ARTIFICIAL ROCKWORK.

Constructed by G. M. Kern, and exhibited at the Fall Exhibition of *The Cincinnati Horticultural Society*—1854.

PRACTICAL

LANDSCAPE GARDENING,

WITH REFERENCE TO THE

IMPROVEMENT OF RURAL RESIDENCES,

GIVING

THE GENERAL PRINCIPLES OF THE ART;

WITH FULL DIRECTIONS FOR

PLANTING SHADE TREES, SHRUBBERY AND FLOWERS,
AND LAYING OUT GROUNDS.

BY

G. M. KERN.

(SECOND EDITION.)

CINCINNATI:

MOORE, WILSTACH, KEYS & CO.,

NO. 25 WEST FOURTH STREET.

1855.

Stereotyped and Printed by
MOORE, WILSTACH, KEYS & OVEREND,
CINCINNATI.

TO

ANDREW H. ERNST, ESQ.,

DISTINGUISHED FOR HIS LOVE OF HORTICULTURAL PURSUITS,

This Volume

IS RESPECTFULLY INSCRIBED

BY THE

AUTHOR.

PREFACE.

A DEMAND has for some time existed, in this country, for a work in which should be embodied, in as few and plain words as possible, such explanations of the PRINCIPLES OF THE ART OF LANDSCAPE GARDENING, *as well as of the* PRACTICAL OPERATIONS *connected with it*, as would make the subject intelligible to that very large class in our country who are proprietors of a portion, great or small, of its soil.

To supply this demand, in part — to lay before the country gentleman certain simple and well-tried fundamental rules, which may guide him in conducting the various improvements and embellishments he may desire to make — to disseminate a knowledge of the Art of Gardening among a large class of our Agriculturists, whom existing works have failed to reach — to assist in creating a more general appreciation of the art — to give

such light to all as will enable them, even if settled down in the wilderness, by a few simple, but tasteful embellishments, to add beauty to their residences, or as will aid them, at all events, in preserving, instead of destroying the natural beauties of the country — these have been the aims of the Author, in placing before the public the present volume.

The PRINCIPLES of the art of LANDSCAPE GARDENING, as practiced at the present day, have been laid down satisfactorily, and at some length, by those men who have been most eminent in its practice since the days of the great originators of the present style, Brown and Kent — such as Repton, Loudon, Whately and others, in England, Sckell, in Germany, and Gabriel Thouin, in France. From their writings, as well as the monuments of their artistic skill, which remain in the Gardens of Europe, the Gardeners of the present day must study their art. They pointed out to their successors the sources whence they derived their ideas. They teach us not only in what respect to be guided by Nature, but what means we must use, successfully to imitate her. Their instructions are, however, from their great diffuseness, of but little use to any but the professional gardener. It has, therefore, been the aim of the writer to present, in this Treatise, the choicest ideas of the leading authors, so

simplified and condensed as to form, if possible, a work that, being intelligible to all, will be, to a certain extent, a guide to the most inexperienced, in the formation of a correct taste.

The requisites of taste are well described by Dr. Beattie, under five distinct heads, as follows: "1. A lively and correct imagination: 2. The power of distinct apprehension: 3. The capacity of being easily, strongly, and agreeably affected with sublimity, beauty, harmony, correct imitation, etc.: 4. Sympathy, or sensibility of heart; and, 5. Judgment, or good sense; which is the principal thing, and may, not very improperly, be said to comprehend all the rest." Mankind not being universally endowed with these qualifications, it is evidently impossible for every man to be the possessor of correct and refined taste, which is of the first necessity for a Gardener. But it is both possible and expedient to place within the reach of all, such information as will give them some definite ideas of the concomitants which go to make up a graceful Scene, or beautiful Landscape. An attempt to do this is made in the following pages.

The late lamented A. J. Downing, was the first to bring the Art of Landscape Gardening, as practiced in Europe, favorably to the notice of the American

Public. By his labors, in various sections of the Union, and more especially by his excellent book on Landscape Gardening, which is to be found on almost every parlor-table the country round, he did very much toward disseminating, and popularizing a taste for Rural Embellishments. His untimely death was a severe loss to the Art, and to the Country. Since Mr. Downing's death, owing to the continued prosperity of the Country, the Art has made many and great advances, and nowhere more so than in the Great Mississippi Valley. Although no one has been found to fill the place left vacant by the lamented Downing, the Art has many worthy representatives, both East and West. Among these we will mention but one, ADOLPHUS STRAUCH, ESQ., of Cincinnati, to whose enlightened and refined taste the West is indebted for some beautiful specimens of the Art to which he has devoted himself.

It has been thought proper to divide this work into two parts: the first devoted to an exposition of the Theory and Practical Operations of Landscape Gardening, as an Art of Design and Taste: the other a Treatise Explanatory of its Adaptation to Pleasure Grounds, The Farm, and Cemeteries, etc. In order to

make it as complete as possible, concise but explicit, and methodically arranged Directions for the Working of a KITCHEN GARDEN, have been added. Throughout the Author has endeavored to confine himself strictly to the matter in hand, making his explanations and directions as concise and plain as the nature of the subject would admit.

If he shall be able to contribute to the awakening of a farther interest in the tasteful ornamentation of their Grounds, in the minds of the Farmers and Country Gentlemen, throughout the Union, the Author's most ardent wishes will be gratified.

Cincinnati, March, 1855.

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PRACTICAL

LANDSCAPE GARDENING.

INTRODUCTION—HISTORY, ETC.

A DESIRE to possess a spot of ground whereon to erect a *home*, or abiding-place, has been a ruling sentiment in the human breast since mankind first emerged from the nomadic state, which tradition assures us was the primary stage of the existence of our race. It is to this longing for a place, where might be realized, in their fullest sense and effect, the feelings of mutual affection and esteem which bind together the various individuals composing a family circle — it is to this sentiment that we may ascribe the first rude ideas of a Garden; for the mind which coveted ownership could scarcely, we imagine, refrain from the desire to improve and beautify this *home*.

To protect it from the encroachments of the beasts of the wood and field, was necessarily one of the first steps in the formation of a constant abiding-place. To supply the cravings of hunger by the raising of a few of the commonest fruits and vegetables, was probably the next. So far, we may suppose the rudest nations, whose habitations were fixed or stationary, to have progressed. The next step in advance, and the first in the art of Gardening — the cultivation of Flowers, Fruits, and Shrubs — more to please the eye by the beauty of their forms and the tastefulness of their dispositions, than to satisfy the necessities of man—this step did not, and could not follow, until the progress of civilization had created a certain taste, and consequent desire for such ornamentation — and when also the increase, and more unequal distribution of wealth, placed it in the power of those in high positions to add to their state or consequence by such displays.

Our first accounts of Gardens on a large scale, date from the period of the establishment of regal powers in the earth. That much progress was made in the art, even in very remote times, seems an undisputed fact; and it is by many au-

thorities supposed that the Hanging Gardens of Nineveh and Babylon, have not been excelled by any displays of more modern times. In Rome, and Greece, too, in their palmiest days, much attention was paid to Ornamental Gardening, and from the description left us by Pliny, and other historians, there is no doubt that the sums lavished upon their Gardens by the Romans, during the Empire, were not expended without due regard to taste.

It is to be remarked that, as the first ideas of Gardens were in connection with the comforts and pleasures of *home*, so all nations who have at any time practiced gardening, have adhered to this idea, by endeavoring to combine utility with beauty, and by modifying the principles of the art, in all cases, to the climate and country in which they lived; thus, under the burning skies of Asia, we find stately groves of magnificent shade-trees, beneath whose shelter their indolent possessors sought relief from the extreme heat; while in the more genial climes of Greece and Italy, Gardens were enriched with costly statuary, abounded in pleasure houses and other architectural displays, and were surrounded and planted with low trees

and shrubbery, to shade without excluding the light or sun; and among our rude ancestors, the Gauls and Britons, gardening was applied principally to vast inclosures, preserves for the game, which they delighted in hunting.

In the same manner the Gardens of more modern nations show evidences of similar adaptations of taste to the incidents of climate and country. In Asia, the Gardens of to-day are but fac-similes of those existing thousands of years ago, in Italy, when the conquering hordes of Asia effectually destroyed the art of gardening, with the other foot-prints of civilization, not leaving a trace standing, by which to recognize its former grandeur. The style of art in the seventeenth century differed but little, in its leading features, from that during the Roman empire. Cardinal D'Est, to whom the revival of the art in Italy is principally due, constructed his celebrated Gardens upon the site of those of the Emperor Adrian (the splendor of which history has made known to us), and many of the vases, statues, etc., of the Roman Garden were here brought to light, and re-applied to their former uses. "Balustraded terraces of masonry; magnifi-

cent flights of steps; arcades and architectural grottoes; lofty clipped hedges, with niches and recesses, enriched with sculpture, were the components of the Italian style of gardening.

The Italian style was the first introduced, upon the revival of the art in Europe, and soon obtained in every part of the continent, as well as in England. The French altered it materially to suit their cooler climate, and more level country. Less fond of elaborate architectural displays, they eschewed the terraces and arcades of Italy, supplying their places with long avenues of trees, and grass, and flower-plots of intricate geometrical forms. Le Nôtre, gardener to king Louis XIV, was the master spirit of this style, and his models and plans were copied all over Europe, and are, to this day, the truest representations of the *French* Style.

When Holland became the great emporium of the commerce of the world, the art of Landscape Gardening assumed there also an important stand, and there was formed another modification of the Italian, called the "Dutch Style." It consisted of sloped terraces of grass, regular shapes of land and

water, formed by art, and adorned with trees in pots, or planted alternately, and closely clipped, to preserve the utmost regularity of shape. His style abounded in the quaint and grotesque, which made it a favorite in many parts of Europe. It was introduced into England by King William III, and prevailed there for about half a century. The Dutch, beside originating a peculiar style in gardening, have the greater merit of introducing to Europe the first specimens of many strange species of trees, shrubs, and flowers, principally from their East Indian possessions. Some of these have become the rarest and most beautiful ornaments of our Gardens and greenhouses. They also acquired a great name for superiority in the cultivation of bulbs, and in this department they are yet unsurpassed.

In England, various styles of gardening have been the fashion at different times; the Italian was the first to be imitated there. This was succeeded by the French and Dutch styles. To all these succeeded what is now called the "Natural Style," which has, in turn, been favorably received and imitated by every nation of Europe, and is now

fully recognized there, and in this country, as uniting in itself all the qualities demanded by the most correct and refined taste.

Brown and Kent, the great leaders and originators of this style, taught that nature must be the only model of the gardener. They observed that in the English Gardens, Nature, distorted at great labor and expense, had lost her power of pleasing with the loss of her novelty — that the most elaborate productions of art resulted in naught but the most tiresome sameness of forms and figures. Disgusted with the universal stiffness and monotony, they boldly struck out a new path in the art. They were not long in finding admirers and patrons, and great changes were made in the Gardens and grounds of the nobility, under the direction of Brown. The straight lines and stiff terraces of the ancient style, were succeeded by flowing lines, extensive, smooth lawns, and verdant slopes; the formal avenues and geometrical clumps, in which trees had been arranged, were superseded by pleasing curves, and an irregularity of grouping, which relieved the eye and beautified the scene.

During Mr. Brown's life, these improvements,

carried on under his own direction, were characterized by moderation, and a discriminating, good taste, which spared many of the beauties of the old style. His successors, who were mainly his working men and gardeners — possessed of his ideas without his taste in their application — his zeal without his discrimination, like many other reformers, mistook destruction for improvement, and proceeded with a blind fury, to cut down the noblest avenues of forest trees — the growth of centuries — merely because they had been arranged in "straight lines," which they were taught to abhor. They fell into the mistaken notion, that greatness of extent would produce greatness of character — that vastness was, in effect, beauty; their works therefore soon showed naught but an immeasurable extent of naked lawns, tedious lengths of belts and drives — a useless breadth and tiresome meandering of roads, and in short, an artificial irregularity, which showed as well poverty of conception as baldness in execution and effect. Obstinately bent upon carrying out their one idea, they sought to produce the requisite impression of vastness, on grounds of limited extent, by leading the approaches to the house a tedious round over

the whole estate. Such follies and extremes could not but attract the ridicule of all men of correct taste. Various Landscape Painters of note, in England, came to the aid of the gardeners. These desired to see landscapes arranged with a view simply to their effect in a picture, casting aside the connection which should exist between beauty and utility. They ignored the fact that a landscape in Nature, and a landscape in a picture are very different things, and that consequently Landscape Painting and Landscape Gardening must ever remain distinct arts.*

The painters insisted upon a style which is called the Picturesque or Chinese Style, in which the wildness and abruptness of the natural woods was not only imitated but exceeded — losing sight of the fact that, in bringing these qualities of wildness and abruptness, in immediate contact with the habitations of civilized man, the unity of the whole was undoubtedly destroyed. They condemned

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* An explanation of the principal points of difference between the two, will be found in the chapter on "*the Principles of the Art.*"

the smooth lawns, and meandering walks of Brown, as strongly as the stiff parterres and terraces of the Italian and Dutch styles. The scenes of wild nature, with a foreground composed of briers, stones, and perhaps a mouldering log — this was their *beau-ideal* of a landscape.

As a sample of this taste, Repton speaks of the grounds of Mr. Knight, a painter and author, and strong advocate of this style, who placed near his mansion large fragments of stone, thrown irregularly among briers and weeds, to imitate the foreground of a picture. The "Picturesque Style" was found to be but little adapted to extensive grounds, or to be exclusively employed anywhere.

To Humphrey Repton, Esq., an English gentleman of education and standing, although not originally a professional gardener, belongs the credit of first combining all that was excellent in former styles, and adapting this union or combination to the Gardens and Parks of England. He founded what may be called "Repton's Style," which, says Loudon, "may be considered as consisting of the union of an artistic knowledge of the subject, with good taste and good sense." Repton says of him-

self, that he "labored to establish the fact that true taste, in Landscape Gardening, as in other polite arts, is not an accidental effect operating on the outward senses, but an appeal to the understanding, which is able to compare, to separate, and to combine the various sources of pleasure derived from external objects, and to trace them to some pre-existing causes in the structure of the human mind." To Mr. Repton's genius and labors may be, with justice, ascribed much of the prevalence of good taste in the art, as practiced at the present day. His works are consulted and studied as authorities, by all professional gardeners, and the principles laid down by him remain undisputed. He gave the name of *Landscape Gardening* to this branch of the art. The labors of Repton extended from the year 1783 to his death, in 1818. His last work on gardening was published in 1816.

The "Natural Style" early found its way from England, to the various countries of Europe, where it was adopted, with various modifications and improvements. Louis Von Sckell, a German, who studied in England the masterpieces of Brown, Kent, and Chambers, introduced the style into

Germany. He labored not only to copy, but to improve, and many of his works, in Germany are at this day considered masterpieces. He paid particular attention to the plantation of wood and forest scenery, and in that branch proved himself superior to all his cotemporaries.

A growing taste for Botany and Horticulture, and the introduction of many foreign plants, has given rise, in England, to a school, or style, to which has been given the name of *Gardenesque.* Its characteristic feature is the display of the beauty of trees and other plants, individually. Loudon, says of it: "According to the 'Gardenesque School,' all the trees and shrubs planted, are arranged in regard to their kinds and dimensions; and they are planted at first, at, or as they grow, are thinned out to, such distances apart, as may best display the natural form and habit of each." This style may be said to have always existed in Botanic Gardens, and is only followed elsewhere from the natural desire of gardeners and amateurs in botany, to display to the best advantage their trees and plants.

Such is a short sketch of that branch of the

art of "Gardening," coming properly under the heads of Taste and Design.

Horticulture, the *Art* of *cultivating* the various plants found in Gardens, has made much greater improvement, within the last century, than its more theoretical partner, "Landscape Gardening," and in this practical age we may expect this to continue to be the case. If we have made large advances in the methods of raising and cultivating the plants indigenous to our soil, yet greater have been made in Europe, in the cultivation of exotics, and greenhouse plants. The immense wealth centered in the hands of the privileged classes of society, in Europe, has given an impetus to this branch of horticulture, which can only be adequately supported by such classes; but the Horticulturist and Botanist are indebted to the widespread commerce of the present day, principally, for the advantages they enjoy.

It is known that during the Roman empire many of the wealthy Romans lavished vast sums upon the cultivation of exotic plants. But Rome, with all her magnificence, was trodden beneath the feet of the barbarian hordes of Asia, and it was

not until the discovery of the passage to the Indies, in the fifteenth century, that a taste for the cultivation of exotics was revived. The Dutch, for a long time, were noted for the splendor of their collections, brought at that time from every land, and every clime by their ships, which visited the remotest corners of the earth, in pursuit of trade. They are still noted for their tulips, hyacinths, and other flowers and plants, which yet command a high price in the flower markets of the world. India and America have added a vast number of beautiful plants to the lists of the Gardener and Florist, and are yet yearly contributing no small share to the decoration of the Gardens of Europe; and we may hope that the vast unexplored regions of South America, where vegetation is so luxuriant, will yet add more, and perhaps, greater beauties, to the collections of the Botanist and Florist. In England, the culture of greenhouse plants is at present carried to the greatest extent and perfection. In no other country in the world, is the art of Gardening carried on to the same extent and magnificence, at the present day, as in England. This is to be ascribed, not so much to the

possession by the English as a people of a superior taste for Horticulture, but to the immense wealth which is placed in the hands of the privileged orders of Society. In France and Germany, the same good taste prevails, but the means for making a similar display do not exist. In America, newly settled, and where, thanks to our republican institutions, wealth and real estate are more equally distributed, the art of "Landscape Gardening" has not yet, and will not, perhaps, for a long series of years, reach the eminence to which it has attained in long-settled Europe; yet a strong and growing taste for rural improvements obtains throughout the Union, and in the Eastern States may already be found very many villas and country residences, which will vie with anything of the kind to be found in Europe, in the display of taste, although probably not in magnificence.

