therefore, must have taken place before the gen-

erative organs were exposed to wind or insects.

If "Nature looks with horror upon in-and-in breeding," as Muller and others teach, Nature in the instance of *Lobelia syphilitica* ought to explain herself.—*Rural New Yorker*.

PLANTING A WILD GARDEN.

With the improvement of a cultivated taste, the appreciation increases for a wild or natural garden. It was the custom formerly to make gardens appear as artificial and stiff as possible. Formal curves and straight lines exclusively prevailed. One side of the grounds was an exact reflection of the other. Now this stiffness is becoming discarded, and the grace of free and irregular beauty is taking its place; and the immeasurable superiority of undistorted forms shown in all the wildness and intricacy of natural scenery.

We have seen a beautiful unplanted grove growing among the rocks of a wild gorge, rendered exceedingly attractive by planting Rhododendrons with the native shrubbery. Additional charms might be added by investing the rocks and bushes with the trailing forms of the hardy Clematis, of the Periploca, the climbing Honeysuckles, etc., while the wood Lilies, Gentians, and other plants which bloom freely in the shade, would give additional attractions. Early in the season masses of the Hepatica, Sanguinaria, Erythronium, and other spring-blooming wild plants, would make such a wild garden exceedingly attractive. Cultivated exotics, such as our common bulbs, Snowdrops, Jonquils, Hyacinths, etc., might be introduced in open spaces along the borders of the more dense portions of the wild shrubbery. If these were properly introduced, they would lose all

the artificial appearances too often given them, and become an essential component part of the wild scenery—and their ornamental effect be thus greatly increased.

For such a garden to give the best effect it is almost essential that the surface be more or less uneven, and a small ravine, with some rocks, would be a valuable addition. A stream of water lined with Ferns and water-plants would add still further to its charms. A narrow curved gravel-walk, kept smooth and in perfect finish, would not be discordant with the general effect; it would be the only artificial part of the grounds that could be admitted.

Those who may have small "waste" portions of land on their farms or suburban grounds, where wild bushes and trees have grown up, may at a moderate expense, and a good deal of industry, make a beautiful garden, at much less cost than the formal plantations which they do not hesitate to undertake. Now is the time to take it in hand; to set out the bulbs, and to secure the wild flowers from the woods. This should not be sparsely done—they should be planted in irregular and profuse masses, and the appropriate positions of each be assigned them.—*Gardener's Chronicle*.

SEEDLING FRUITS.

We see a great deal said of late about the scientific propagation of new seedling fruits, which in my judgment, is a delusion—is theory without facts to sustain the claims, and a serious hindrance to many who would plant seed, but have not time nor patience to adopt what is termed hybridizing; and not deeming it safe to try and compete with science, they therefore let the matter rest. New seedlings, therefore, are rare treasures,

seldom attracting attention, and there are but few of these that the scientist can boast of having originated. One reading their learned essays would suppose their process of crossing was so well attested that to get a certain desired fruit is as sure as mule-breeding. In mule-breeding it is a mule every time, but the scientific fruit propagator has all grades in plants and fruits, and often no grade at all, the parent tree or vine repeating itself in all particulars; just the same as is done where nature is left free for contiguous plants to mix in their pollen by the agency of the wind, bees, and flies. Variations are what we seek in new seedlings, and seeds from contiguous plants give those gradations, and as yet, so far as I can learn, the results of scientists show their theory a whim, the crossing being mainly done before or after their application, and in no case do they produce more than a contiguous growing plant would have done. That by their process they may carry pollen and add to the mongrel, I admit, but there is no calculating what those mongrels will be other than that no two will be alike. Therefore the results of scientists and of untrammelled nature all go to teach us that the true theory to improve fruits is to plant the best in close proximity, away from all others, and from such to save seed; and so on as you would do with live-stock, mating the best every time, and repeating as fast as you can.

Such has been my process, and the results tell favorably in many improved samples of trees and fruits. From the seed of the Apple I have grown the Crab in tree and fruit, and from Crab-seed have grown the Apple in tree and fruit. I grow the Apple and Crab from the same parent tree and the same saving of seed, all done by growing the Apple and Crab, from which the seeds were

taken, in close proximity. For the last eight years my seedlings have been from the Duchess, Wealthy, and various Crabs; other varieties, less hardy, having grown in the vicinity, all showing their several characteristics in the seedlings, some hardy, some tender, all conceivable gradations in trees and fruit; some so hardy that they came through the last winter with such luxuriance as if they had not felt frost, and are now loaded with fruit, which is not a general thing with any of the older varieties of Apple or Crab, thus showing the proneness of fruits to adapt themselves to mate by reproducing from home-grown seed. Thus a continuous reproduction from the best in tree and fruit will in time give us a succession of fruit the year round. But to attain the prize we must go at it in earnest as a people, as a nation. We should plant fruit-seedlings on every roadside for wind-breaks and shades, thus making roadsides teem with luxuries, beauty, and comforts, free to all that come and go. And a true civilization demands that we make a start for the attainment of the best possible variety of luxuries and in the greatest possible profusion. — *The Country Gentleman*.

THE SKIMMIAS.

Skimmia japonica was for a long time the only variety known to Europe and America. Now, however, we have five recognized species, namely, *Skimmia japonica*; *Vablatta*, *eichii*, *laureola*, and *fragrans*. *S. japonica* is valuable on account of its brilliant red fruit, about the size of a pea, which, growing in profusion, remains on the bush all the year round, thus giving it a very ornamental appearance, especially in winter, and perhaps not less so in the following spring, when, through this strange te-

nacity of adhesion, it is not unusual for the plant to be seen laden with both fruit and flowers at the same time.

Skimmia fragrans, which bears a sweet smelling white flower tinged with yellow, possesses this peculiarity—that though its buds appear before winter sets in, the flowers do not open till the following April. With the exception of *laureola*, which is indigenous to Nepal, India, all the varieties of *Skimmia* come from Japan; they are well worthy of extended cultivation, being very hardy and adapting themselves readily, when young, to almost any soil or climate. They may be easily increased by means of cuttings struck under glass, or in some cases from seed. Siebold and Zuccarini state, says *La Revue Horticole*, that the Japanese and Chinese class *S. japonica* among poisonous fruits.

TAMARIND.

This beautiful tree is a native of the East Indies, but is now considerably cultivated in warm climates elsewhere. Only one species seems to be known—a spreading tree, thirty or forty feet high, with alternate pinnate leaves, which have from twelve to fifteen pairs of small leaflets, and fragrant flowers with three petals, the pods brown and many-seeded, as thick as a man's finger and about six inches long. The pods are filled with a pleasant, acidulous, sweet, reddish-black pulp. They are usually preserved by putting hot syrup on the ripe pulp, but a better method is to put alternate layers of tamarinds and sugar in a stone jar, the color and taste being thus more like those of a fresh pulp.

The wood of the Tamarind-tree, and especially of its roots, is a cabinet wood of much beauty but of extreme hard-

ness, so that it is wrought with much difficulty.

On chemical analysis, the pulp is found to contain citric, tartaric, and malic acids, potash, sugar, vegetable jelly, etc.

As salt of copper is a common adulteration, a piece of polished iron—a knife for example—should be plunged into the pulp and left in it for an hour, when, if copper be present, it will be deposited on the iron.

The pulp is cooling and gently laxative, and is often employed in febrile complaints. It is used in India as a soothing article of diet, and a kind of sherbet is made from it. It is also an excellent addition to curries.

Tamarind tea is made by infusing the fruit in boiling water; when cold it forms an agreeable and cooling drink in inflammatory and febrile disorders.

Whey is prepared by boiling an ounce of Tamarinds with a pint of new milk, and straining. This also is an excellent drink in similar cases.

ROE'S SEEDLING GOOSEBERRY.

Sometime last summer the Rev. E. P. Roe, of Cornwall on the Hudson, author of *Play and Profit in the Garden*, brought us a specimen of a Gooseberry, in which bush and fruit appeared to be perfectly healthy, and the fruit was much larger than any of our native sorts, abundant, and of a fine green color. Upon learning it was a new seedling, we requested Mr. Roe to give us its history, which he has done substantially as follows: "In 1826 Mr. William Roe purchased quite a large plot of ground in what was then the outskirts of the village of Newburgh, and stocked his place with the best fruits that he could then procure. That which was then a home in the country,

is now a country-like home in the centre of a large city. Mr. T. Hazard Roe is the present proprietor, and inheriting the taste of his father, has given his place a local reputation for its fine fruits for many years. Among the known varieties many seedlings were permitted to grow, and now there are natural Pears, Peaches, and Apples on the place, that are very valuable, as well as a seedling Raspberry that promises better than anything I have yet seen.