This taste for rural improvement seems, however, to be, in a great measure, confined to that, as yet, small class of our citizens who have both wealth and leisure to devote to the object. It is much to be wished that a proper taste and desire for rural embellishments might be awakened among

our people generally, and more particularly among agriculturists. A very great proportion of the citizens of the Union are the possessors of a portion of land, of greater or smaller dimensions, varying from the narrow town lot to the broad farm of hundreds or perhaps thousands of acres. It is highly desirable that these should become interested in the cultivation of a proper taste for rural embellishment — and should at least be possessed of the knowledge that, be their place ever so small or confined, they can, by a proper management of the advantages of situation, etc., and at very little expense, add materially to its beauty and (what may be of more importance to some) to its cash value. Our country possesses many and great advantages over the older or longer-settled lands of Europe, to facilitate the operations of the Landscape Gardener. Her forests, the growth of centuries, still adorn the natural landscape, and need only the light but skillful touches of a tasteful hand, to make the view surpass, in grandeur and beauty, all that the care, training, and art of Europe have been able to produce. A just appreciation of natural beauties would do much to arrest

the heartless and objectless course of destruction which now prompts a great part of our agricultural community to cut down, remorselessly, the noblest trees of the forest — and for what? — for firewood — or to make a *clearing* before their houses (in which, afterward, to plant some miserable locusts), or forsooth, to square off the corner of a corn-patch. Thus many beautiful scenes of primitive forest growth, which now fall before the ax of the woodman, might be preserved without injury either to individual or agricultural interests. A professional Landscape Gardener, in traveling through many parts of our country, and particularly the West, can not fail to see that it is, as yet, a much more important work to preserve old, than to create new beauties. It is to be hoped that the growing good taste of our farmers will lead them to the same opinion.

The American, and more particularly the American farmer, is as yet too much of a utilitarian. Beginning life with little or no capital, his labor is too severe to permit him to care for more than the *substantialities* of life. When he has finally settled down in comfortable circumstances, and has

time and taste for embellishing his grounds a little, he has still to contend with a lack of assistance for his work. Gardeners are not much more plenty; and finally comes in again the bugbear, "expense," to frighten him from his purpose. He thinks that, after all, it is of but little use — that it will be an outlay for which there will be no return — that the old cabin, with the stables in front, and the orchard behind, is, after all, very comfortable — and so the whole subject is dropped.

So little is yet understood, in some parts of this country, of the *comparative* value of a beautiful piece of ground, great or small in extent — so little of the true theory and practice of Landscape Gardening, that property owners are often frightened at the price asked by a competent man, for his services in laying out a place; and oftener yet, disgusted and discouraged at the work of an incompetent one, who has been employed because willing to labor cheaper. An efficient Landscape Gardener should be a man of education and taste, one whose experience has been gained by an examination of the masterpieces of the art in Europe and this country, and whose general qualifications are such as to

make him a companion for any man. It can not be expected that such men will work for the wages of a day laborer. And, when laying out a work of taste, it is surely more profitable to employ such a one, than to have a work, intended to adorn, spoiled by one whose mind is not equal to his task.

The American taste for extra-mural burying-grounds, has opened among us a wide field for the display of Landscape Gardening, and promises to become a principal means of introducing and fostering, in this country, a correct taste in such matters. Several of the Cemeteries attached to our larger cities, as Mt. Auburn, near Boston, and Greenwood, near New York, have been laid out by men of prominence in the art, and after the most approved rules, and for beauty of situation, and tastefulness of design, vie with anything of the kind in Europe.

PART I.

PRINCIPLES OF THE ART.

CHAPTER I.

INTRODUCTORY REMARKS.

"Whate'er its essence, whate'er its name,
Whate'er its modes, 'tis still in all, the same;
'T is proper congruity of parts combined,
Must please the senses and satisfy the mind."

It is in the works of Nature the Landscape Gardener finds the examples he is to copy. It behooves him, therefore, in order to acquaint himself with the principles upon which he is to work, to examine attentively the effect produced upon the mind by the various groupings, tints and forms of plants — the pleasing irregularities of the earth's surface — the verdant meadows and slopes — the babbling brooks, quiet fields, grand mountain scenery, etc.

Nature has placed before our eyes an endless

change of objects, organic and inorganic, differing one from the other, in form, character and location. The most casual observer will find, in these objects, an increasing variety of expression — an ever-varying change — in their effect upon his feelings or temperament.

To analyze the causes of the various changes in the arrangement of natural objects — to separate and examine the different shades and shapes, forms, tints and groupings — is to study Nature, as the Landscape Gardener should. To be able to see at a glance the beauties and deformities of a natural landscape — to add to the first and take away the last, by the skillful but invisible touches of art — to arrange an artificial landscape in such a manner as to produce the effects of the choicest scenes of Nature — hightening these again by the efforts of Art — this is the business of the Landscape Gardener.

An absence of formality, of abrupt changes or violent breaks or contrasts, is the marked feature of the natural vegetation. As we find nowhere, as a rule, abrupt changes in the soil, as from clay to sand, from mountainous to low or marshy, so neither do we see anywhere any intermixture of vegetation.

of species differing radically from one another in structure or organization. All nature's changes are gradual, her lines flowing and graceful. Sown by the winds, her seeds germinate only in the soils best suited to their wants. Thus, with each soil is found its peculiar form of vegetation; as one changes, so does the other. The preservation, in an artificial landscape, of this unity and congruity, together with the combination, to as great degree as possible, of the useful with the beautiful, should be the principal aims of the gardener.

Improvements are made for various purposes. The Grounds more immediately surrounding the habitation of man, are laid out with a view to the convenience and pleasure of their possessor. As these grounds are necessarily of limited extent, an imitation in them of the grander works of Nature, is plainly out of place, as being out of proportion to the whole, and diminishing, by their vastness, the effect of other, otherwise, agreeable objects. Thus, should a cottage be placed in the midst of a clump of tall maples, or hickories, or oaks, a contrast would be created between the two chief objects, the trees and the house, which would give

the latter the appearance of an insignificant hovel, while the former would show naught but bare, unsightly sticks. Immediately adjoining the habitations of man, everything should assume its character, and not only be, but appear to be, dressed and cultivated. In such situations, neat gravel-walks and smooth grass-plots, and flowering plants and shrubs, trained and distributed by art, are perfectly in character.

The Park, of greater extent, and not so intimately connected with the mansion, may, and should partake of the vastness and grandeur of Nature's own works. While the grounds surrounding the house must be ornamented with a view to conformity or unity of appearance, and size of the dwelling, the park gives the gardener a wider range for the development of his ideas. "The chief beauty of a park consists in uniform verdure; undulating lines contrasting with each other in variety of forms; trees so grouped as to produce light and shade, to display the varied surface of the ground; and an undivided range of pasture. The animals fed in such a park, appear free from confinement, at liberty to collect their food from the rich herb-

age of the valley, and to range uncontrolled to the drier soil of the hills."

Public Gardens, laid out only for pleasure, require again a different style, abounding more in architectural display, and differing materially from both park and private ground. Cemeteries, again, are to be differently improved, although partaking much of the nature of parks. Thus must the gardener study, not only the intrinsic advantages and defects of a place, but also its fitness for the purposes to which it is to be applied, in order that he may succeed in giving to it that greatest charm, "the right thing in the right place."

While the gardener's work of ornamentation is performed by a grouping together of various beautiful and striking objects, he has ever to bear in mind their effect when combined. It is very evident that any number of objects may, individually, be very beautiful or striking, yet taken collectively, their effect may be marred or destroyed by reason of their failure to harmonize with each other — thus maintaining a forced individuality of character where all should be harmonious and congruous. The gardener must, therefore, possess the faculty of

foreseeing what will be the effect of certain combinations or groupings — to view with a *painter's* eye the landscape he is creating. Yet it is important that he should not fall into the error, somewhat common, of supposing that what would strike the painter as a beautiful scene for a picture, is also likely to be a fine scene in nature. The following explanation, by *Repton*, of the distinction between a natural landscape and one in a picture, shows so well what should be the principal considerations of the gardener, in *his* bird's-eye view, that we quote it:

"The difference," says Repton, "betwixt a scene in nature, and a picture on canvas, arises from the following considerations: *First*, The spot from whence the view is taken is in a fixed state to the painter; but the gardener surveys his scenery while in motion; and from different windows in the same front, he sees objects in different situations; therefore, to give an accurate portrait of a gardener's improvement, would require pictures from each separate window, and even a different drawing at the most trifling change of situation, either in the *approach*, the walks, or the *drives* about each place.

"*Secondly*, The quantity of view, or *field of vision*

in nature, is much greater than any picture will admit.

"*Thirdly*, The view from an eminence, down a steep hill, is not to be represented in painting, although it is often one of the most pleasing circumstances of natural landscape.

"*Fourthly*, The light which the painter may bring from any point of the compass, must, in real scenery, depend on the time of day. It must also be remembered, that the light of a picture can only be made strong by contrast of shade; while in nature, every object may be strongly illuminated, without destroying the composition or disturbing the keeping.

"*Lastly*, The foreground, which, by framing the view, is absolutely necessary to the picture, is often totally deficient, or seldom such as a painter chooses to represent; since the neat gravel-walk, or the close mown lawn would ill supply the place, in painting, of a rotten tree, a bunch of docks, or a broken road, passing under a steep bank covered with briers, nettles, and ragged thorns."*

*Sketches and *Hints* on *Landscape Gardening*, by H. Repton, Esq., originally published in 1795.

A non-appreciation of the objections here set out, led to the error of ornamenting the grounds surrounding the mansion, in what is called the *picturesque* style. This style, in its fullest sense, is only suited to certain conformations of ground, and should be used very sparingly. It is not considered either suitable or convenient for the vicinity of the homestead.*

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* "*The Picturesque.* This word has, of late, excited considerable interest and controversy; but the word, like many others in common use, is more easy to be understood than defined; if it means all subjects capable of being represented in a picture, it will include the pig-sties of Moreland, as well as the filthy hostels of Teniers and Ostade; but the absurdity of representing all that is visible, without selecting what is most beautiful, can not be better exemplified than by the following fact: One of our most eminent Landscape Painters, was desired to make a portrait of a gentleman's country-seat; he saw the place during a land-flood; and when the whole valley was covered by vapor, he made a beautiful picture of a fog, after the manner of Vernet; and thus painted an atmospheric effect, when he should have painted a landscape. In like manner, a beautiful woman, represented during a fainting fit, may display great ingenuity in the artist; but surely this is sickly picturesqueness. The subject represented by Salvator Rosa, and our English Mortimer, are deemed picturesque, but are they fit

And here we come to another matter demanding the consideration of the gardener, viz: How far may individual taste be consulted? As there is an infinite variety in the aspects of nature, and in the natural shape of the earth's surface, it has been found impossible to lay down any fixed rules by which to lay out all, or any given number of places. But there are two considerations which should never be lost sight of. These are, utility, and unity, or harmony and fitness of parts. The introduction into a scene or landscape, of anything not in keeping with its main features (a thing often done by *professed* gardeners, who mistake tawdry for taste), is an inexcusable piece of snobbishness, which finds its parallel only in the ignorance of mock gentility, which, aping the manners of those above it in station, succeeds only in making itself ridiculous. For this there is no excuse.

In selecting a style of ornamentation, attention should be paid to the leading features of the sur-

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objects to copy for the residence of man, in a polished and civilized state? Certainly not."—*Repton's Fragments on Theory and Practice of Landscape Gardening.*

rounding country, so as to preserve a certain harmony with its general appearance, else will the hand of Art be too plainly visible.

The adoption of one style or school of gardening, as better than all the others, and therefore to be employed under all circumstances, is much to be condemned. The gardener should familiarize himself with the various Styles, to enable him to attain the same object by different means. In this way he would be able to adopt the style or school best adapted to the situation, climate or circumstances in which he is placed, or to adopt and combine such parts of different styles as may best attain, in any given locality, the object in view. Art and Nature would thus be more harmoniously combined, and improvements effected of a more distinct and interesting character.

CHAPTER II.

PLANTATION.

By the term Plantation, we understand that part of Garden scenery composed of Trees, Shrubs, Flowers, etc., whether planted by man, or springing up naturally, and made use of by the Gardener in his work of improvement. Beside its importance in improving and ornamenting grounds, Plantation is of use in concealing boundaries, thereby creating an impression of vastness of extent; in hiding from sight disagreeable views, such as outhouses, stables, sheds, etc., and in giving privacy to the house and surrounding grounds. In the formation of Plantations, the gardener must keep in mind the harmonies and contrasts presented by the forms and tints of the various plants, and the effects of light and shadow, hight and distance, upon the various groups and single specimens.

In commencing an improvement, the gardener should pay much attention to the trees and shrubs already existing upon the place. The forest trees used for ornamental purposes are of slow growth, requiring years, and sometimes centuries to attain their prime and beauty. If such already exist upon the grounds they can scarcely be prized too highly, and should be taken duly into consideration in the formation of the plan. Sickly, or deformed, or broken trees should not be spared, but the ax should be used very sparingly, and never except in the execution of such principles of the art, as can not be sacrificed without detracting from the beauty of the whole. Our country has been so favored by the bountiful hand of Nature, that in many places the gardener will find abundant materials ready to his hand, and needs but to form his plan in accordance with the ruling features of the grounds, and to apply a few discriminating touches of his art, to create a scene far surpassing, in grandeur, the noblest works of art alone.

The hand of art must be indiscernible in Plantation, which should be in close imitation of Nature's best works, and only recommending itself

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beyond the natural Landscape, by the presence of trees and shrubs not indigenous to the soil, and the absence of aught to displease the eye, or detract from the harmony of the whole, creating thus a superior elegance of arrangement.

The great art in Plantation is the harmonious union of different parts, each of which has a place or purpose in the general arrangement. The gardener has to pay regard to outward forms—to shape of trees, to form of leaves, to their different colors, their hight, the rapidity of their growth, comparatively—and thus judge as to their general harmony.

A single tree presents to the eye a mass of foliage, boughs and leaves, the various parts of which harmonize together in form and color. It is this harmony which gives pleasure to the mind, and which we call its *beauty*. We find that a mass or group composed of a number of trees of the same species, while harmonizing in form and color, will present much more vividly to the mind of the beholder the various peculiarities or beauties of outline or color of the species, than will a single specimen. Harmonizing easily and pleasantly, also, in their growth and shade, the peculiar conformation

of their leaves and boughs, and their colors, it is evident that masses of vegetation consisting entirely of one family will give more pleasure than single specimens, and more yet than a confused intermixture of various kinds. Thus a striking effect is produced by groups of trees or shrubs whose bark is of a bright and distinctive color, such as the Gold-barked Willow (yellow), the Dogwood (red), the *Acer negundo*, and Sassafras (green). These peculiarities would be lost sight of were they scattered singly among other trees. Masses of Roses, Lilacs, Jasmines, Snowballs, Catalpas or Red-buds, present a beautiful appearance, while any one may see in our common garden-spots, how tasteless a view is presented by an indiscriminate gathering together of flowers and shrubs.

"No group of trees can be natural in which the plants are studiously placed at equal distances, however irregular in their forms. Those pleasing combinations of trees which we admire in forest scenery, will often be found to consist of forked trees, or at least of trees placed so near each other that the branches intermix, and by a natural effort of vegetation the stems of the trees them-

selves are forced from that perpendicular direction which is always observable in trees planted at regular distances from each other. No groups will therefore appear natural unless two or more trees are planted very near each other." To produce this effect, two or more trees should sometimes be planted in the same hole, their roots being cut so as to bring them nearer together.

CHAPTER III.

OUTLINES.

THE form of the *outlines* of masses, or groups has a marked effect upon the scenery. A flowing, or straight line will give a flat, unmeaning appearance to a piece of woods, whereas a rugged, broken outline, letting light fall into the deep recesses, and creating strong lines and contrasts of light and shade, will give to the same wood an appearance of depth, and grandeur, and natural freedom. The inlets, or incisions into the line of woods, may be varied in depth, or intensity, in order to make them appear the work of nature. On reviewing the whole, should any one of these incisions not have a sufficiently marked appearance, single trees, planted before it, will afford the requisite relief. The different parts of plantation, in a Garden, taken as a whole, should

appear in a freely broken line, as the different parts of a single mass — never in a straight line.

A distinguished English writer on Gardening,* speaks so much to the point, on the subject of Outlines, that we are tempted to give his observations.

"The outline of a wood," says Mr. Whately, "may sometimes be great, and always be beautiful; the first requisite, is irregularity. That a mixture of trees and underwood should form a long straight line, can never be natural; and a succession of easy sweeps, and gentle rounds, each a portion of a greater or less circle, composing, altogether, a line literally serpentine, is, if possible, worse: it is but a number of regularities, put together in a disorderly manner, and equally distant from the beautiful, both of art and of nature. The true beauty of an outline consists more in breaks than in sweeps; rather in angles than in rounds; in variety, not in succession.