“But the seedling Gooseberry, which I brought to your office, is perhaps the fruit of the greatest promise. For years I had been struck by the remarkable size and fairness of the Gooseberries, and supposed that they were some very fine English variety that by some good fortune had not mildewed. Some time ago I expressed my surprise to Mr. Roe that his Gooseberries did not mildew, and then learned for the first time that they were a seedling variety, which originated on his place over fifteen years ago, and that they never have mildewed. I at once concluded that if it could be made to do as well elsewhere, it would be a great advance upon any variety of this berry I had yet seen. The bush is a very strong grower, and perfectly hardy, and a most abundant bearer, the fruit being large, green, and fine flowered when ripe.”—*Amer. Agriculturist*.

NOCTURNAL GROWTH OF PLANTS.

The books teach us that plants do not grow in the night. This is explained by the fact that the vascular structure of the vegetables is composed principally of carbon, much the larger proportion of which is absorbed through the leaves in the form of carbonic acid gas. This gas being composed of carbon and oxygen, is decomposed by the plant, the carbon being appropriated to the build-

ing up of the vegetable structure, while the oxygen is given off by exhalation through the leaves. But we are taught that this absorption, assimilation, and rejection can take place only in the presence of light. It is even held that this process is reversed during the darkness of night, and that the plant actually loses more or less of its substance during the absence of light. This is the theory. Do the facts sustain it? Two years ago I tried measuring a stalk of growing Corn, morning and evening, for a succession of days, and found that it grew in height more during the night than it did through the day. Recently I have tried a similar experiment on several different plants, the results of which are given below. And though the extension of a plant in length may not prove conclusively that the substance of a plant is increased, it certainly does raise the question, and throw some doubt on the correctness of the above theory.

The following is a summary of my late observations:

<i>Plants Measured.</i>	<i>During the Day.</i>	<i>AVERAGE During the Night.</i>
Corn.....	$\frac{3}{4}$ inch.	$\frac{3}{8}$ inch.
Potato.....	$\frac{1}{2}$ inch.	4-10 inch.
Pea.....	$\frac{3}{4}$ inch.	10-12 inch.
Onion.....	$\frac{7}{8}$ inch.	$\frac{1}{2}$ inch.
Hop-vine.....	.7 inches.	3 inches.

It will be seen that the greatest difference is but little over one-half, while in one case the nocturnal growth was greater than the diurnal. How is this apparent growth of these plants to be accounted for if they do not grow in the absence of light? These observations were made at a time when there was no moon shining at night, the light of which could affect the growth. The weather was warm and clear, and had been preceded by a few days of showery weather that caused a rapid growth of vegetation for so early a season as May. Will some of the *savans* tell wherein our

observations are at fault, or reconcile these facts to the commonly received theory, or shall we conclude the theory erroneous?—*Gardener's Monthly*.

BEFORE THE LEAVES FALL.

I wonder if Oak and Maple,
Willow and Elm and all,
Are stirred at heart by the coming
Of the day their leaves must fall,
Do they think of the yellow whirlwind,
Or of the crimson spray,
That shall be when chill November
Bears all the leaves away?
"If die we must," the leaflets
Seem one by one to say;
"We will wear the colors of all the earth
Until we pass away.
No eyes shall see us falter;
And before we lay it down
We'll wear in sight of all the earth
The year's most kingly crown."
So, trees of the stately forest,
And trees by the trodden way,
You are kindling into glory
This soft, autumnal day.
And we who gaze remember
That more than all they lost
To hearts and trees together
May come through ripening frost.

BEAUTIFUL FLORAL ORNAMENT.—Take a soup-plate or a pickle-dish, and fill it with sand. Moisten the sand with water, and heap it to a cone, and then thrust into the wet sand flowers and foliage enough to cover the whole surface, and you will have, if you arrange it well, the most beautiful floral ornament that can be imagined. This is an excellent way for arranging short-stemmed flowers, or those the petals of which are too soft to be tied without injury among stiffer ones. Or place in the centre of your soup-plate a tea-cup, a child's mug, or a wine-glass, in which insert a small bouquet, and then, filling the plate around it with sand, proceed as above. This will make a better cone than the first method.

Editorial Portfolio.

EXOTIC GARDENS AND CONSERVATORIES, OPPOSITE WOODWARD'S GARDENS.