"The outline of a wood is a continued line, and small variations do not save it from the

*Whately, "Observations on Modern Gardening." London; 1801.

insipidity of sameness. One deep recess — one bold prominence — has more effect than twenty little irregularities. That one divides the line into parts, but no breach is thereby made in its unity; a continuation of wood always remains; the form of it, only, is altered, and the extent is increased. The eye, which hurries to the extremity of whatever is uniform, delights to trace a varied line through all its intricacies — to pause from stage to stage, to lengthen the progress.

"The parts must not, however, on that account, be multiplied, until they are too minute to be interesting, and so numerous as to create confusion. A few large parts should be strongly distinguished in their forms, their directions, and their situations; each of these may afterward be decorated with subordinate varieties, and the mere growth will occasion some irregularity. On many occasions more will not be required.

"Every variety in the outline of a wood must be a *prominence*, or a *recess;* breadth, in either, is not so important as length to the one, and depth to the other; if the former ends in an angle, or the latter diminishes to a point, they

have more force than a shallow dent, or a dwarf excrescence, how wide soever: they are greater deviations from the continued line which they are intended to break, and their effect is to enlarge the wood itself.

"An inlet into a wood seems to have been cut, if the opposite points of the entrance tally, and that show of art depreciates its merit; but difference only in the situation of those points, by bringing one more forward than the other, prevents the appearance, though their forms be similar.

"Other points which distinguish the great parts should, in general, be strongly marked; a short turn has more spirit in it than a tedious circuity; and a line broken by angles, has a precision and firmness which, in an undulating line, are wanting. The angles should indeed be a little softened — the rotundity of the plant which forms them is sometimes sufficient for that purpose — but if they are mellowed down too much, they will lose all meaning.

"Every variety of outline hitherto mentioned, may be traced by the *underwood* alone, but frequently the same effect may be produced, with more

ease, and much more beauty, by a *few trees*, standing out from the thicket, and belonging, or seeming to belong to the wood, so as to make part of its figures."

Particular attention must be paid to *hight*, in finishing the *margin* of any tract of plantation. The body of the wood being completed, the next effort of the gardener must be, to complete the effect of the irregular, broken Outlines (described in a preceding section), by bringing into connection with them plants of smaller growth. And here he must look to Nature once more. With her work before him, and intent on producing throughout his landscape a natural variety, he will at once see the impossibility of bringing his outlines regularly and gradually down, as the plant-grower would his flower-pots on the staging of a greenhouse. Lower growing trees and shrubs, must be grouped in front of the margin, and at such distances as not to destroy, by their proximity, the bold effect of the entire mass. Arranged with a strict regard to the rules of shape and color, they will fall naturally into groups, some higher, some lower, here in broader and there in narrower masses. Here

the bold upright trunk of the Oak, bearing aloft its majestic round head, will be partly shown above the tops of the lower growth; there the heavy limbs of the Elm droop down, until they form a solid mass of foliage, in connection with the lower growing trees. Everywhere this lower growth must stand sufficiently thick to hide from view the bare trunks of the taller trees, which otherwise will have the appearance, in the distance, of a plantation of straight sticks. Foliage thus continued, and gradually and variedly brought down, will be found to add a peculiar grace and charm to the appearance of the whole, which will be found likewise in the natural forest. Masses which may be viewed from different points, should be treated as above directed, on all the fronts which may be open to view. In plantations forming boundaries, or skirting a road or walk, of course they need only be thus treated on the margin of the walk or drive.

CHAPTER IV.

COMPOSITION.

The beauty of Garden scenery depends very much on correctness of composition, *i. e.*, joining of parts. As the *painter* aims, by a skillful blending of colors, to give greater effect to his work, so, in like manner, must the gardener endeavor skillfully and tastefully, and above all, naturally, to join together the various groups, and to preserve harmony by a tasteful arrangement of their different tints, shades, sizes, etc. In plantations on a large scale, the points of connection between the different groups, must be formed in the manner nature adopts, namely, a gradual change from one form of vegetation to the other. In works on a smaller scale, this rule, however, would only lead to confusion, and the plan generally adopted in such cases is, to let the different groups run into,

or dovetail into one another, which gives a striking effect to the bold, massive lines of trees, where the change occurs.

Different species of trees, present to the eye very various forms, both of trunk, boughs, and leaves. Thus, the most careless observer can readily distinguish an Oak from a Pine, or a Locust from a Beech. In laying out plantations, it has been found convenient to divide or classify trees according to their shapes, as being either round-headed, or oblong-headed, or spiry-topped. Among these, again, we find a great variety in the forms of the leaves.

Thus, the Beech and Maple have roundish leaves; the Willow has oblong; the Catalpa is distinguished for its very large leaves, and the Walnut and Locust for what is styled the pinnate form. Again, the leaves differ in color, some having a clear shade of green, as the Sugar-maple, the Catalpa, the Plane-tree, Locust, and Honey-locust, etc., etc.; others having a whitish caste, as the Swamp-maple, the Silver-poplar, and Bohemian Olive; and others, again, covered with a dark-green foliage.

Thus, by the aid of the various shapes and

colors of the plants at the disposal of the gardener, he is enabled to make his landscape either grave or gay, beautiful or picturesque, harmonious or contrasted. By connecting groups of the round-topped trees, such as Oaks, Beeches, Elms and Maples, whose appearances naturally harmonize together, we create a softness and fullness of form and outline, which is called beautiful. The same may be done with trees having oblong, or spire-like tops, creating more picturesque effect. Groups whose members possess foliage of similar appearance only, may also be connected together, and create a beautiful symmetry or harmony. Of these we may mention the broad-leaved kinds: Plane-trees, Swamp-maples, Poplars, Lyriodendrons. Of the ovate-leaved kinds, Elms, Beeches, Cherries, etc. Of the pinnate leaved, Walnut, Hickory, Ash, Locust, Mountain-ash, etc. And lastly, of the various species of Pines, Firs, Junipers, etc.

A universal harmony, however, would soon prove tiresome and monotonous, and it is therefore necessary to enliven the scene by occasional abrupt and marked changes or contrasts. The preservation of a proper proportion between harmony and contrast,

is what gives expression and life to scenery, preventing the beautiful from becoming monotonous, and restraining the picturesque from wild confusion. And here it is necessary to say, that a truly picturesque scene can not be produced, as too many imagine, by an indiscriminate, hap-hazard mixture of different species of vegetation; this only makes confusion. In a landscape, intended to be picturesque, the individuality of each species of tree introduced, should be preserved, and its peculiarities of shape and color brought into notice by planting in groups of single species, as before mentioned; care being taken at the same time to place the various species and groups in such juxta-position, as to produce, by their dissimilarities, the contrasts which make up the *picturesque*. It will be apparent to any one, that in this way, by preserving the individual traits of each plant or species, the contrast will be much stronger than by an indiscriminate and tasteless arrangement.

It may also be stated, as a general rule, in regard to the positions to be assigned to the various colors of leaves, in the general arrangement of the Landscape, or Wood, that the darker

tints of green giving out a heavier and more solid appearance, should be placed in the background. This will have the effect of giving greater distinctness of expression to the lighter colors, which are then placed in front. Yet this rule is not without exceptions, as light and dark tints are oftentimes placed on the same range, when the nature of the woods, or a desire to produce a particular effect, renders it desirable.

We next come to that of the *hight* and *growth* of trees used in plantation. This is a very important consideration with the Landscape Gardener. On his knowledge of the (comparatively) fast or slow growth of trees and shrubs, and their comparative hight when grown, depends very much of the future beauty of his plantation. The labors of a Landscape Gardener are not for his day only. They may in fact never arrive at the perfection designed for them, until long after his time. It is of the highest importance therefore, that he should be able not only to see the present or immediate effect of his improvements, but also to foresee their effects when, in the course of time, his plantations shall have attained their

full growth and development. Otherwise, it is evident, he will not be able to so arrange his works as to make them present, constantly, an appearance in accordance with good taste, and correct rules. Should the gardener, in laying out any heavy or solid mass of timber, plant indiscriminately together, fast and slow-growing trees, he will have a broken picture for many years, than which nothing presents a poorer appearance. The top lines of plantations should present a continual variety of shape; round-headed trees ranging along in undulating lines, until relieved by the lofty heads of a group of oblong-headed trees, rearing their tops above their neighbors; these last being, in turn, contrasted with trees of another shape, or perhaps of a different color of foliage. It should be the aim of the gardener to produce in the outlines of the tops as great and effective a variety as possible, and this, if successfully done, will add much to the beauty of a grove, belt, or wood of any description.

CHAPTER V.

GROVES.

A BEAUTIFUL Grove of trees has many attractions, and adds much to the appearance of a place. As a place of resort for the family, where they may retire from the heat of summer, and sitting beneath the canopy of leaves and boughs, listen to the sweet carol of birds, the Grove is one of the pleasantest components of a country residence.

A Grove shows to most advantage when placed along a gentle slope or hill-side, where the eye can at once take in its extent and beauties, and where likewise the noble trees of which it may consist will be brought prominently in view. Where there already exists, on the grounds to be improved, a grove, or collection of trees, planted there by Nature, the gardener will not fail to take advantage of them. They should not be disturbed, unless

very much interfering with the levels of the ground or the lines of walk. If the outlines can be improved, this may be done by a careful use of the ax, but it is often more advisable to plant additional trees on the margins or projections, to give greater apparent depth to the wood, than to make the incision deeper by cutting down trees.

In planting a Grove, the improver should be careful to avoid any regular recurrence of particular trees,* nor should they be set at regular distances apart, but scattered irregularly over the surface—here wider apart—there closer—here two or three together—yonder an open space, admitting the sun to the grass, and making a bright spot to contrast the surrounding shade. None but

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*As an illustration of the difference between that irregularity which is monotonous, and that which makes true and tasteful variety, *Repton* gives the following: "If ten clumps be composed of ten different kinds of trees each, they become so many things exactly similar; but if each clump consists of the same sort of trees, they become ten different things, of which one may be a group of Oaks, another of Elms, another of Chestnuts, or of Thorns, etc."—*Repton* on Landscape Gardening, p. 334.

straight-growing, wide-spreading trees should be used in planting a Grove, that we may have an arch of foliage formed overhead which will effectually protect from the rays of the sun.

It is worth while to observe here, that when it is desired to make a Grove of a dense forest or thicket, care should be taken, in opening out, not to cut away too much at once, as trees which have been used to grow up closely surrounded by others, will not bear the exposure to light and air, except they are gradually accustomed to it. Carelessness in the observance of this will not fail to destroy the trees intended to be preserved.

Single trees, or detached groups of two or more trees, are often placed to much advantage along the line of approaches to the house, and if beautiful in themselves and appropriately situated, add much to the effect of the Landscape. Single trees, or open groups, also have a fine effect when scattered on the side of a steep hill, because they may be made to mark the degree of its declivity, and the shadows of the trees are very conspicuous.

A few Maples or other fine foliaged trees, planted behind the dwelling, and showing their

tops above the roof, when approached from the front, also have a beautiful effect, beside offering a pleasant shade to that part of the house contiguous to them. Evergreens are found very appropriate as detached trees, or in small groups, set at a distance of twenty or twenty-five yards in front of a mass of deciduous trees. Their form and color contrast admirably here.

Flowering Shrubbery and Flowers, are choice gifts of Nature to the Landscape Gardener. With them he diversifies the milder parts of his landscape, and beautifies the grounds more immediately connected with the dwellings of man. Like trees, flowers should be planted in masses of similar species and colors. This will give much more variety, as well as greater strength and expression to their beauty, than if planted in wild confusion. These groups and masses, while distinctly separated on the lawn, should by no means preserve any regularity in shape or in distance apart, which would impart a stiffness to the whole. Let them be of flowing forms, and thrown at irregular distances on the surface, regard being had to the various points from which they may be viewed. Along the banks

of a little murmuring brook, flowers are peculiarly appropriate, adding beauty and grace to the landscape, as well as enlivening it. Planted in front of masses of shrubbery and trees, to continue the descending line to the ground, Flowers, and Flowering Shrubs will give a finished appearance to the scene. Here they may even be allowed to extend themselves along the ground in large masses, and their bright colors will be found to produce a striking effect. In Flower Gardens, too, the flowers will be found to show to greatest advantage by being planted in masses, consisting each of a separate species. Thus, a group of *Salvias* (red); one of White *Petunias;* another of *Verbenas* — the whole backed by the green foliage of a belt of Shrubbery — can not fail to awaken the admiration of even the most tasteless.

CHAPTER VI.

WATER.

Of Plantation by the Water-side. — Proper plantation along the shores of Lakes, Ponds, Streams or Brooks, adds very much to the beauty of scenery. Plantation must, however, here vary much according to the character given naturally to the Landscape, by the shape or conformation of the ground, either natural or artificial. Thus, the shores of a lake may rise abruptly from the water's edge, in tall cliffs, or crags. In such a situation, which is romantic or picturesque in a high degree, the rocks should be covered with moss and ferns, interspersed with such plants as are usually found in scenes of that description, as Rhododendrons, Savinas, etc. Of trees, Evergreens are the most suitable to such scenes. Where the shore overhangs the water a single Weeping Willow, its long drooping boughs

trailing near the water, often has a highly picturesque and pleasing effect. Lombardy Poplars are also suitable to be placed at the water, to form a connection with the body of the surrounding woods. In spots where the shores of the lake are less abrupt and decline gradually toward the water's edge, tall, heavy trees, as the Ash, and the larger species of Evergreens, whose images will be reflected by the water, will be most suitable. A view from the opposite side, of a large group of such trees, with an occasional opening forming a vista at the end of which may be seen other woods, such a view will awaken the most pleasing feelings in the breast of the beholder.

For spots where the shore is flat or nearly on a level with the water, Willows, Alders and Plane-trees are suitable, when interspersed with smaller plants. These last mentioned trees are peculiarly fitted to grow near water, flourishing there naturally, and to great advantage.

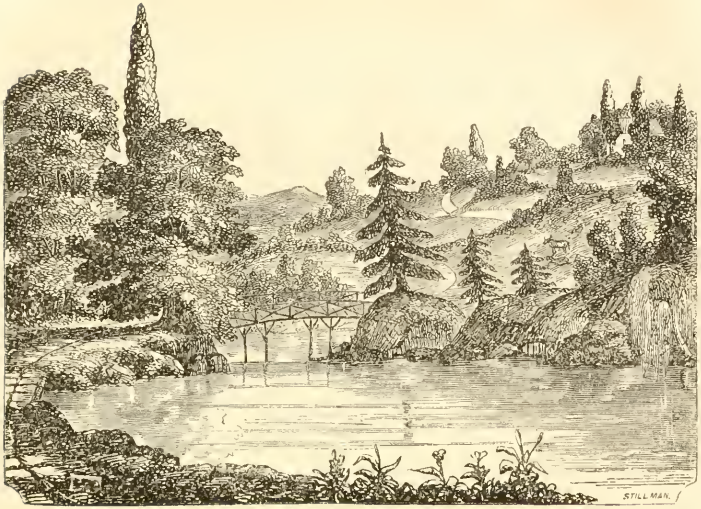
In flowing water, as streams and brooks, we do not so often find occasion for the picturesque. When it is needed, however, as in the neighborhood of waterfalls, the suggestions made in relation to lakes

will answer. The general effect of a small stream or brook, in a landscape, is to give it softness and quietness. This we help most effectually, by planting along the borders of the stream, low-growing bushes, as Willows, Viburnums, Hazels, etc., and interspersing these with occasional groups of higher forest trees, to give more effect or expression to the scene. The little promontories formed by the curves in the stream, should be planted thickly with heavy-looking trees, to give an idea of strength or ability to resist the flow of water, and of force to make the stream change from its direct course. These clumps, seen at some distance, make a beautiful appearance. Care should be taken to give a natural appearance to the plantation along the bank of a River. To this effect, it is well not to confine the plantation too strictly to the bank of the stream, but to let it occasionally extend back on the meadow or lawn. Such an arrangement will prevent the scene from becoming monotonous and tiresome to the eye. When a stream takes its course through a dense forest, or wood, it exchanges its lively, or quiet and peaceful character, for the solemn grandeur imparted

to it by the dark, overhanging foliage of the forest. To prevent this characteristic from going to extremes, it is well to open up the wood in spots, having in its place, pleasant grass-spots, spaces on which the sun may cast his cheerful rays. Should the character and conformation of the surrounding country be such that a highly picturesque scene would not be out of keeping, it is often found advantageous to lead the stream over an artificial bed of Rockwork, or down a Precipice, when the noise and turmoil of the foaming waters will help to create an effect picturesque in a very high degree.

Water is the life of scenery in all landscapes, and should be introduced in garden scenery wherever possible. The Lake, by its broad expanse of water, gives a peculiar appearance of grandeur and importance to the scenery. One side of its shores should always be open, only bounded by the verdant meadow. The scenery surrounding the Pond is generally impressed with an idea of solitude — its shores may be surrounded by shrubbery, drooping down in the water.

The lake may, by a proper arrangement of its



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bounds, be made to appear much larger than it is in reality. This deception is often necessary in artificial waters, where these are of but limited extent. To this end, those parts of the banks or shore, over which the eye glances to distant parts of the scenery, should be kept low, nearly at the level of the water. On such places, no trees or buildings should be visible, to make all comparison of size and distance entirely impossible. A single lofty tree, if seen in its full grandeur, in such a spot, would at once detect the small extent of the water. In some places, the end of the deeper recess may be hidden by trees, and drooping shrubbery, planted on the foremost prominences. Thus the water is lost sight of, under the masses of foliage, and may be supposed to extend farther back than it really does. No walk should approach too near to such spots, else the deception is easily detected. The bounds or margin of a piece of water, in natural scenery, should appear as the genuine production of Nature; no artificial form, especially no straight line should be visible. It must be a line of irregular recesses and prominences, which the taste and understanding of the

gardener has to accommodate to the shape of ground, extent of water, and all other prevailing circumstances.

The bounds of a Stream, in like manner, should appear natural, widely differing from those of a canal; the opposite shores should never be strictly parallel. Its course, commanding the impression of power, should not so frequently change its direction, as the meandering Brook, which passes under various curves, through the meadow. The curves of the stream should be in strict proportion with its breadth and course.

A brook having a fair supply of water, may be led on a bed of wider extent, thus forming a stream; yet great precaution is necessary to make a deception of this sort successful. Deception, if discovered, loses all its value, and should but sparingly be made use of.

Fountains have their most appropriate place among the more artificial portion of the Garden scenery, as in the Flower Garden, or on terraces near the house. They may also be introduced in picturesque scenery, but must appear there more as

the works of Nature than of Art, being left without their usual artistic embellishments.

The Lawn. — The Lawn is that part of Garden scenery planted in grass. Lawn and water form the light parts of the landscape, while trees and shrubs make up the shade. A smooth, clean, closely-cropped Lawn, adds very greatly to the beauty and variety of the landscape, and consequently, in natural, or Landscape Gardening, the Lawn is a very important component, forming, as it were, the groundwork of the scene.

On places or grounds of limited extent, where cattle can not be admitted, the Lawn must be kept trimmed by the scythe and roller. With due attention, it will make a beautiful appearance. In large Parks, the lawn or meadow is used for pasture, or hay is cut from it. Cattle, feeding upon an extensive forest-skirted lawn, give life and animation to a scene which, otherwise, would often become monotonous or insipid.

CHAPTER VII.

ON THE CHOICE OF A SITUATION FOR A HOUSE.

No department of the Landscape Gardener's art, seems so easily settled, yet in no other are so many errors committed as in this; and this for the very reason that every one fancies himself competent to determine so simple a matter. *Repton* remarks very truly: "Not only men of taste fall into this error, but the carpenter, the land-steward, or the nursery-man feels himself equally competent to pronounce on this subject. No sooner has he discovered a spot commanding an extensive prospect, than he immediately pronounces that spot the true situation for a House; as if the only use of a mansion, like that of a prospect-tower, was to look out of the windows."

The same author remarks further:* "However

* Repton's "Landscape Gardening," p. 61.

various opinions may be on the choice of a situation for a House, yet there appear to be certain principles, on which such choice ought to be founded; and these may be deduced from the following considerations:

"First. The natural character of the surrounding country.

"Second. The style, size and character of the house.

"Third. The aspects of exposure, both with regard to the sun, and the prevalent winds of the country.

"Fourth. The shape of the ground near the House.

"Fifth. The views from the several apartments; and

"Sixth. The numerous objects of comfort — such as a dry soil; a supply of good water; proper space for offices, with various other conveniences essential to a mansion.

"It is hardly possible to arrange these six considerations according to their respective weight or influence, which must depend on a comparison of one with the other, under a variety of circumstances; and even on the partiality of individuals in affixing different degrees of importance to each con-

sideration. Hence it is obvious that there can be no degree of sameness in any two designs conducted on principles thus established; since in every different situation some one or more of these considerations must preponderate; and the most rational decision will result from a combined view of all the separate advantages or disadvantages to be foreseen from each."

Other conveniences being alike, shade and shelter should never be sacrificed to freedom of view, in the selection of a situation for a House. Mr. *Repton* says of this: "After long experiencing the many inconveniences to which lofty situations are exposed; after frequently witnessing the repentance and vexation of those who have hastily made choice of such situations, under the flattering circumstances of a clear atmosphere and brilliant sky; after observing how willingly they would exchange prospect for shade and shelter, and after vainly looking forward to the effect of future groves, I am convinced that it is better to decide upon the situation of a House, when the weather is unfavorable to distant prospects, and when the judgment may be able to give its due weight to every circumstance

which ought to be considered in so material an object — that the comforts of habitation may not be sacrificed to the fascinating glare of a summer's day."

The suggestion most difficult of apprehension, in the selection or adaptation of a building site, is that pertaining to the

SHAPE OF THE GROUND. — Upon this, therefore, we shall offer a few observations to guide the inexperienced improver. "All natural shapes of ground must necessarily fall under one of these descriptions, viz: *Convex*, *Concave*, *Plane*, or *Inclined Plane*. Except in very romantic or picturesque situations, all the rooms on the principal floor ought to range on the same level. There must also be a platform, or certain space of ground, with a gentle descent from the House, every way. If the ground be naturally convex, or what is generally called a knoll, the size of the House must be adapted to the size of the knoll." For were the House too large for the knoll, it is evident that, while a smaller one would have a sufficiency of platform, the large one would stand on the brink of a steep bank, or fall of ground, rendering the approaches

unpleasant. Strict regard must therefore be paid, in this instance, to the preservation of a proper proportion. Hillocks or knolls may sometimes be formed by Art, but this is but little done in this country. This will show the impossibility of making up a plan or design for a House, without a previous acquaintance with the situation or shape of the ground on which it is to be built.

"Where the shape is naturally either concave, or perfectly flat, the House would not be habitable unless the ground sloped sufficiently to throw the water from it. This is often effected, in a slight degree, merely by the earth that is dug from the cellars and foundations. But if, instead of sinking the cellars, they were to be built upon the level of the ground, they may afterward be so covered with earth, as to give all the appearance of a natural knoll, the ground falling from the House to any distance where it may best unite with the natural shape." Should there be any small hillocks near the proposed site, they may be used to effect this purpose. This expedient can also be used in an inclined plane, *falling toward* the House, where the inclination is not very great; but it must be observed of the

inclined plane, that the size of the House must be governed in some measure by the fall of the ground.

"But another shape of ground is also to be considered — thus it generally happens that a knoll is longer one way than another, or it may even extend to a natural ridge, of sufficient length for a long and narrow house. But such a house must be fitted to the ground, for it would be absurd in the architect to place it either diagonally or directly across such a ridge. The same holds good of the inclined plane, which is, in fact, the side of a valley, whose general inclination must be consulted in the position of the building; thus a square house would appear awry, unless its fronts were made to correspond with the shape of the adjacent ground.

"It may be observed, in conclusion, that on a dead flat or plain, the principal apartments ought to be elevated, as the only means of showing the landscape to advantage. Where there is no inequality, it will be very difficult to unite any artificial ground with the natural shape; it will in this case be advisable either to raise it only a

very few feet from the ground, or to set the house on a basement story. But whenever a place abounds in natural inequalities, even though the ground near the House should be flat, we may, without impropriety, venture to create an artificial knoll."*

The shape of the ground must be carefully examined, before plans for improvement are suggested. In many cases, the ground will allow to be altered, at comparatively small expense, to suit the wishes of the gardener. We will mention, here, only a few instances, where an alteration of the natural shape of the ground may be advisable. All small eminences and hollows, often caused by the former use of the ground, are to be brought down and filled up, to restore the ground to its natural form.

The surface of a flat, or nearly level ground, may be greatly improved, by raising eminences and forming easy valleys; thus creating an undulating surface, far superior to a dead flat one.

An abruptly broken ravine may be changed to a beautiful valley, by filling up its bottom with the ground taken off the highest banks.

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* *Repton*—Sketches and Hints on Landscape Gardening, p. 67.

If a natural valley is cut in two parts by a knoll or a ridge, it is often advisable to remove such an eminence entirely.

The introduction of roads and walks in the scenery, often requires considerable alteration of the surface of the ground. Every location having its peculiar shape of ground, it is impossible to lay down any certain rule, how far the alteration of the natural surface may be carried; it is only to be remarked, that wherever material improvement can be made with little expense, it is well to undertake it. Alteration of the shape of ground, on a large scale, is, in most cases, of more expense than of actual effect, and not advisable. The undulating, rolling ground, covered with verdant turf, is undoubtedly of most advantage to erect garden and park scenery. On an abruptly broken terrace, the picturesque style will find its most suitable adaptation.

Whatever alteration the ground may undergo — however costly the operations of moving ground may be — all interference of art must be strictly concealed; when completed, the whole must appear the production of nature — only.

CHAPTER VIII.

ROADS AND WALKS.

A Road or Walk, being as much an artificial work of convenience as a house or bridge, it should plainly appear as such, and not be hid away in a ditch, or concealed by other means, which will not, after all, succeed in removing it entirely from view, or if they do, will, at the same time, destroy its utility. A Road or Walk should be firm, of a breadth adequate to the use to which it is to be put; and the degree of curve regulated by the breadth. It is to be borne in mind, that Walks are objects of convenience — that therefore they must have an object — and this object must not be lost sight of; nor is it allowable to lay out Walks out of a mere fanciful desire, or without an object. Neither its course, nor any bend or inequality in it must be objectless, but must

be justified by the *shape of the ground*, by its *final destination*, or by *objects along its line*. In a Road or Walk, especially if it passes through a wood or plantation, a second bend should never be visible. The degree of curve, in a Walk, therefore, depends, in some degree, on its width. For instance, looking along a narrow Walk, a curve may be hidden from our view, which would be plainly seen, were the Walk broader.

A Road or a Walk should recommend itself by a graceful, sweeping line. A line partially straight, sweeping, or a segment of the circle, is contrary to good taste, yet, nevertheless, often found in Gardens. In highly picturesque, or wild scenes, the Walks should partake of the leading features. They may be rougher, narrower and more abruptly bend in such situations. Where a Walk separates into two, the two new lines should diverge in different directions, rather than, by their new course, give rise to an impression that they are to re-unite. Where a Walk joins another, it should be at acute angles, rather than forming a right angle. The angle formed by the divergence of two Walks or Roads, should be planted thickly, to conceal the

points or direction of the divergence. Roads calculated to be accessible to carriages, should have no sharp or abrupt bends, as such are very apt to be driven over by the coachman.

The *approach* from the public Road to the house, either carriage Road or simple Walk, is the most important on the premises. Of the rules and principles which should guide the gardener in the construction of *approaches*, *Repton* has spoken so much to the point, that we have seen fit to subjoin his directions. He says: "Many improvers seem to have mistaken the most obvious meaning of an *approach*, which is simply this — A ROAD TO THE HOUSE. If that Road be greatly circuitous, no one will use it when a much nearer is discovered; but if there be two Roads of nearly equal length, and one be more beautiful than the other, the man of taste will certainly prefer it. The requisites to a good *approach* may be thus enumerated:

"First. An approach is *a Road to the House*, and to that principally.

"Second. If it is not, naturally, the nearest Road possible, it ought, artificially, to be made impossible to go nearer.

"Third. The artificial obstacles which make this Road the nearest, ought to appear natural.

"Fourth. When an *approach* quits the high-road, it ought not to break from it at right angles, or in such a manner as robs the entrance of importance; but rather at some bend of the public Road, from whence a lodge or gate may be more conspicuous, and where the high-road may appear to branch from the *approach*, rather than the *approach* from the high-road.

"Fifth. After the *approach* enters the Park, it should avoid skirting along its boundary, which betrays the want of extent, or unity of property.

"Sixth. The House, unless very large, and magnificent, should not be seen at so great distance as to make it appear much less than it really is.

"Seventh. The House should be, at first, presented in a pleasing point of view.

"Eighth. As soon as the House is visible from the *approach*, there should be no temptation to quit it — which will ever be the case, if the Road be at all circuitous — unless sufficient obstacles, as water, or inaccessible ground, appear to justify its course."

To these directions we will only add, that the

approach to a House, should be made, by proper plantation, to partake of the character of the House itself, and of the adjoining grounds. Thus an appearance of grandeur may be given it, by the presence of lofty forest trees, under whose umbrageous foliage the visitor may stop to view the scene. Groups of flowers, appearing at intervals, on the Road-side, will also give life and animation to the scene.

Rockwork, when in its proper place, on the romantic shores of a Lake or Brook, or among other broken and highly picturesque scenery, is highly appropriate and effective. Wherever introduced, however, the hand of art should be carefully concealed, and the work rendered natural in itself, as well as in its harmony with surrounding objects.

Architectural Ornaments, such as Summer-houses, Temples, etc., as well as Statues, are admissible, more especially in grounds which are themselves laid out in an ornamental manner. It requires a correct and practiced taste to superintend the distribution of such objects in a Garden, as

PROSPECT PAVILION.

however beautiful the objects may be in themselves, if placed in ungraceful positions, they will destroy the appearance of the whole scene. More discrimination is required in the adaptation of ornaments of this kind to a place, than in any other part of the gardener's duty. Too richly or highly ornamented, it will appear gaudy — too plain will argue poverty — and to be out of place will betray ignorance. In matters of this kind, nothing should be *attempted*, without being carried out in the most perfect manner possible.

CHAPTER IX.

FREEDOM OF VIEWS.

EXTERIOR Views or Prospects, are highly desirable, when the scene is enlivened by the manifold works of Nature, awing by their grandeur, or softening and delighting by their calm beauty. Although the gardener can not expect to rival Nature, in the grandeur or extent of the prospects he introduces, yet he has it in his power to aid her, by various devices. Thus, while spreading out before the eyes, at one place, a View or Prospect abounding in grandeur and majesty, we so arrange plantation, that it may be divided, and parts of it shown from other points, awakening curiosity, and keeping alive the attention.

As an extensive prospect is much to be prized, care must be taken by the gardener, to arrange his plantation in accordance with this feature. In

many places, a tree, by its prominent situation, will hide a beautiful scene. Again, a clump or group, shuts out from the eye the most extensive prospect. The gardener must, therefore, examine where will be the most striking Views, both to the outside and the inside of the boundaries, and open his plantation in accordance. Views from Gardens differ in this, from those from a prospect-tower, that while in the latter the view is of unbounded extent, and the eye roams uncontrolled over the country, as far as vision extends, necessarily taking in deformities with beauties, in Garden Views, we are able to direct and control the eye in a great measure, and therefore create beauties on a minor scale, which, by being more forcibly brought to the attention by the greater confinement of view, will impress often more favorably than the view of an entire country from the prospect-tower. Points for Views should be selected with great care, and only a matured judgment direct where openings should be made. In Plantation, the growth and hight of trees must be taken into consideration, in regard to their future effect upon desirable Prospects. Thus, trees which,

when planted, were perfectly unobjectionable, might in a few years, when full-grown, materially interfere with the finest Views. The openings left or made for distant Views, should never have the appearance of a straight line or channel. In placing masses, or cutting openings, while attention is given to the view to be produced, we are not to lose sight of the relative appearance and connection of the different masses of plantation.

In creating Views or Prospects, therefore, the gardener has the opportunity to deceive by creating a false impression as to the extent of his grounds; and this it is necessary to take advantage of when looking to freedom of view within the boundaries. While arranging for freedom of view without the boundaries, we have the choice, in many cases, of most extensive and majestic prospects, which we can present to the eye in the most pleasing manner. *Within*, on the contrary, we have generally but few scenes upon which to work, and of these the gardener makes the most, by presenting them from different points of view, and creating a variety of forms and views, which will interest and charm as well as give the requisite impression of extent. To

arrange, therefore, the various points of View in such a manner as to present an ever-changing combination of scenery; to keep up the interest by a constant revelation of new beauties; to raise the curiosity and give play to the imagination by an adroit management of the termination of walls, or leading the mind to suspect the existence of more beyond—and by means of all this, to give to the arrangement of the grounds the charm of novelty, must be the study of the improver.

CHAPTER X.

GENERAL REMARKS.

Mr. Repton, who has very closely and ably investigated the causes which operate to produce various effects, in the Landscape Gardener's art, has given us the following as the principal "sources of pleasure in Landscape Gardening:"

"I. *Congruity:* Or a proper adaptation of the several parts to the whole; and that whole to the character, situation, and circumstances of the place and its possessor.

"II. *Utility:* Which includes convenience, comfort, neatness, and everything that conduces to the purposes of habitation with elegance.

"III. *Order:* Including correctness and finishing.

"IV. *Symmetry:* Or that correspondence of parts expected in the fronts of buildings, particularly Grecian.

"V. *Picturesque Effect:* Which furnishes the Garden with breadth of light and shade, forms of groups, outline, coloring, balance of composition, and occasional advantage from roughness and decay, the effect of time and age.

"VI. *Intricacy:* Which has been defined to be that disposition of objects, which, by a partial and uncertain concealment, excites and nourishes curiosity.

"VII. *Simplicity:* Or that disposition of objects which, without exposing them equally to view at once, may lead the eye to each by an easy gradation, without flutter, confusion, or perplexity.

"VIII. *Variety.*

"IX. *Novelty:* Which although a great source of pleasure, is most difficult and dangerous for an artist to attempt, as it is apt to lead him into conceits and whims, which lose their novelty after the first surprise.

"X. *Contrast:* Which supplies the place of novelty by a sudden and unexpected change of scenery, provided the transitions are neither too frequent nor too violent.

"XI. *Continuity:* This seems evidently to be

a source of pleasure, from the delight expressed in a long avenue, and the disgust at an abrupt break between objects that look as if they ought to be united.