In visiting lately the favorite "Park of the Pacific"—Woodward's Gardens—as we are often wont to do, we were pleased to find in the large lot directly opposite, in a very convenient location for the multitude of persons both strangers and citizens who never fail to indulge themselves and their children in feasting on the many objects of beauty and interest at Woodward's, an establishment in the nursery and floral line opened by the enterprising and well known firm of Miller, Sievers & Co. We say we were pleased to see this, because we feared that this fine block might be appropriated by some party or other for the opening of a house and garden of entertainment, especially for the sale of wine, liquors, beer, etc. How much more pleasant is it to see the ground appropriated for the inspection and sale of trees, plants, shrubs, flowers, etc.—objects which have a tendency to promote in the public mind truly moral, intellectual, and æsthetic tastes. How natural will it be for many of the patrons of Woodward's, after viewing his conservatories and exotic plant and Fern houses, etc., and imbibing a longing to possess and cherish such lovely objects in their own houses, to cross over the street and examine more extensive and complete premises containing nurseries devoted to these interests; glass structures and houses filled with a very large variety of hardy plants, trees, shrubs, and flowers; aquatic plants, ferns, and orchids; ornamental foliage and flowering plants, flowering bulbs, roots, etc., etc. We understand that the above firm have imported ten thousand

Roses of the very choicest kinds, free from mildew, and grown on their own roots; also, Camellias, Rhododendrons, Azaleas, and Ericas. The collection of Palms embraces over 8,000 plants of over thirty varieties. The collection of Succulents contains over two hundred varieties of Cacti, Agaves, Echeverias, etc. There are kept on hand also, we learn, a full assortment of flower, tree, and shrub seeds, native as well as foreign.

Another feature in this undertaking is that those who desire to forward California seeds, bulbs, and plants to their friends abroad, will find in this collection a good opportunity of doing so.

We have always been of the opinion that the more widely and liberally every such business, so beneficial to the public as the above, is made known and encouraged, the better it is for all concerned, and for all others in the same business or employment, and such is the sincere and honest intention of this notice to our readers.

A NEW GOLDEN-FOLIAGED CYPRESS.

A few days since Mr. I. Begg, of Gilroy, showed us a branch of what was said to be a newly discovered mountain Cypress, a small cluster of which was found growing in one of our southern mountain ranges in this State, at an elevation of 2,500 feet. The branch was densely covered with its brown fruit. Its leaves were beautifully tipped with golden color, and presented a most beautiful appearance. This, if a distinct species, must certainly be a valuable addition to our already numerous list of fine evergreens found growing in our forests, and will form from its splendid golden hues a lovely ornament in our pleasure-grounds. We shall make

further inquiries concerning it. The golden tint might be caused by some natural merely temporary effects.

FRUIT CULTIVATION, AND REPORT ON THE FRUIT AND VEGETABLE MARKET.

BY E. J. HOOPER.

In our paper last month we said something regarding the application of manures for fruit-trees, and in it we promised to give some directions for the pruning of trees, shrubs, or bushes. We will now endeavor to do so to the best of our knowledge and ability. We have heard some fruit cultivators say that they prune whenever their knives are sharp. This is a very good idea, if only small branches or twigs need to be cut out, but what is to be done in the case of large limbs in an old orchard which have been allowed to grow too thick and long in consequence of want of attention to the trees when they were young, and unfortunately this is too often the case. Any orchard, if well kept, will be in such shape as not to require the cutting of large limbs, and if only small ones are cut, it is not so important about the season. An orchard may grow up in this way with little care; but it is a very common fault that limbs that should have been cut when small are allowed to grow. In such cases, we should cut when the sap is flowing, when the orchard is in bloom, and, if we wish to properly complete our good work, we should paint over the wounds with a gum-shellac varnish, and in that case the limbs will heal and not dry at the end. If cut when the sap is down, the knot will dry, then rot, and finally injure the tree.

The quantity of timber that a tree forms, the amount and quantity of its secretions, the brilliancy of its colors,

the size of its flowers, and, in short, its whole beauty, depend upon the action of its branches and leaves, and their healthiness. The object of the pruner is to diminish the number of leaves and branches; whence it may be understood at once how delicate are the operations he has to practice, and how thorough a knowledge he ought to possess of all the laws which regulate the action of the organs of vegetation. If this is well performed, it is a highly beneficial process, and, if badly directed, it is among the most hurtful work that a plant can be subjected to.