"XII. *Association:* This is one of the most impressive sources of delight; whether excited by local accident, as the spot on which some public character performed his part; by the remains of antiquity, as the ruin of a cloister or castle; but more particularly by that personal attachment to long-known objects, perhaps indifferent in themselves, or the favorite seat, the tree, the walk, or the spot endeared by the remembrance of past events. Such partialities should be respected and indulged, since true taste, which is generally attended by great sensibility, ought to be the guardian of it in others.

"XIII. *Grandeur:* Consisting either in greatness of dimensions, extent of prospect, or in splendid and numerous objects of magnificence. The desire for grandeur, leads to the very common error of mistaking extent for beauty, in scenery.

"XIV. *Animation:* Or that pleasure experienced from seeing life and motion; whether the gliding

or dashing of water, the sportive play of animals, or the wavy motion of trees."

Uniformity of style or character, and harmony or proportion of parts with the whole, which we understand to be the meaning of the first of the "sources of pleasure," mentioned by Mr. Repton, is also one of the most important. It is often mistaken for symmetry, or the correspondence of similar parts, which produces a dull monotony, instead of the pleasing variety of a Landscape in which this harmony and uniformity are kept up. A lack of harmony and proportion will not fail to make a place look ridiculous. Thus we sometimes see, in a pleasure-ground, flowers, trees and ornamental shrubs, mixed indiscriminately with patches of corn or cabbage. Or again, the writer of this has seen a Landscape made up of graceful plantation, a fine lawn, and finely-curved and sweeping lines of walks, harshly cut into by a straight avenue of formal Red Cedars. Who would not see here a lack of understanding, as well as taste? Again, it should be borne in mind, that however beautiful an object may be in itself, if it is out of place in the scene, its beauty will not save it from

being offensive to the eye of taste. Thus, inserting a mass of rockwork in the midst of a smooth lawn, or surrounding an ancient castle by a grass field, or placing a pond on a hill-side, would be errors which the most common-place observer would detect.

But beside this harmony or relative fitness, we have an additional consideration, called Scale, or Comparative Proportion. It is an axiom in Gardening, that "*objects are great or small only by comparison*," or as they have a reference to other objects, with which they are liable to be compared. As an example or illustration, place a small cottage alongside of a church or mansion-house, and the first will look smaller than it really is, while the last appears larger, from the comparison with its diminutive neighbor. So, also, let a cottage be fronted by a group or clump of tall Elms, and while the trees look tall and bare, the importance, as well as apparent size of the cottage will be much diminished. Let the same cottage be backed by a few lower growing trees, whose tops will just be visible over its roof, from the front, and it will be found to add vastly

to the apparent size and importance of the building. So, too, in judging of the extent of a lawn on which cattle are feeding; the cattle in the distance appear smaller than they really are, and by their apparent size we estimate the extent of the lawn. Mr. Repton gives an instance in point, of the application of this principle. He says: "At Hurlinghame, on the Thames, the lawn in front of the house was necessarily contracted by the vicinity of the river, yet, being too large to be kept under the scythe and roller, and too small to be fed by a flock of sheep, I recommended the introduction of Alderney cows, only (a very small variety of the cow), and the effect is that of giving imaginary extent to the place, which is thus measured below a true standard; because, if distance will make the animal appear small, so the distance will be apparently extended by the smallness of the animal." Again, the fine appearance of a group of noble oaks may be totally destroyed by their being overtopped by some other higher tree, as an Elm in their midst, or at their back, making them appear as diminutive bushes. All this the gardener must bear in mind when bring-

ing his plans into effect. Thus, in crossing a river which is the work of art, it is preferable to use a bridge containing more arches than one, while in natural rivers a single arch is often preferable, because in the latter we wish to increase the magnitude of the bridge, while in the former we endeavor to give importance to the artificial river.

The power of increasing or diminishing the apparent size of any object, by putting it in comparison with some other object, is most valuable to the skillful gardener; but when it is not duly kept in mind, it often occasions as great defects, as it might have created beauties.

PRACTICAL OPERATIONS.

CHAPTER XI.

INTRODUCTORY REMARKS.

HAVING in the preceding pages laid down such rules, and given such descriptions and explanations of the components of a beautiful Landscape, as will, we trust, be understood by the general reader, as well as aid the uninstructed in forming a correct judgment in matters appertaining to Gardening, we now proceed to give some instructions regarding the PRACTICAL OPERATIONS connected with the art.

A professional Landscape Gardener must necessarily possess a thorough knowledge of the art of Drawing, and a familiarity with the operations of Surveying, beside being entirely at home in the

Practical details of Gardening. The Amateur will find in the following pages, such hints and instructions on the various Practical Operations of Gardening, as will, we hope, not only lighten his own labors, but enable him to economize both time and money, in the laying out and keeping of his grounds.

As the manual labor is performed by common day-laborers, who have no ideas of beauty or grace in lines and forms, it will be found necessary, in all cases, to lay out their work for them plainly, and watch them closely; without this they will not fail to obstruct, rather than aid the amateur, by their obstinate misunderstanding of a tasteful plan.

The faculty of *foreseeing* the effect certain alterations or improvements will have upon the appearance of the whole, is that which tends most toward economizing labor and expense. This faculty is, however, necessarily the result only of long experience in the adaptation of various shapes and colors to various forms of ground, and different scenes. Without the ability to *foretell* with certainty, the effect of his work, the gardener would

be obliged to work on at random, and his art would consist of but a series of expensive and tiresome experiments, and tedious alterations. To prevent this, it is always necessary to engage a competent gardener to lay out a Plan for the proposed improvement. Let the proprietor closely consider this plan, have it modified by the gardener in any particular, when it conflicts with his direct wishes — the latter being then able to show him where his wishes would come in conflict with the harmony or tastefulness of the whole design; and then, when finally the plan is fully settled upon, men may be set to work to execute its details, without the after necessity of changes or alterations, involving loss of time and money, and creating vexation and disgust.

All that is done should be done in the *best* manner, else will the improvement, however costly or elegant in design, be sure to disappoint the hopes of the proprietor. Slight errors, in the execution of a Plan, have a serious effect upon the appearance of the grounds. Lines which should be parallel, and are not, faults in the level, etc., etc., while oftentimes themselves unperceived by the

general observer, never fail to give out an unpleasant impression of the whole improvement.

The gardener or improver must be careful to make his works join harmoniously with those of nature. He must recollect that no work is tasteful, unless in keeping with the shape and general conformation of the ground, and harmonious in all its parts. All defective forms of natural forest growth, as straight lines, formed by former fences, must be restored to beauty by breaking their outline boldly, — thus showing the beauties of individual trees, or, when necessary to create greater distinctness of outline, new plantations may be added, in places, to conceal the bare stems of trees, and to give greater depth and impressiveness of appearance. Groves are much improved by proper and careful thinning out, by which means, clear spots of lawn are created in the midst of groups of trees. Where it is desirable to obtain Views to the outside, thinning out of branches, and topping are often found sufficient. Where this will not answer, solid woods may be broken through, care being taken to give to the break a natural freedom of shape. Thinning out must be carefully, and not too hastily

performed. Trees which have grown up in the midst of a dense group, protected then by others, from cold and high winds, are unfit to withstand, singly and at once, the fierce blasts of winter. The change should, therefore, be brought about gradually. Trees which it is desired to remove, should, in all cases, be taken up roots and all, as nothing looks so unsightly and tasteless, as a landscape clogged up with stumps. Improvements with the ax, such as those spoken of above, will be found to succeed best when the woods are in full foliage.

CHAPTER XII.

PLANTING.

In taking up or setting out trees, we should never forget that they are possessed of life, and may not, therefore, be handled as stumps or stones. It is necessary to preserve the largest possible portion of the roots, and to trim carefully with a sharp knife, those which were cut off or injured by the spade, in digging up. The bark, also, requires careful attention — should it become dry, and much injured, it would be fatal to the tree. Next, the tops must be trimmed, so as to preserve, a balance between the body of the tree and its roots. The roots supply nourishment to the tree, while the leaves are its lungs. It is possible, therefore, to deprive it of too great a portion of leaf-making boughs, which will make it puny and sickly, and perhaps kill it. Evergreens and Larches

are only trimmed when any parts are badly broken or injured.

Where it is intended to plant trees, the ground should be previously prepared by a deep trenching and manuring; this will be found to add wonderfully to the quick development of trees. Where this, however, is found too expensive, it is necessary to make the holes for the trees quite large, say three or four times the diameter of the circle described by the roots. The planter must be careful to place the roots in their original position, neither in a bunch, nor in a direction contrary to that they were in naturally. Surround the roots, *on all sides*, carefully with fine earth. It is important to see that every portion of the roots comes in contact with the ground. Hard-wooded trees must be placed in the ground, at the depth they originally held. With such as grow from cuttings, as the Silver, and Lombardy Poplars, the Willow, etc., the depth makes no material difference. They may be set at any convenient depth. After filling in the ground about the roots, it is tramped down, and the operation is finally completed by throwing two or three buckets of water around

the base of the tree, which will more firmly unite the earth around the roots.

The best season for planting or transplanting, is early in the winter and in the spring. For Evergreens, spring is generally considered the best time. The operation of taking up trees, is one requiring much care. They should be tenderly handled, and particular attention must be paid to saving the roots, as much as possible. After being dug out, trees should not be left lying about on the ground, or put away above ground, but if not immediately to be planted again, should be hulled in. To do this, a trench is dug, sufficiently deep to take in the roots completely.

In PLANTATIONS OF SINGLE TREES it is well, here and there, to set two or three of the same species in the same hole, creating an effect which we often see in natural scenery, and which adds a most pleasing variety to the Landscape. Trees thus planted will naturally incline from the perpendicular, and often assume most graceful shapes. In planting to form a grove, the choice of situations for trees, is a matter requiring a delicate and correct judgment, and some experience. We

can only say here, that it is absolutely necessary to avoid all formality and regularity, and most especially the *regular irregularity* into which beginners often run, when attempting to avoid straight lines and regular distances. Trees should be planted nearer together here — farther apart there — but everywhere in such a manner that the eye can not detect the handiwork of art.

In planting solid masses, or groups, the effect of the entire body upon the balance of the scenery, as well as the effect of each individual part to the group as a whole, must be foreseen by the gardener. Failing in this, he will most certainly be unsuccessful in his attempts at adding a graceful feature to the Landscape. The faculty of *foreseeing effects*, as before remarked, is one which can not be attained but by practice and experience, in connection with a correct taste, and an eye quick to take in all the details of a scene. We must, therefore, confine ourselves to simple directions, as to the preliminary proceedings. The main features of the plan for improvement being first marked on the ground with sticks, the outlines of the groups are next marked off, keeping strictly

in mind their effect, as regards freedom of view, and of form, hight, and general shape. Longer sticks may serve to distinguish the irregular outlines; after examining which, smaller pegs will serve to fill up the lines and render the marking plainer. The tree-holes are now made; not, however, following the outline marks, but irregularly — simply preserving the main features. In making the tree-holes, when several workmen are employed, it has been found an excellent expedient, by which to avoid uniformity, to allow the workmen to suit themselves, in the first set of holes they make, merely preserving intact the main outline. To follow implicitly any marked outline would produce easy-flowing lines or forms, which are invariably insipid.

To produce dense masses, the improver must imitate the ways of nature, viz: let them grow up from a thicket. In such a case accidental effects, and the workings of nature, are to be securely relied on. As the plants composing the thicket grow up, the weaker ones are either run out by their stronger neighbors, or they sprout from the bottom, and remain as undergrowth, and

can, in time, be cut down. By proceeding in this way, the improver will secure a close, compact group for many years. In planting a group in the way mentioned, we select young stems from half an inch to an inch in diameter, and set them out at from two to four feet apart, then leave the development of the group to nature. Care must be exercised to avoid regularity in the distances and lines. Trees of rarer species, and which naturally demand a more conspicuous place, should not be mixed with the commoner species, in groups, as either they would thereby be lost to observation, or, in the attempt to make them prominent above the rest, the compactness of the group would be destroyed. Such trees are planted as single specimens before the group to which they belong; thus they will highten the spirited form of the group, and have sufficient room to attain their full development and beauty. If it is intended to plant a mass or group of half-grown trees, they must, of course, be set at greater distances apart, according to their size. Brushwood, such as Indian-arrow, Dogwood, Hornbeams, etc., is then to be planted between, to make the group compact and close.

Particular attention should be paid to form the *margin or oblique ascending line* of a group. The shrubbery is to be planted, not merely to cover the bare stems of the higher trees in the interior of the groups, but to produce, at the same time, an ever-changing natural variety. Several plants of the same species should be set together, as though springing up from the same stock; the outside plants should incline toward the ground, thus gradually rising toward the lowest branches of the trees. It will be found of good effect to plant some detached, smaller groups or clumps of shrubbery, disposed on the same principle, at some distance before the group, especially in such places as should be the most conspicuous points of the margin, being either bold prominences, or deep recesses.

THE EVERGREENS should always be set together, rather than scattered among the deciduous trees and shrubs. Placed by themselves, they will show to much more advantage, giving pleasure to the senses, in summer, by the cool shade of their dense foliage, and the fragrance with which they scent the air, in winter — lending an appearance of life to the Garden, when all appears withered and dead. If

they are wished to produce immediate effect on the garden scenery, they may be set closer together than their future size will admit, being thinned out and removed to other places, when becoming too thick.

This is generally done when heavier masses of evergreens are planted. In planting detached groups of three, five, seven or nine plants each, the plants may be set at once at such distances as will allow their future development. In planting evergreens by the side of a walk or road, ample allowance must be made for the growth of the spreading branches; they should be set at such a distance from the border, as never to interfere with the free passage of the road.

Those kinds of evergreens which naturally incline to the stiff form, as the Red-cedar, the Juniper, the Arbor-vitæ, etc., should always be set in a denser clump, thus forcing their normal forms to attain a more irregular, rugged shape.

Fine Flowering Shrubbery and Flowers. — It has been remarked above, that Flowering Shrubs and Flowers are grouped according to the same principles as the larger masses of trees and shrubs. They show best when grouped in masses, consisting

of but one kind of plant, but where, in large masses, flowers of several kinds are brought together, a portion of the outside, or margin, should be allowed to *each*, when its beauties will be shown to most advantage, the center being then formed of parts of all, yet not so intermixed as to form a wild confusion. In such an arrangement of a flower-group, the flowers should not, however, be set regularly in borders or wreaths, but a natural arrangement should be kept up, such as has been before spoken of. Thus we should set them, in one place, in clumps, showing conspicuously between masses of green shrubbery, and in another as uniting in a solid mass, forming the immediate margin of the group.

In planting trees or shrubs of any kind, it is always well, when possible, to select for each species the quality of soil which experience and examination have proved is best adapted to its growth and well-being. Many plants require a rich soil, while others, again, flourish on sterile, barren ground; some must have a dry soil, while others, again, will grow when the ground is immersed in water. It is true enough, that all, or nearly all varieties

will live in common soil, neither rich nor poor, wet nor dry. Yet it is plain, that when they are at once set into a soil adapted to their wants, they will grow faster, and become hardier, and, of course, be objects of much greater beauty. It is, however, but seldom in the power of the improver to provide, for all his trees, the soil they should have. Too often his place presents a soil composed of naught but stiff clay, barren and hard to work. It is therefore expedient, if at all possible, to trench deeply the soil he intends to plant. This is an operation involving considerable labor and expense. Should he not be able to do this, he should, in all cases, make his tree-holes much larger than common, that the plant may be able to send out new roots, through the mellow ground. For such plants as require rich ground, well-rotted manure or loam should be mixed in large proportion with the ground thrown around the roots.

For the first two or three years after groups have been planted, it is necessary that the ground about the bases of the trees, be kept clear of weeds, as well as partly loose. In autumn or winter, the ground should be turned up with the

spade or hoe, in order that it may receive the meliorating influences of the frost and moisture of winter. The turf growing around the groups should not be cut, or otherwise disturbed, as this would draw a line of stiff separation between the groups and the lawn, which naturally should be united.

Where plants stand on the lawn, or anywhere in the turf, their bases should be kept clear for several years, that they may have no lack of air and moisture at their roots. It will be found necessary to give such spots an occasional clearing, covering them afterward with litter. Should this be neglected, the plants will become stunted and sickly.

Great care and attention to all necessary details is required, in moving or transplanting trees of large size. Trees of rapid growth, and also Evergreens, having generally spreading and fibrous roots, are much hardier, and do not require so much care. It is, for instance, no difficulty to transplant a Poplar of nine inches diameter in the stem, while an Oak of that size, if moved, will scarcely ever grow. In all cases, the utmost attention must be given to the preservation of the roots. For the

transportation of trees, various machines have been invented, but none are much used, in this country. For any common occasion, a *dray* will answer all purposes. This should be backed up, as closely as possible, to the base of the tree to be moved, and the roots being loosened, the ball is slipped on the dray. For the purpose of moving quite large or heavy trees, a machine, of which we here give a description, is found very useful. This machine is formed on the principle of the common timber truck, being a strong lever attached to the axletree of a pair of wheels. The latter are very strongly constructed, at least five feet in diameter, and with a six or nine inch tire. The axletree is correspondingly substantial, and to its middle the pole or lever is securely fixed. The pole should be made of the toughest wood, seven inches square, with the edges planed off, and somewhat reduced in thickness, toward the end. The length should be at least ten feet; for the longer it is, the greater the purchase in raising a tree. The pole is strengthened by side braces, let into the axle, and mounted with an iron eye and ring at the point. When to be used, it is backed up against

the tree, and the pole is raised and made fast thereto. The wheels rest in the hollow made by baring and loosening the roots, though not upon any of them; and when all is ready, the strength of men, or of a horse, is applied to the pole-chain, which is, together with the tree, pulled to the ground, the roots being by that means lifted out of the ground. When thus borne on the machine, it is drawn away, root foremost, to its new place, previously prepared for its reception. The wheels are drawn into the new opening, the pole and tree set at liberty, and if, as is generally the case, the root be heavy, the tree will resume its former position, with but very little aid. The machine is then loosened from the tree, and removed out of the way. The roots are next carefully laid out and imbedded in loose soil, well consolidated and plentifully watered, and the job is done.