The first object, that of producing the desired shape of the future tree, is chiefly done upon the young subject, even in the nursery row. The judicious pruner, being well aware of the upward tendency of young growth, seeks to overcome the evil by proper pruning. If the growth be altogether upward, and with no side branches the first season, the stem will be too slender. The wise nurseryman carefully avoids disturbing the leaves or lateral branches, well knowing their importance in forming the woody trunk. At the proper season he trims his trees down, instead of trimming them up—this he does by heading them back to the height at which he desires them to form their branches—at the same time he shortens in the laterals; his object in both instances being to check the upward tendency of growth by removing the strong terminal buds, which would naturally have formed the new shoots the coming season. The result of this treatment is to call into action several buds at the upper part of the stock. These are to form the arms of the tree, and hence a very important part of the pruning and training of the plant is thus performed at once by this simple operation of heading back the young nursery tree. But

further attention is needed, as these arms develop themselves during the next season of growth; they should not be too numerous, nor too much crowded together; they should not be too nearly matched in strength, and one should be kept as a leader, stronger than the rest. Never allow two shoots to remain contending for the mastery; one of them should be subordinated by cutting, breaking, or twisting, as soon as it is observed, for however beautifully developed a tree grown in this way may appear when well balanced, there is always danger of its splitting down when heavily laden with fruit. This very common error of our orchards used to be quaintly illustrated by a friend on the prairies of Illinois, who cited the advice of a Scotch jockey, to whom he had applied for counsel in the purchase of horse-flesh: "Ne'er buy a horse whose twa fore-legs cum oot frae hole," said he, and this gentleman applied the same principle to his young fruit-trees, by never allowing them to have two equal leaders, branching from one point. It is also important to have the lateral branches regularly distributed on different sides. We in California have learned the importance for us, at least, of *trimming our trees down*, and not *trimming them up*. The proper season for performing this kind of pruning is during our rainy season, or after frosts have passed, and with some kinds of orchard trees, it may be done at the time of transplanting them, which is never late in the season with us, when they need a severe pruning. In our next fruit article we shall consider the object of pruning being done with a view to the production of fruitfulness in the tree, which is to be practiced chiefly in summer, the remainder of our space now having to be devoted to the condition of our fruit and vegetable markets.

About the middle of last month (November), vegetables of all kinds were a shade dearer, the bad condition of the country roads preventing farmers from moving their produce rapidly. Wild Mushrooms were in plenty, the rain having produced a large crop. Grapes were almost out of market, and the few remaining varieties were a turn dearer. Still there were enough left to gratify lovers of that fruit. Strawberries were getting scarce on account of the rain, and advanced to 25c. @ 30c. per lb. Blackberries and Raspberries, 50c. It will rather surprise our Eastern friends to hear of Raspberries being here in the middle of November. Asparagus retails at 35c. @ 40c.; Summer Squash, 5c. @ 6c.; Egg Plant, 8c. @ 10c.; Chile Peppers, 12½c.; Rhubarb, 6c. @ 8c.; Horseradish, 15c. @ 20c.; Marrowfat Squash, 2c. @ 3c.; Green Corn, 20c. @ 25c.; Artichokes, 35c. @ 50c.; Brussels Sprouts, 6c. @ 8c.; dried Okra, 40c. @ 50c.; Garlic, 12c. @ 15c. per lb.; Mushrooms, 10c. for the wild, and 50c. per lb. for the cultivated variety. Watermelons and Cantaloupes were out of market.

The late heavy rains interfered with the picking of Strawberries, and just after gave most of them a pallid complexion, making them much less tempting in appearance, as well as injuring their flavor; also making them more watery in their juice. The rains, however, much enlarged their size. They are still of the Hovey Seedling species. The receipts of them were also much lighter. Their price was, about the last of November, 40c. per pound; they were hawked about the streets at that price in small one-pint baskets. The first consignment of California Lemons arrived about the 25th of November, and prices were easier. A few Raspberries were to be had at 50c. per pound. Grapes were becoming scarce, but the

following varieties were still in market at the prices annexed: Mission, 8c. to 10c.; Flame Tokay, Black Morocco, Muscat, and Coronation, 25c. per pound. Apples were less plentiful, and sold by the box at \$1 50 to \$2 50; Pears, \$1 75 to \$3 00 delivered. About the last of November Green Peas, Tomatoes, Cucumbers and Green Corn were poor in quality, and the last shipments were expected soon to be received. String Beans from the Mission gardens still came forward in fair order. Summer Squash had just disappeared, Sweet Potatoes were scarce, and had advanced to 4c. @ 5c. per pound. Common Potatoes sold per single sack, delivered, at \$1 75 to \$2 00 per 100 pounds. Asparagus retailed at 35c. to 40c.; Egg Plant, 8c. to 10c.; Chile Peppers, 12½c.; Rhubarb, 6c. to 8c.; Horseradish, 15c. to 20c.; Marrowfat Squash, 2c. to 3c.; Green Corn, 20c. to 25c.; Artichokes, 35c. to 50c.; Brussels Sprouts, 6c. to 8c.; dried Okra, 40c. to 50c.; Garlic, 12c. to 15c.; Mushrooms, 10c. for the wild, and 50c. per pound for the cultivated variety.

At the beginning of this month (December) the summer vegetables were gradually disappearing from the market. Green Corn was out, and Cucumbers and Tomatoes will soon follow. A few String Beans from Mission gardens were to be had, but at high prices. Sweet Potatoes were scarce at 4c. to 5c.

The list of domestic fruits was confined to Apples, Pears, and a few Grapes and Strawberries. A few choice Grapes were coming forward which sold as follows: White Malaga, Black Morocco, and Black Arabian, 25c.; Flame Tokay, 15c. to 25c.; Muscat, 20c. to 25c.; Mission, 10c. to 12½c. per lb. Strawberries were scarce during the week, chiefly in consequence of the

rainy weather. The last Mexican steamer brought a large shipment of Oranges, including the crop of the famous Loreto Grove, near La Paz, Lower California, and the market was abundantly supplied. The same vessel also brought Lemons and Sugar Cane. Eastern Chestnuts were plentiful at 25c. per lb. Apples, by the box, retailed at \$1.50 to \$2.50, delivered. We append the following from the *Evening Post*, on the subject of Strawberries:

“There has been only one month this year when this luscious berry was entirely out of the market. In some years the Strawberry has been purchasable at the stalls almost every day of the year. The receipts here from the first crop reached 13,646 chests, running from eighty to ninety-six pounds each. Of the second crop there have already come to hand about 2,415 chests—in all, say 15,061. Prices throughout the season have ranged from five cents to two dollars per pound. The fruit that comes here is all raised in the Santa Clara Valley, within an area of about six miles. Outside of this space, for a distance on either side of say three miles, and until you reach the mountain ranges inclosing the valley, there is a rocky formation extending below the surface to a great depth. Here all attempts to sink artesian wells have proved fruitless, and the cultivation of the Strawberry has necessarily been restricted to the limit above mentioned, where water can be readily obtained for irrigating. The landlord of each “patch” shares with his tenants, who are Chinese, on the following terms: He furnishes the land, and a team and a driver to cart the fruit to the landing. The Chinese do all the necessary labor on the premises, and receive one-half the proceeds from sales, often deducting the cost of transporta-

tion to market and the commission for selling. On some places the Chinese are divided into as many as five or six companies. The land will not bear profitably beyond seven years, and the soil, with continual irrigation, gradually loses its productive power, and the berry deteriorates in the same ratio.”

We observe that Clingstone Peaches have held out longer this season than we ever remember for six years past. They have been sent from the northern portion of the State, and may be still found in the market, retailing for 15c. per lb. We have noticed some very fine California Raisins in boxes, which have deservedly attracted much admiration, and which promise much in this interest for the future. Dr. I. Strentzel has consigned lately some superior specimens, for this late in the season, of Grapes, from his well-managed “Alhambra” fruit farm. The Apples are now chiefly from Oregon. The receipts of Strawberries are now light, and they are not tempting in their complexion, being rather green in appearance, but they would not be much sought after if they were as blushing red as is usual for them in the height of their glory, for they must have had their day mostly for this season.

OUR FRONTISPIECE.

Our illustration for this month is the Dwarf Tree-fern (*Lomaria Gibba*.) This is one of the most beautiful, graceful, and feathery objects in the vegetable world. The large Tree-fern forms a very distinctive feature of the tropical zone, while it is also common in the equatorial zone, and is prevalent and very conspicuous in the dense under-wood which chokes the forests in both those zones. Some of the Tree-ferns in Brazil reach to the height of forty feet.