When a machine is made on purpose for removing large trees, the axletree may be made to fit a pair of cart-wheels for a temporary purpose. The axle should be formed with *straight*, not *drooping* ends, as they are usually made, because this renders the raising of the pole much easier. Upon

the upper side of the axle there should be a thick block of wood bolted, to give more elevation to the root when drawn along, and on this an old sack or a thick band of straw is bound, to prevent chafing the bark of the tree.

After being transplanted, as before observed, trees require much water, and in the hottest part of summer they must be well attended. Water should be applied not only to the roots, but also to the entire stem and boughs, every bit of bark being made wet. Evergreens, in particular, require this treatment. When about to transplant trees, it is a very good plan to prepare them for that step a year beforehand. For this purpose, it is necessary to dig carefully round the roots, to the depth of some of the main roots. The side roots are cut with the ax or spade at some distance from the stem. The trench dug round the roots is then filled up again with earth and well watered. By adopting this plan, the roots are forced to send out small fibrous rootlets, which will soon form a solid ball. Trees prepared in this way will be much more likely to live than if simply taken up without previous preparation.

In winter, trees may be removed with the frozen ball; having been dug round, the ball is watered in the evening previous to a cold night. In the morning, the ball being sufficiently frozen, the tree is taken up and removed; trees, especially Evergreens, thus removed, will succeed very well. In replanting larger trees, it is well to surround the roots with sand, or fine gravel, before filling in the earth.

CHAPTER XIII.

THE LAWN.

THERE are two ways to establish the grass on the Lawn, either by sowing the seed, or by sodding. Whatever way be adopted, it must be observed that the ground must first be put in *good order*. It should be spaded, and made fine with the rake. In smaller places, sodding is far preferable to sowing the seed, as it finishes the job at once. The sods may be cut with a sharp spade from a pasture or meadow, in pieces of a size convenient to handle, and of one to two inches in thickness. When put down, the edges are joined, as nearly as possible, and fine earth or manure filled in the cracks. In smaller or neater places, as in city lots, great care is generally taken to join the sods smoothly — laborers are frequently seen on their knees, trimming the edges with a knife. After

the sods are laid down, they should be beaten down with the spade, or a pounder made expressly for this purpose.

If the grass is to be raised from seed, the ground should undergo a very careful preparation. If it be poor, its surface, after being spaded, must be enriched with fine manure, else the young grass will meet with but little success. The seed may be sown pretty thickly; it should be but slightly raked under, after which, a roller is passed over the ground, to make the surface smooth and firm. The ground should be of such quality as to start the grass quickly, else it will soon be covered by an abundance of weeds.

The borders of the Lawn should be sodded, under all circumstances; they should not rise more than one or two inches above the level of the walk.

Lawns of larger extent may conveniently be worked with the plow and harrow, and treated on the principle generally followed by the farmer — to sow the grass-seed between oats or wheat.

The *Bluegrass* is the kind of grass most desirable for grass-plots intended to be kept smooth

and short, or for pasture. Timothy and Clover may be used for larger Lawns intended for hay.

The verdant turf of the Lawn forms a very important component of a beautiful garden scene. Its luxuriant growth and verdure is highly improved by frequent manurings, which should be applied in winter. After the manure has had the influence of frost, it is raked even and the litter piled up and removed. The grass should be kept low and smooth — the scythe and roller being freely used. The borders must always be nicely trimmed — they should be kept very smooth and short.

Many little contrivances have been invented, and may be found in the seedstores, for the purpose of facilitating the labor of trimming grass borders. These are most properly left to ladies and children. A sharp spade, and a steady eye and hand, are all that are necessary to trim the neatest border.

CHAPTER XIV.

MOVING GROUND,

Is the most expensive operation in Landscape Gardening. It is, therefore, needful to use every precaution which may serve to economize expense. To this purpose it is necessary, in the first place, that a complete and well-digested plan of the proposed alterations should be prepared. This done, the improver must so arrange his operations, as to simplify them as far as possible. Matters must be so arranged that, when ground is once taken up, it will be put down *only* in the place where it is intended to leave it. This rule should, *on no consideration*, be broken through. The ground should be obtained as near as possible to the scene of operations, and should *never* be taken from a place which will afterward have to be again filled up. When it is only necessary to move ground a short

distance, and on level or descending ground, it will be found advantageous to work with wheelbarrows, while in more extended operations, and where it is necessary to carry the ground some distance, carts, or perhaps wagons are preferable; where wheelbarrows are used, the kind called *railroad barrows*, having a round and open bed, will be found to be a saving, both of time and labor. On level ground, an article called a *scraper* will be found very useful. The ground being first broken up with the plow, two horses are hitched to one of these scrapers, and follow immediately after. A man with two horses will, in this way, easily perform the labor of half a dozen men with wheelbarrows.

Whatever mode is used to move the ground, it is of importance that all should be conducted with regularity and order. There should be men enough, at every station, loading, hauling, or leveling, to keep all parties constantly going. Carts or wagons should be so managed as not to get in one another's way, thus losing no time by waiting one for the other. The overseer should attend to it, that no team goes off without a full load.

The shaping of the Ground, and the laying out of Roads, are operations very closely related to one another, and depend upon each other in a great measure. The natural surface of the ground influences the improver in the directions he chooses for his roads or walks, while these again govern entirely the artificial grading of the ground, which must appear natural when completed. On level ground, the gardener has only to consult his taste as to the courses of his roads and walks. After this is determined upon, however, he has to consider how the best effect may be produced upon the flat ground lying between the roads. Here he will follow the dictates of taste, so far as circumstances allow. He may sink in one place an easy valley, using the earth which is taken out to form a gentle eminence or rising ground beyond, which shall accord with the shape of the valley. As in this proceeding, the difference in hight is just double the depth of ground taken out, it is possible to produce a great effect by comparatively little labor. On rising or broken ground, it is a matter of greater difficulty to select courses for walks and roads, as the gardener has to consult both good

taste and economy of expense. On such ground, the course of a road often requires a deep cut-in or an embankment raised up. Yet it must be borne in mind by the gardener, that he must so arrange the road or walk, and the grounds, in reference to each other, as to produce the impression that the road was regulated by the shape of the ground, and not the ground by the road. To do this, requires, sometimes, a little additional labor, and always a clear apprehension of the matter under consideration. The grade of the road should be alternately ascending and descending, accommodating itself, in all cases, naturally and unobtrusively to the shape of the ground. Thus only will a road or walk appear in its natural and proper place.

Eminences, knolls, and rising ground in general, where *made*, are, as before said, mostly formed from the earth taken out when forming the valleys and ponds. It must be the aim of the gardener to produce, in all his alterations of the surface, free, unbroken, undulating lines, which shall nowhere betray the hand of art. Such forms it is not possible to mark out on the ground by stakes; they must be conceived by the experienced imagina-

tion of the gardener, and can be carried into effect only under his supervision. In forming an eminence, however, the hight to which it is intended to carry it may be quite well marked with sticks, the tops of which will then show the greatest elevation to which the ground should be leveled. After a sufficiency of earth has been filled in, the whole is graded and leveled, under the direction of the gardener, and receives from him its final and enduring *expression;* and this is what can not be previously marked down by sticks. While filling in the ground, and before leveling, should any fine slopes, by accident, develop themselves, they must be carefully preserved. In operations on an extended scale, the grading and leveling may be performed, in great part, by the plow and harrow; but it will be found necessary to put on the finishing strokes with the spade and rake. In forming eminences, it must be remembered that they must be strictly in unison with the surrounding grounds, and never betray signs of filling up. There is nothing more tasteless, or which more deforms a scene, than the so-called Indian mounds, which people of a certain taste delight in placing

in conspicuous situations, in their gardens or before their houses — circular or sugar-loaf formed — and generally surmounted by a trimmed Cedar, or a scraggy-looking Rosebush: these pimples upon the fair face of Nature are highly admired.

The sinking of Valleys is likewise a work which can not go on without the constant superintendence of the gardener. In directing the workmen as to the depth to be cut in, a profile line is cut in the ground in several places, showing the average depth at the several points. The ground is then removed in accordance with these lines, and the rough form of the valley will appear. Where a valley is to be formed of a ravine, profile lines are struck on both sides of the hollow, and the ground coming out from the sides is filled in the bottom. As the filling up advances, a heavy garden-line or long rope is suspended between opposite profile lines, to determine and mark by its help the degree of curve to be given. When the line is arranged to suit the improver, he proceeds to mark the different ranges with stakes whose tops will just touch the line. Earth is then filled in level with the tops of the stakes; which done,

the form of the Valley will be before us, ready to receive its final finish, under the direction of the improver. In directing the laborers in their final labors, the gardener takes care to view the work from many different points, in order that no defects of form may escape his eye, and that he may obtain for his work the greatest beauty compatible with its situation. A valley of this kind, when finished, should be at once sodded, as, unless it is, the heavy rains will alter, to some extent, the newly-formed surface, by washing down into the hollow.

It is necessary, in forming a Valley under the above directions, to make such allowances for the nature of the ground, as will prevent it from being wet or marshy in any part, when finished. In heavy, flat soil, which is generally wet, it will not do to cut in below the surface. Here earth must be filled in on both sides, so as to leave a hollow between; but care must be taken, not thereby to disarrange the harmony of the surface, extending beyond the sides of the proposed valley. Drains are often made to lead off the water that might otherwise accumulate. These may be built either

of stone, underground, or a deep trench may be filled with loose stones, old logs, etc., through which the water will sink, and leave the surface dry.

In smaller Gardens the shape of the ground may be vastly improved by a good spading over, throwing the ground so as gradually to form an easy, swinging line, much superior to a dead level. However level the grounds may originally be, the Lawn should be in some degree, more or less, either concave or convex, as a dead flat never looks well.*

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*There is, now-a-days, a rage for "leveling," among many of the working hands. No matter what may be the advantages a place may offer for a rolling or undulating surface, they insist upon bringing it down to "a nice level," or "a pretty terrace." If these gentlemen would stick to railroading, at which they have evidently graduated, their "leveling" propensities might be of some use to the community at large, and certainly of less injury to the Art of Landscape Gardening.

CHAPTER XV.

ROADS AND WALKS,

As made for use, rather than show, should be firm, smooth, and dry, at all seasons of the year. And, inasmuch as they are objects which are open to public inspection, they should also be kept with great neatness. Their shapes should be sharply cut and distinctly defined; their borders kept in order, and all sorts of dirt or rubbish carefully excluded from them. Thus kept, they will, by their graceful curves and turns, add much interest to the landscape or scene. It has been said, in another part of this volume, that the course of a Road or Walk should not be a matter for the fancy of the gardener or the proprietor to decide upon, but that a Walk must have an object as well as a course. We may say here, in addition, that while the walks are laid down on the paper-plan of operations, this

can not entirely bind the gardener, but he must be directed, in the execution, by his judgment, and the accidental and perhaps unforeseen advantages or disadvantages of the ground. While, then, in the direction and main points of his Walks he follows the design or plan, his eye and good taste can alone guide him in giving to them those graceful bends and curves which make them objects of attraction, and which alone can give them expression. The man of taste will not be ruled by a Plan; his love for choice forms, and for the beauties of a Landscape, will always lead his roads and walks through the choicest spots, and in the easiest and most graceful lines.

In marking out the line for an intended Road or Walk, the gardener should make use of sticks about two feet long, with which he first proceeds to secure, by measurement from his Plan, correctness of general outline. Having marked the turning points and general outline, he next proceeds to establish by them, such curves and easy-flowing lines as seem to him best and most appropriate, to connect his former marks. When arranged to his satisfaction, the sticks are driven into the

ground, and the labor of preparing it for the reception of the substance which is to form the future walk, commences.

Carriage Roads, or Drives, require to be built sufficiently strong and firm, to resist the weight and motion of carriages and horses. They should have an easy descent on both sides, being slightly raised in the middle. The course of a carriage road should not be led over broken or steep ground, but should, on the contrary, offer every facility throughout, for easy and rapid driving. As the shape of the ground, of course, governs in a great degree the line of the road, and the surface may be broken, consisting of different levels — these levels must then be connected by easy and flowing lines — nothing abrupt showing itself. The lack of such unity and freedom spoils many expensive approaches. Carriage roads must have a solid foundation of stone, to resist the wear and tear of the weather.

From some experience in the construction of roads or drives, we confidently offer the following rule, as forming the best road that has come to our knowledge: the ground must first be graded to the

exact level of the future Road, that there may be a foundation upon which to work. The surface should then be laid with stones, about six inches square, and having the lower surface flat. After laying these stones tolerably close together, a layer of coarse gravel is put over them, say to the depth of two inches, filling also all the interstices left between the stones. A course of fine gravel, two inches deep, is next put on, which must be rolled down with a very heavy roller, fair and hard — a heavy rain, before commencing to roll it down, is quite an advantage, aiding greatly in solidifying the road. Another course of gravel should not be put on until the entire road is firm and solid. When put on, it is also to be rolled down, and made as firm as possible. A road made in this manner, gradually, and hardened by degrees, will outlast any other that we have ever seen. Too much gravel put on at once, makes it a bad drive for a long time. Roads formed of smaller stones (pike stones), filled in to the depth of six inches, and covered with gravel to the depth of three inches (a mode often pursued), are not near so solid. Beside requiring much more labor and ma-

terial, they much sooner show the traces of passing wheels; horses, too, are very apt to work up the small stones to the surface, where they lie among the gravel, disfiguring the road. The width of the road must, of course, be regulated by its importance. An approach road to the house should not be less than ten feet wide, but must be strictly in keeping with the style of the mansion.

Garden walks, being only for the use of pedestrians, and not being very much used, need not be built so solidly as drives. The best way to construct them, however, is to pave the ground (previously prepared), with flat stones, as recommended in making a drive, and then to cover the stones with a layer of fine gravel, which, being well rolled, will become as firm and even as could be desired. In place of flat stones, the bottoms of the walks may be filled with the rubbish which generally remains about a new building. And in many cases, where the ground is high, and not marshy, the surface, after being well-graded, may be simply covered with a good layer of gravel, which, when rolled for some time, will prove as firm and uniform as need be. On places making

less pretensions to elegance, walks are often made of tan-bark. This substance is neither firm nor lasting, and is only used because less expensive than nice, clean gravel. Whatever substance walks may be composed of, it is important that they should be neatly leveled, and that the borders should be kept clean and distinctly marked. In places where the picturesque is the ruling feature, it is not necessary that so much neatness should be observed, the most important consideration there, being a dry, unincumbered walk. In situations where the ground is steep, walks are often nicely divided into little planes, connecting one with the other by a few steps of stone or wood. This makes the walks easier, or gives them less pitch.

When constructing a road or walk of any kind, it is highly important that the ground upon which its foundations lie, should be hard and solid. If it has been lately dug up or spaded, or in any way disturbed, it should be left to be settled by the rains and storms of a winter, or it should be pounded down solidly. A neglect of this precaution often causes much trouble and unnecessary expense.

The improver must also make calculations as to drainage for his walks and roads. Where the ground is undulating, and the walks sweep across the country, now high, now low, it is easy to see that, in the lowest places, the water will stand, in wet weather, at least. This water must be received in a subterranean channel, and led off. Heavy rains, too, are apt to *wash* the roads, and injure them in that way. To prevent this as much as possible, the road should be inclined toward that side by which the water is most easily disposed of. Thus a road running along a hill-side should incline toward the lower side of the hill. Sometimes it will be found expedient to have little channels, at regular distances, along the lower edge, by which the water may escape. This, or some other plan, must be adopted, to break and divide the mass of water collecting during rains or freshets, from a road, and the lawn adjoining, where the land is an inclined plane, as, if allowed to gather into a body, it would wash away and destroy the lower part of the road, along which it would run. In places where a road runs along a steep inclination, the water should be led into a stone gutter, on the lower

edge, which may have openings, at regular distances, to let the water out again. Care and attention is necessary, to keep any road in good order, and preserve it from the ravages of water. After every rain, roads should be carefully inspected, and every defective spot mended. Without this, the best constructed road will soon fall into ruins.

CHAPTER XVI.

WATER.

THE peculiarly enlivening effect of a body of water, in Garden scenery, has been spoken of in a previous part of this work. Owing to the dry summers which prevail in America, however, there are comparatively few places where a uniform supply of water can be kept up all the year round. But there are many, notwithstanding, when, by the exercise of a little ingenuity, the improver may provide a Pond, or little Lake, which will obtain its supply of water from a never-failing spring in the neighborhood, and may thus be as well filled in summer as in winter. Ponds may also be formed, by damming up the course of a creek or branch, which will afford a steady supply. A stream of water sometimes runs through the grounds. If

such is the case, its banks must be beautified by plantation, and its course changed or altered, when necessary, to make it conform more strictly to the general aspect. When it is necessary to dig a channel for a Brook, it should not be dug deep, as the water will soon make it deeper. In laying out or forming a Pond (as every piece of standing water in garden scenery is called in this country), the first thing necessary is to ascertain the exact water level, which, being marked, will then become the basis of all future operations. The bed of the pond is then formed. The sides should be sloping toward the middle, and not abrupt or perpendicular, to prevent accidents, from people or cattle falling in. The shores should be composed of strong or firm ground, to resist, as much as possible, the pressure of the water. The bottom should be water-tight, if possible, in order that as little as may be of the contents be lost by leakage. On low ground, which is naturally moist, and does not therefore, absorb much water, there is not much difficulty about this. Where it is otherwise, it is often necessary to have the entire bottom laid with cement. To prevent the sides of a pond

from being washed away, or destroyed by freshets, a channel, or *overflow*, to lead off the surplus water, must be constructed. Care must be taken to have this sufficiently strong and capacious for any emergency.