There their peculiar and favorite station is in the depths of the primeval woods, where they grow detached from one another, like hermits, in solitary and sombre grandeur, being never gregarious or collected in large groups, creating a somewhat sad and gloomy impression. But in Tasmania and Australia their light and spreading canopies are associated with all that is cheerful and joyous. About 200 distinct species of Tree-ferns are known to botanists, though few have as yet found their way into our conservatories. The expense of exportation and their slow growth have, thus far, made them costly luxuries. They serve a double purpose, however, in decorating the conservatory in the winter, and the lawn or garden in summer. We all remember the fine and elegant effect produced in the Horticultural department of our last Mechanics' Institute Exhibition. How the summits of their stately stems were grandly crowned with dark green, plume-like fronds, varying from three to six feet in length; and how beautifully the young fronds were arched, becoming bent over and pendulous as they grow older. In potting Tree-ferns use equal parts of good peat and loam, mixed with sharp sand. The secret of their good health lies in a little extra supply of water. All these Tree-ferns thrive best in a moist air, and the stem should be frequently sprinkled with the syringe. When warm weather sets in, as it does in some of our sheltered valleys in this State, the tubs in which they are grown may be set out of doors, thus making an ornament than which nothing can be finer or more highly prized. The habits and characteristics of the Dwarf Tree-fern and the large Tree-fern are very nearly the same, the difference being chiefly in the size of the two different species.

NEW AND RARE PLANTS.

New *Gladiolus* for 1875 reported by the *Horticulturist*, New York.

Andromede.—Long spike of large and perfect flowers, of rich rose color, tinted with carmine and streaked with white. Large yellow blotch.

Astree.—Pure white, with violet carmine, blotch and pale lilac throat; new shade of color.

George Such (so named in France).—Very dazzling orange red, slightly flamed with carmine; fine, velvety carmine spots. Unique in color.

Giganteus.—Grand spike of large flowers; color, fine rose, shaded with cherry; upper petals striped with white, and spotted with dark carmine.

Grand Liliac.—Tall spike of beautiful, delicate lilac flowers, darkening towards the edges. A novel and exquisite color.

Hercules.—Superb flowers on a fine spike; brilliant, velvety scarlet, flamed with orange red; violet blotch on a mauve ground wonderfully effective.

Lora Hawke.—Very long spike and flowers of great size; fine rosy carmine with transparent throat, each petal being divided with a white line and spotted with white. Very remarkable.

Pactole.—Beautiful spike of pure yellow flowers with slight rosy border; lower petals shaded with darker yellow. A fine addition to the limited number of yellow varieties.

A New Hybrid Lily.—Many beautiful Lilies have been produced by crosses between *L. auratum* and the *speciosums*, though we are not aware that any of these new varieties have yet been offered for sale. It requires a number of years—probably eight or ten—to produce bulbs from one seed in a sufficient quantity to place them in the market; so that after the announcement of a new

hybrid or cross-breed Lily, we must wait patiently for a long time before we can hope to procure it.

The latest novelty among this beautiful class of plants is one flowered by Mr. Anthony Waterer of England, which according to the *Gardener's Chronicle* is the most beautiful that has yet appeared. It asks us to imagine a blossom of the high-colored type of *Lilium speciosum* increased in size, so that the segments, straightened out, measure nearly fourteen inches across, and give to this grand flower the coloring and rich spotting of the plant just referred to—while suffused with rich, rosy crimson, and having deep crimson spots freely distributed over the colored portion—and “some idea may be formed of this splendid Lily. To these noble proportions and charming coloring it may be added that the scent is delightful, more delicate than that of *L. auratum*, and more approaching the sweetness of *L. speciosum*. We have seldom seen a more magnificent flower.”

NEW FRUITS.

The Alexander Peach.—This is said to be, from many good authorities in fruit-growing, one of the best and earliest Peaches in the world. It is a chance seedling, first fruited in 1872, ripening that year about July 18th—fully three weeks earlier than Hales' Early, in the orchard. It is said to be a very handsome, richly colored and deliciously flavored Peach, excelling in these respects all new early Peaches yet introduced. It is reported, also, a remarkably strong and vigorous grower. This Peach can be obtained from J. I. Capps & Son, Mt. Pulaski, Logan County, Illinois.

The Amsden June Peach.—A celebrated new early Peach from southern Missouri, also one of the earliest Peaches now known; from same proprietors.

Correspondence.