CHAPTER XVII.

ROCKWORK.

Two different modes of forming *rockwork*, are practiced by gardeners. One, by arranging stones or rocks, in such shapes and heaps as will be agreeable to the eye, leaving room between them for the growth of Ferns, Climbers, and other plants, which naturally flourish among rocks. The other, by imitation of *dropstones* or stalactite, by which mode many picturesque objects, such as grottoes, arcades, seats, etc., may be readily formed. Much experience in the matter is requisite for the construction of a nice piece of Rockwork, but if tastefully and appropriately arranged it is a great ornament to a Landscape. To construct a Rock-scene of the description first named — say for a waterfall, or to place on the shore of a pond — the first requisite is to provide a foundation so secure that there will be no danger of its being undermined by

water. Upon this the stones are placed in the manner and to the hight required. All appearance of regularity must be avoided in their arrangement, and the grain of the stone should, if possible, be kept uniformly one way — either perpendicular or horizontal. The largest pieces obtainable only should be used, and where no large stones can be got, several smaller ones should be united into one by mortar, which will, at a distance, give them the appearance of one large mass. In the cracks or fissures left between the large masses we then plant Evergreens, Kalmias, Rhododendrons, Ivy, Virginia-creepers, Honeysuckles, Ferns, or other plants, which will give it the natural appearance of wildness, which all rockwork must possess.

In planting, as in placing the rocks, care must be taken to make them stand out in spirited, picturesque forms. Where such rockwork is desired, a single large specimen should not be left alone, but surrounded, at various distances, by rocks and stones, strewn round in different shapes; these smaller, detached masses, then, seem naturally to lead to the main piece.

THE PLEASURE GROUND.

When it is possible so to place the rockwork as to direct the course of a little brook across it, letting its waters fall, surging and foaming, into a basin or pond below, the effect of the entire scene, it need not be said, will be highly picturesque and stirring. As solitude seems the most appropriate for such a place, plantations of Evergreens seem, and are, peculiarly proper to surround it with.

To form the last-mentioned species of *rockwork*, it is necessary to possess some knowledge of the mason's and bricklayer's business, as the tools and materials of those trades must be used. It is well known that many beautiful shapes of the Dropstone or Stalactite are met with in caverns and subterranean galleries; and, also, that they are formed by the continual dropping of water, which, leaving a deposit, gradually and slowly builds up a pillar, or a grotto, or a series of such and other more fantastic shapes. Great masses of stalactites are also found on the surface of the earth, in different parts of the globe. It is these creations of accident that we seek to imitate. The foundations of the work must be stone. The stones are arranged

roughly, yet solidly laid in mortar, and in such shapes, bold and in high-relief, as we see in stalactite or dropstone formations generally. After the rough mass has thus risen under the hand of the gardener, he gives it a farther degree of finish by carefully hiding the points and connecting links of the stones composing the whole mass; thus giving it the appearance of an entire body of stone, jutting out irregularly in various fantastic shapes and forms. This is done with a mortar composed in part of Hydraulic cement.

Smaller crevices are left, here and there, in which to plant various Shrubs and Creepers, which will afterward aid in giving it a finished or natural appearance. These crevices and fissures, however, must be so arranged, with the help of the mortar, as to seem to occur naturally in the body of the rock, the joints between individual stones, in such places, being carefully hidden. This done, the mass is ready for the final operation of covering the, as yet, bare stones with several coatings of Hydraulic cement, which will give it the appearance of having been formed by the operations of nature. The cement should be of good quality, and must be

well mixed in water with an equal quantity of sand. It is applied with a broom or brush, the first coat being quite thin, the succeeding two thicker.

Where it is desired to imitate certain tints of dropstone, such may be done by mixing in a little lampblack or ground ochre. The sprinkling with the broom or brush will give to it, when hardened, that rough, irregular appearance which is peculiar to stalactitic formations. This kind of work is peculiarly applicable to the construction of grottoes, which are so refreshingly cool during the heats of summer; they may also be made a cheap and pleasant substitute for the ugly square spring-house, which so often disfigures pleasure-grounds in this country. The edges or shore of a Pond, and the interior of a Greenhouse, when ornamented in this way, may be made to present a peculiarly picturesque appearance, which can be produced in no other way. Rustic seats are also very cheaply and easily constructed in this manner.

The making of *rockwork* has been but very little practiced in this country, and is often undertaken by men of but little taste, and less experi-

ence. This will account for the many ridiculous and tasteless specimens of the work, to be met with in different parts of the country, and which have caused many men of true taste to condemn the whole art.

CHAPTER XVIII.

A PLAN,

Is made to represent, on paper, and in little compass, the form, shape, and extent of improvements suggested for a certain place. In doing this, the general outline of the ground or place, with every object thought necessary to introduce upon the face of the Plan, as buildings, the spaces occupied by trees, etc. etc., must be laid down according to a certain scale or proportion adopted, and thus the whole Plan is made a faithful representation of a series of objects.

It is necessary that the maker of a Plan should have a thorough acquaintance with the peculiarities of the grounds to which it is to be applied. He must compare and combine, as far as possible, the wishes of the proprietor with the dictates of good taste, and adapt the result, as much as

practicable, to the conformation of the grounds to be improved. Thus, in marking out his future groups, he has not only to consider their shapes, but must also be able to foresee what species of shrubs and trees will have the best effect in different places.

Again, in laying down on paper the lines of his intended Roads and Walks, he must not confine himself to describing charming curves and sweeps upon the paper — he must aim to lead the walks and roads by these sweeps, and through the finest scenes upon the grounds. It is true, that on naked and level spots, the *plan* may be made to fit the grounds, or, *vice versa*, the grounds to fit the *plan*, to a certain degree. But on places having any natural advantages, when the ground is broken or perhaps hilly, the *plans* of the improver, or gardener, must be greatly modified by the prevailing advantages or disadvantages of the place; and the drawing of an exact *plan* ceases to be a possibility.

Plans are either *working* or *profile Plans*. On the first-named, various lines, to exhibit the inside and outside views, are marked, showing the space

to be filled by Plantation — that devoted to Lawn, etc. The dimensions of each division and line are given, and trees and shrubbery numbered, their names and numbers being afterward marked on the margin for convenient reference. As this *Plan* is made to direct the operations of the gardener, it must contain *all* information needed by him in the prosecution of his operations. The proprietor, is furnished with a *profile plan*, from which he should be able to gather the fullest and most explicit information concerning his grounds in their improved state. This last should be finished in a better style than the *working plan*, as it will serve as a constant reference chart, for the proprietor.

CHAPTER XIX.

LIST OF TREES AND SHRUBS USED IN LANDSCAPE GARDENING.

"NOMINA SI NESCIS COGNITIO RERUM PERIIT."

It has been thought proper to introduce a List of Trees and Shrubs, generally used in Landscape Gardening, for the ornamentation of the scenery. A great many of the choicest forest trees, are native trees of North America, which justly can boast of the noble trees composing its *Sylva*. The trees are introduced according to the natural order of Families, as followed in the excellent work on "Trees and Shrubs of Massachusetts."

The Shrubbery is arranged as being *Climbers*, *Peat or Bog-earth Plants*, and the *Finer Flowering, Ornamental Shrubs*. The limits of this volume will not allow us to give especial descriptions of the various trees and shrubs.

CONIFERÆ. Evergreens.

PINUS. Pine.

Pinus Strobus. White Pine.
" rigida. Pitch Pine.
" resinosa. Norway Pine.
" mitis. Yellow Pine.
" inops. Jersey Pine.
" pungens. Mountain Pine.
" tæda. Loblolly Pine.
" serotina. Pond Pine.
" Lambertiana.
" Austriaca. Austrian Pine.
" Cembra.
" Laricio. Corsican Pine.
" sylvestris. Scottish Pine.
" pinea. Stone Pine.
" pinaster. Cluster Pine.

ABIES. Spruce.

Abies Canadensis. Hemlock Spruce.
" nigra. Double or Black Spruce.
" alba. White Spruce.
" excelsa. Norway Spruce.

PICEA. Fir.

Picea balsamifera. Balsam Fir.
" Fraseri. Double Balsam Fir.
" argentea. European Silver Fir.

CEDRUS. Cedar.

Cedrus Libani. Cedar of Lebanon.
" Deodora. Indian Cedar.

JUNIPERUS. Juniper.

Juniperus communis. Juniper.
" Virginiana. Red Cedar.
" sabina. Savin.

THUJA. Arbor-vitæ.

Thuja occidentalis. American Arbor-vitæ.
" orientalis. Chinese Arbor-vitæ.
" pendula.
" nepalensis.
" Tartarica. Tartarian Arbor-vitæ.

CUPRESSUS. Cypress. Cedar.

Cupressus thyoides. White Cedar.

TAXUS. Yew.

Taxus Canadensis. American Yew.
" baccata. English Yew.
" Hibernica. Irish Yew.

LARIX. Larch.

Larix Americana. Hackmatack.
" Europea. European Larch.

TAXODIUM DISTICHUM. American Cypress.

GINKO BILOBA. Salisbury Tree.

DECIDUOUS TREES.

CUPULIFERÆ.

QUERCUS. Oak.

Quercus alba. White Oak.
" bicolor. Swamp White Oak.
" castanea. Chestnut Oak.
" tinctoria. Black Oak.
" coccinea. Scarlet Oak.
" rubra. Red Oak.
" macrocarpa. Over-cup White Oak.
" virens. Live Oak.
" palustris. Pine Oak.
" prinus monticola. Rock Chestnut Oak.
" robur. English Royal Oak.
" cerris. Turkey Oak.
" suber. Cork Oak.
" Ilex. Holly Oak.

FAGUS. Beech.

Fagus sylvatica. European Beech.
" " var. Americana. American Beech.
" atropurpurea. Blood Beech.
" pendula. Drooping Beech.

CASTANEA. Chestnut.

Castanea vesca.

CORYLUS. Hazel.

Corylus Americana.
" Colurna. Constantinople Hazel.

CARPINUS. Hornbeam.

Carpinus Americana.
" Betulus.

OSTRYA. Hop Hornbeam.

Ostrya Virginica.

JUGLANDACEÆ.

JUGLANS. Walnut.

Juglans cinerea. Butternut.
" nigra. Black Walnut.
" regia. English Walnut.

CARYA. Hickory.

Carya alba. Shellbark Hickory.
" tomentosa. Mockernut Hickory.
" amara. Butternut Hickory.
" olivæformis. Pecan Nut.
" porcina. Pignut Hickory.

BETULACEÆ.

BETULA. Birch.

Betula lenta. Black Birch — Sweet Birch.
" excelsa. Yellow Birch.
" populifolia. White Birch.

Betula nigra. Red Birch.
" papyracea. Canoe Birch.
" alba. European White Birch.
" " pendula. Drooping Birch.

ALNUS. Alder.

Alnus serrulata. Common Black Alder.
" incana. Speckled Alder.
" glutinosa. Common Alder.
" laciniata. Cut-leaved Alder.

PLATANACEÆ.

PLATANUS. Plane-tree.

Platanus occidentalis. Buttonwood-tree (often called Sycamore tree.)
" orientalis. Oriental Plane-tree.

SALICINEÆ.

POPULUS. Poplar.

Populus grandidentata. Large Poplar.
" tremuloides. American Aspen.
" candicans. Balm of Gilead.
" Balsamifera. Balsam Poplar
" argentea. Cotton-tree.
" Canadensis. Cottonwood.
" angulata. Carolina Poplar.
" nigra. Black European Poplar.
" " dilatata. Lombardy Poplar.

SALIX. Willow.

Salix alba. White Willow.
" vitellina. Golden Willow.
" Babylonica. Weeping Willow.
" Russelliana. Bedford Willow.
" caprea. Flowering Willow.
" decipiens. Varnished Willow.
" cordata. Heart-leaved Willow.
" fragilis. Crack Willow.

ARTOCARPEÆ.

MORUS. Mulberry.

Morus alba. White Mulberry.
" nigra. Black European Mulberry.
" rubra. Red American Mulberry.

BROUSSONETIA. Paper Mulberry-tree.

Broussonetia papyrifera.

MACLURA. Osage Orange.

Maclura Aurantiaca.

ULMACEÆ.

ULMUS. Elm.

Ulmus Americana. White Elm.
" fulva. Slippery Elm.
" alata. Wahœ Elm.
" campestris. European Elm, English Elm.
" " virens. Kidbrook Elm.
" " suberosa. Cork-barked Elm.

Ulmus montana. Scottish Elm.
" " fastigiata. Spire-topped Elm.
" " pendula. Weeping Elm.

CELTIS. Nettle-tree.

Celtis Occidentalis. American Nettle-tree.
" crassifolia. Hackberry.

PLANERA ULMIFOLIA. Planer-tree.

Planera Richardii. Zelkowa-tree.

LIQUIDAMBAR. Sweet Gum.

Liquidambar Styraciflua.

SANTALACEÆ.

NYSSA. Pepperidge-tree, Tupelo. Sour Gum-tree.

Nyssa multiflora.
" grandidentulata. Large Tupelo.
" capitata. Sour Tupelo.

LAURINEÆ.

LAURUS Sassafras. (Sassafras Officinale) Sassafras-tree.

BENZOIN. Feverbush, Spicebush.

Benzoin odoriferum.

OLEACEÆ.

FRAXINUS. Ash.

Fraxinus acuminata. White Ash.

Fraxinus pubescens. Red Ash.
" sambucifolia. Black Ash.
" viridis. Green Ash.
" excelsior. European Ash.
" pendula. Weeping Ash.
" ornus. Flowering Ash.

AQUIFOLIACEÆ.

ILEX. Holly.

Ilex Opaca. American Holly.
" aquifolium. European Holly.

BIGNONIACEÆ.

CATALPA. Catalpa-tree.

Catalpa Syringifolia.

CORNACEÆ.

CORNUS. Cornel. Dogwood.

Cornus Alternifolia. Alternate-leaved Cornel.
" sericea. Silky Cornel.
" Florida. Flowering Dogwood.
" alba. Red Dogwood.
" mascula. Cornelian Cherry.

VIBURNEÆ.

VIBURNUM. Guelder Rose.

Viburnum lentago. Sweet Viburnum.
" dentatum. Arrow-wood.

Viburnum Opulus. Cranberry-tree.

" Lantana.

" Lantanoides. Hobble-bush.

Sambucus Canadensis. Common Elder.

Hamamelaceæ.

Hamamelis. Witch Hazel.

Hamamelis Virginica.

Rosaceæ.

Cratægus. Thorn.

Cratægus Coccinea. White Thorn.

" crus-galli. Cockspur Thorn.

" populifolia. Washington Thorn.

" oxyacantha. English Hawthorn.

Pyrus Communis. Pear.

Pyrus Malus. Apple.

" Americana. American Mountain Ash.

" aucuparia. European Mountain Ash.

" Sorbus. Sorb or Service-tree.

" Aria. White Beam.

Prunus. Plum.

Prunus Americana. Canada Plum. Yellow Plum.

" insititia. Bullace-tree.

" Padus.

AMELANCHIER CANADENSIS. Shop-bush.

" Pyracantha.

CERASUS. Cherry.

Cerasus Pennsylvanica. Northern Red Cherry.

" serotina. Black Cherry.

" sylvestris. European Wild Cherry.

EBENACEÆ.

DIOSPYROS. Persimmon-tree.

Dyospyros Virginiana.

LEGUMINOSÆ.

ROBINIA. Locust.

Robinia Pseudo-acacia. Common Locust.

" viscosa. Pink-flowering Locust.

" inermis.

GLEDITSCHIA. Honey Locust.

Gleditschia Triacanthos. Three-thorned Acacia.

" horrida or Sinesis. Chinese Gleditschia.

GYMNOCLADUS. Kentucky Coffee-tree.

Gymnocladus Canadensis.

VIRGILIA LUTEA. Yellow-wood, Virgilia-tree.

CERCIS. Judas-tree. Red-bud.

Cercis Canadensis. Canada Judas-tree.

" siliquastrum. European Judas-tree.

RHAMNACEÆ.

RHAMNUS. Buckthorn.

Rhamnus catharticus. Common Buckthorn.

" frangula.

CELASTRACEÆ.

STAPHYLEA. Bladder Nut.

Staphylea trifolia. Three-leaved Bladder Nut.

" pinnata.

ÆSCULACEÆ.

ÆSCULUS. Horse Chestnut.

Æsculus Hippocastanum. Horse Chestnut.

" rubicunda.

" glabra. Ohio Buckeye.

PAVIA RUBRA. Red Pavia.

Pavia lutea. Yellow Pavia.

ACERACEÆ.

ACER. Maple.

Acer rubrum. Red Maple.

" dasycarpum. White Maple.