E. J. HOOPER, ESQ.:

DEAR SIR:—Through my friend Chas. Hallock, Esq., editor of the *Forest and Stream*, New York City, I am induced to write you. Pardon the presumption of an entire stranger. Having been a reader of Mr. Hallock's journal, devoted to the manly sports and to natural history, I have read with much pleasure the interesting letters of his correspondent away in the sunset portion of our great domain—Mr. E. J. Hooper, the gentleman I now address. If you are a reader of his excellent paper, you may have read the feeble efforts of “Ichthyas” on “Fish Culture” which I have found time to indite, not on account of any particular sum of any worldly wisdom they may contain, but to stimulate this great industry into such proportions as nature has provided for it in our great land, varied with every possible advantage for its complete success.

Your great State, the Ophir of the Union, is not only rich in the dust that all are seeking, but in great natural resources that conspire to secure her early greatness—ultimately to be among the brightest in the bright galaxy of the sisterhood. It gives me unbounded satisfaction that pisciculture is fast developing and supplementing your food resources. From the stand-points of benevolence and philanthropy, this movement is ultimately destined to lessen the burdens of toil of those upon whom they bear with such heavy weight. It is a movement that has been crowned with entire success in every State where it has been adopted, and ultimately will engage the attention of good men, not only upon this continent, but throughout the naturally adapted portions of the entire globe. Let us hope for its speedy dissemination; for the on-coming mill-

ions must look to the cultivated waters of our country for sustenance beyond what Agriculture can bestow.

Could we rightly estimate the value of food-fish, their adaptation to human wants as elements of food, the water area of our country would be as thoroughly husbanded as the soil upon which we have hitherto almost exclusively relied for food.

The adoption of fish culture will then result in a double benefit, for while it furnishes the exhausted energies of the brain with its appropriate pabulum, a decided stimulus will be given to the study of natural history. There is no grand division of the zoological world, more fascinating than the *Ichthyic Fauna*, at least to the contemplative mind, or to the "disciple of the rod." Through all the ages the finny denizens have attracted their full share of attention, but not so much in a scientific light as at the present time.

Very respectfully yours,
 NAHUM B. BALLOU.

CONSERVE OF ROSE-LEAVES.—Gather the leaves of any sweet-scented, fresh, full-blown Roses, early in the morning while the dew is still upon them. Have ready provided equal quantities of nutmeg, cloves and mace. Sprinkle with salt, and then with the spices prepared. Take a box of any kind that is rather shallow, place in the bottom a layer of Rose-leaves, sprinkle with salt, and then with the spices prepared; and then put in another layer of Rose-leaves, then spices, etc., until the box is filled. Lastly, tie on tightly a cover of sheer muslin, and expose to the sun daily until perfectly dry. You may then pack the conserve in pretty china bottles, with wide mouths, but close stoppers, and you will be provided with a delicious perfume, whose sweetness will not

evaporate for years. It is pleasant either to have on one's parlor mantel or chamber toilet-table. As a perfume for mouchoir-cases or scent-bags it is unrivaled. Let the housekeeper also try laying it among the stores on the shelves of her linen-closet.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING NOVEMBER 30, 1875.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 423 Washington Street, near the Post Office).

BAROMETER.

Mean height at 9 A. M.....	30.10 in.
do 12 M.....	30.10
do 3 P. M.....	30.09
do 6 P. M.....	30.08
Highest point on 9th, at 12 M.....	30.25
Lowest point on the 13th, at 3 and 6 P. M.....	29.90

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.....	57°
do 12 M.....	60°
do 3 P. M.....	60°
do 6 P. M.....	56°
Highest point on 9th, at 3 P. M.....	69°
Lowest point on the 26th at 6 P. M.....	51°

SELF-REGISTERING THERMOMETER.

Mean height during the night.....	51°
Highest point at sunrise on the 18th.....	58°
Lowest point at sunrise on the 3d and 22d.....	44°

WINDS.

North and north-east on 4 days; north-west on 2 days; south-east on 7 days; south-west on 8 days; west on 9 days.

WEATHER.

Clear all day 4 days; cloudy all day 16 days; variable on 16 days.

RAIN GAUGE.

	Inches.
1st.....	0.31
6th.....	0.21
11th.....	0.03
13th.....	0.47
14th.....	0.12
15th.....	0.16
16th.....	0.82
17th.....	2.01
18th.....	0.78
20th.....	0.01
23d.....	0.08
24th.....	0.13
25th.....	0.01
26th.....	1.07
30th.....	0.52
Total.....	6.73
Previously reported.....	0.22
Total for the season.....	6.95

Sharp earthquake shock on the 14th, at 7.52 P. M.; and a moderate one on the 27th, at 10.38 P. M.