" saccharinum. Sugar Maple. Rock Maple.

" striatum. Striped Maple.

" Negundo. Ash-leaved Maple.

" pseudo-platanus. Sycamore-tree

" platanoides. Norway Maple.

" campestre. European Field Maple.

" macrophyllum.

ANACARDIACEÆ.

RHUS. Sumach.

Rhus typhina. Stag's Horn Sumach.

" glabra. Smooth Sumach.

" cotinus. Smoke-tree.

XANTHOXYLACEÆ.

XANTHOXYLUM. Prickly Ash.

Xanthoxylum Americanum.

AILANTHUS GLANDULOSA. Tree of Heaven.

TILIACEÆ.

TILIA. Lime-tree. Linden-tree.

Tilia Americana. American Lime-tree.

" alba. White Lime-tree.

" pubescens. Downy Lime-tree.

" Europea. European Lime-tree.

MAGNOLIACEÆ.

LYRIODENDRON. Tulip-tree.

Lyriodendron tulipifera.

MAGNOLIA. Magnolia-tree.

Magnolia acuminata. Cucumber-tree.

" grandiflora. Evergreen Magnolia.

" tripetala. Umbrella Magnolia.

" macrophylla.

Magnolia cordata.

" purpurea.

SCROPHULARIACEÆ.

PAULOWNIA IMPERIALIS. Paulownia.

CLIMBING SHRUBS

GLYCINE FRUTESCENS.

Glycine Chinensis.

BIGNONIA (TECOMA) CRUCIGERA.

Bignonia grandiflora. Trumpet Flower.

" radicans.

HEDERA HELIX. Ivy.

Hedera quinquefolia.

ARISTOLOCHIA SIPHO. Birthworth. Dutchman's Pipe.

PERIPLOCA GRÆCA. Silk Vine.

LONICERA (CAPRIFOLIUM) PERYCLEMENUM. Woodbine.

Lonicera sempervirens. Evergreen Honeysuckle.

" flexuosum. Chinese Honeysuckle.

" flava. Yellow Honeysuckle.

" Belgica.

CLEMATIS. Virgin's Bower.

Clematis viticella.

" cœrulea.

" crispa

Clematis Florida.
" flammula.
" Seiboldii.

Amelopsis Hederacea. Virginia Creeper.

Menispermum Canadense. Canada Moonseed.

Celastrus Scandens. Climbing Staff-tree.

FINE-FLOWERING SHRUBBERY.

Amorpha Fruticosa.
Amorpha fragrans.
" glabra.

Amygdalus. Almond.
Amygdalus communis. Double.
" incana.

Aucuba Japonica. Japan Gold-dust-tree.

Berberis. Barberry.
Berberis vulgaris.
" atropurpurea.
" Chinensis.

Buxus. Box-tree.
Buxus sempervirens.

Calycanthus Ferax. Sweet-scented Shrub.
Calycanthus Florida.

Ceanothus Americana. Jersey Tea.

CEPHALANTHUS OCCIDENTALIS. Button-bush.

COLUTEA ARBORESCENS.

Colutea orientalis.

CORCHORUS JAPONICA.

CORIARIA MYRTIFOLIA.

COTONEASTER ACUMINATA.

Cotoneaster melanocarpa.

CYDONIA. Quince.

Cydonia Sinensis.

CYTISUS ALPINUS.

Cytisus Laburnum.

" purpureus.

DEUTZIA CANESCENS.

Deutzia scabra.

DIRCA PALUSTRIS. Leather-wood.

ELÆAGNUS ANGUSTIFOLIA. Bohemian Olive.

Elæagnus argentea.

EUONIMUS AMERICANA. Indian Arrow.

Euonimus Europæus.

" Japonicus.

GENISTA GERMANICA.

Genista tinctoria.

HYPPOPHÆ RHAMNOIDES.

HIBISCUS SYRIACUS.

HYDRANGEA ARBORESCENS

Hydrangea hortensis.

LIGUSTRUM VULGARE. Prim. Privet.

LONICERA TARTARICA. Tartarian Honeysuckle.

MYRICA GALE. Sweet Gale.

PHILADELPHUS CORONARIUS. Jasmin. Syringa.

Philadelphus cordifolius.

" grandiflorus.

PYRUS JAPONICA.

Pyrus indica.

" torminalis

" nivalis

RIBES ATROPURPUREUM. Currant.

Ribes aureum.

" palmatum.

" Gordonianum.

RUBUS FRUTICOSUS.

Rubus odoratus.

SOPHORA JAPONICA.

Sophora pendula.

SPIRÆA LANCEOLATA.

Spiræa corymbosa.

" rotundifolia.

Spiræa prunifolia.

" ulmifolia.

Symphoricarpus Mexicana. Snowberry.

Tamarix Gallica.

Tamarix Germanica.

Syringa Vulgaris. Lilac.

Syringa Chinensis.

" Persica.

SHRUBS REQUIRING PEAT OR BOG-EARTH.

Azalea Glauca.

Azalea nudiflora.

" pontica.

Andromeda Acuminata.

Andromeda polifolia.

Kalmia. American Laurel.

Kalmia latifolia.

" angustifolia.

" rubra.

" glauca.

Ledum. Labrador Tea.

Ledum latifolium.

" suaveolens.

Prinos. Winterberry.

Prinos glaber. Tackberry.

" verticillatus.

" lævigatus.

RHODODENDRON. Rose-bay.

Rhododendron ponticum.

" maximum. American Rose-bay

" viscosum.

" Caucasicum.

" macrocarpum.

PART II.

ORNAMENTAL IMPROVEMENTS.

CHAPTER XX.

IMPROVEMENTS.

Improvements of ground are of various kinds, according to the use intended to be made of the place to be improved. Thus the farmer "improves" his place by cutting down the growth of centuries, to make room for his fields of wheat and corn, and, to his eyes, a flourishing field of grain is an object for especial admiration.

The market-gardener delights in seeing high piles of manure — and a prosperous cabbage-patch is, to him, a fit subject upon which to expatiate. The cattle grazer dwells with pleasure upon immense tracts of pasture; and the city-bred land speculator views a tract of land only in reference to its eligibility for "building-sites."

The Landscape Gardener's view, however, partakes partly of all these, and his aim, in "improving," is to unite, as far as possible, three great requisites: *beauty*, *comfort*, and *profit*.

In his contemplated improvement, the proprietor has, of course, the choice between the different styles of laying out grounds; the ancient Geometrical style, and the more modern, called "Landscape Gardening." He may adopt either, but should never allow himself to make up a mixture of both styles, as he can do naught thereby but create confusion.

As before said, an improvement should be the result only of mature consideration, and its details, previous to execution, should be carefully examined in all their bearings upon, and relations to, the peculiarities of the grounds to be improved to the wishes of the proprietor; and last, but not least, to the amount of money he wishes to expend.

The professional Landscape Gardener, when consulted upon a contemplated improvement, must lay aside all individual prejudices in favor of this or that peculiarity. His business is to advance, as far as may be, the principles of true taste in his

art, and to apply these, as well as he can, to the wishes of the proprietor. He should not obstinately insist upon a particular Plan, but must remember that his plan must be made to fit to the ground — and not the ground to the plan.

The employer, on the other hand, should not be too ready to take advice of other persons. Different persons take different views of the same matter, each looking from his own narrow point of view. Almost any one can suggest an alteration, but only he who has studied the art, is able to lay out an improvement. Neither is it right that the employer should be too obstinately set upon the carrying out of his own wishes. It is plain that he who has made a subject the study of his lifetime, must know more about it than he who has scarcely given it a thought. Obstinacy in adhering to peculiar notions, is one of the greatest difficulties in the way of the "professional gardener."

Property may often be highly improved, and its cash value largely increased, at comparatively small expense, provided the improvements be carried into effect under the direction of a man of taste;

otherwise, it is highly probable that the most costly and elaborate operations will but excite disgust, after the first charm of novelty has worn off. There is, however, in this country, a tendency to lavish large sums of money on splendid mansions, while the grounds surrounding such are left in a wretched state of neglect. A man erects a dwelling at an expense of several thousand dollars, but thinks it an outrageous imposition if asked to lay out some hundreds in improving and ornamenting the surrounding grounds, setting out shade trees, etc. It is evident that this is wrong policy, and that both improvements should be carried on at the same time, and to the same extent, in order to maintain a harmony, without which there is no beauty.

But let the improvements be as costly, and as tastefully made, as may be, they will be of little use without proper keeping. It is a matter of much difficulty to make domestics and children keep everything in such perfect order and regularity as is necessary; and without perfect cleanliness and order, the choicest patterns will soon lose their impressive beauty, become indistinct, their

forms no longer strike the eye as beautiful, and soon all is confusion. It is necessary that the proprietor should keep a watchful eye over his household and dependents. Every breach against perfect order and cleanliness of keeping, should be strictly prevented. He should provide a place for everything, and should then see that everything is in its place, and nowhere else. The outhouses should be as conveniently situated as possible, and a regular and convenient drainage must be provided. It will be found universally true, that *the less trouble it is to be clean about a place, the cleaner it will be kept.* Let those interested bear this in mind.

In regard to outbuildings, it may be well to observe here, that when the style of architecture of the main buildings is peculiar, it has a fine effect to imitate it, to a certain extent, in the smaller outbuildings — keeping up thus a harmony or connection between the mansion and its dependencies, which never fails to catch the attention, and please the mind as a suitable harmony of parts.

CHAPTER XXI.

CITY LOTS.

If it were true, as many assert and believe, that a city building must, to be beautifully situated, be surrounded by a regular parterre or terrace, the Landscape Gardener would find no work in the cities, and his art would be confined to the country. But the same taste, which demands a stiff terrace, as the only thing in perfect harmony with the straight and angular house walls of the city, should, to be consistent, likewise clip and shear of their fair proportions, the shade trees planted on the streets, as they surely fail to harmonize with the appearance of the house. But no one thinks of asking that. The fact is, that parterres and terraces are often introduced by a false taste, or a lack of taste, in individuals, rather than from a necessity existing therefor. The eye which has

grown tired of a monotonous succession of houses, smoke and dust, will rest with delight upon a group, however small, tastefully, and above all, *naturally* disposed, among green turf. We are here pleased not so much by the actual beauty of the group, as by the pleasing contrast, or change from the monotonous succession of buildings, to a scene, seemingly cut out of a smiling Landscape. Who has not felt his breast filling with pleasurable sensations, as, after rambling for hours through the crowded streets of a city, he suddenly looks up and sees rising before him a lofty tree, spreading its huge branches over the surrounding dwellings? who has not, on a hot summer's day, stood beneath the shade of such a tree, and bared his brow to the breezes whose abodes seem ever to be among its branches — and who, on just such a day, has not hurried in disgust past the bare and sun-scorched terrace or parterre, enviously raised above the level of the common sidewalk?

Let us have as many Garden-spots in our cities as possible, for it is there they are most needed. Many of the little spaces for garden-spots are, to be sure, so small and confined that it would

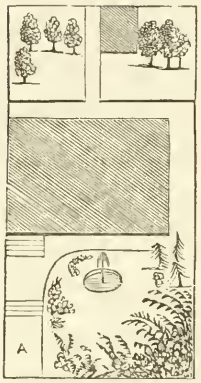
be a vain attempt to give to them any natural appearance. But in many others there is a chance where the gardener may produce just such a little natural scene, as would make an appropriate contrast to the masses of brick and mortar. Yet in nine cases out of ten, the ground is strictly leveled and terraced up, the plants stuck down in straight rows or circles, and we are called upon to admire the "improvement." It is in accordance, too, with this wretched taste, that the trees having the stiffest, most ungainly shapes, are most admired in cities. The finest specimens of the Pine or Fir, are pronounced shapeless, while the Red Cedar, the Arbor-vitæ, and the Juniper, when well trimmed, and looking like brushwood pyramids, are pronounced beautiful. Thus many little garden-spots in the city, and also in the country, show naught but straight rows and avenues of such trees, covering and concealing the most favorable aspects of the house. Where such exist, the best thing to do with the trees, is to place them in little groups at the corners of the house, where they will add somewhat to its appearance and importance. If the house is such that it is not desirable that its

front should be seen, it is better to conceal all defects by Climbers and running Roses.

To form a Natural scene before a house in the city, a due proportion must be kept up between the amount and hight of the plantation, and the size of the ground. If unnaturally crowded, they will not be fully supported by the ground, and if too sparse, the place will look bald and bare. Walks should be very highly finished, and should strike the eye by their neatness, and the correctness of their shape. None but the choicest and most beautiful Flowers and Shrubs should be admitted in such small Gardens as we find in cities, in order that they may make up in quality, what they must lack in quantity. Such flowers as the Magnolia Grandiflora, Rémontant and Bourbon Roses, and among Fine-flowering Shrubs, Spiræas, Pyrus Japonicas, Lilacs, and Honeysuckles, are suitable to embellish city garden-spots. (For further descriptions of Flowers and Shrubs, see under head of FLOWER-GARDEN.)

Fig. 1, represents a City-lot, of ordinary size. The house and back-building are easily distinguished, being of darker tint. The house is

Fig. 1.



supposed to stand elevated from the street. The entrance pavement, A, is divided into two equal platforms by a flight of steps. A pavement leads around the house, and terminates at the stable, in the rear of the lot. The two squares, in the back lot, are intended to be grass-plots. A few lofty trees may be planted in them, to afford shade and shelter to the building.

To improve the empty square in front of the building, two plans may be adopted. The one would be, to raise a terrace in the same manner as the entrance steps rise; thus dividing the ground into two platforms. On the upper platform a few straight-growing Evergreen sentinels might be planted, to hide the greater part of the house entirely from sight, when full grown; on the lower platform some pretty Bushes or Flowers may be set out, also, but by all means in a straight row. Adopting this plan, the proprietor follows the ordinary fashion, prevailing in so many of our city Gar-

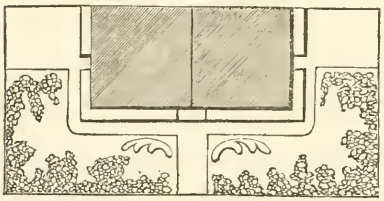
dens. The improvement will thus be justified, not by its tastefulness, but only as being a facsimile to the neighbors' lots.

The other, and, perhaps, more advisable plan would be, to grade the ground to a concave shape, gradually rising from the base of the fence to the level of the upper pavement; thus the square would appear to be a bit of naturally undulating ground, more liable to please the eye of taste. The ground-plan, Fig. 1, shows the shrubbery and flowers conveniently lodged in appropriate situations. A Fountain near the upper pavement, would be of good effect. Around the pond some of the choicest Flowers may find their places. A clump of Evergreens may, also, be placed before the corner of the house, to conceal the back road from view; a group of Shrubbery and Flowers could be planted around the two sides of the lot. The highest plants should be set near the fence — gradually diminishing in size. The margin of the group should be enlivened with the brightest flowers, drooping down on the velvet grass.

Arranged in such a manner, a city Garden, however small and cooped up, will form a pleasing

foreground to the building, whose front can be seen from the street, to the best advantage. By the belt of Shrubbery surrounding its open sides, it receives some degree of privacy, and the shrubs and flowers composing the group, are seen to best advantage from the front windows; care should, however, be taken to allow sufficient room for a verdant Grass-plot, always to be kept in the most polished style possible.

Fig. 2.



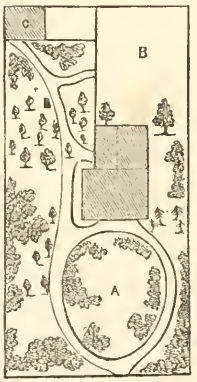
In Fig. 2, the ground-plan of a double house and double lot is easily recognized. The breadth of the main entrance walk, from the gate to the front-door, should have due proportion to the size and importance of the house; if the front side of the building is elegant, the main Walk should be broad and conspicuous also; if the building is a humble cottage, the main walk may be narrower.

From the main walk a Side-walk turns off to the side entrance of each house. A back lot is left to every house, in the rear of the lot. A

border of turf is between the house and the side-walks. The space for outward improvement being very limited, only a bed for smaller flowers on each side of the walk can be made. A belt of shrubbery may surround the limits of the lot, the taller shrubs being placed at the sides, to conceal the back lot of each house. The part fronting the street should be composed of smaller, fine-flowering Shrubs, and showy Flowers, which can thus conveniently be seen from the windows of the house. However narrow and small such a belt may be, it may be so arranged as to appear like a natural group, and not as a wreath, by boldly breaking its outlines.

In Fig. 3, a larger space of ground is offered for improvement. The dwelling is situated in the middle of the lot; in front, a lawn has been laid off; the rear of the lot is employed partly for a Kitchen-garden, and partly for the stable and back-buildings. Both kitchen-garden and stable are concealed from view, by groups of shrubbery, planted before them.

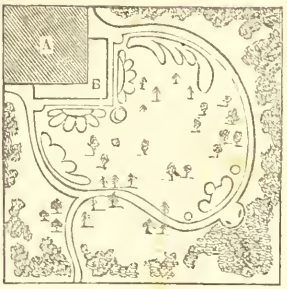
Fig. 3.



The drive, on the right-hand side, is the ingress carriage way, while the left-hand side-drive gives free access from the gate to the stable. The junction of both drives, at the corner of the building, will afford room enough for turning the carriages, without a circle before the house — often made for that purpose. The groups situated on the front lawn should be made up with the choicest of Shrubbery and Flowers; the highest plants being placed in the middle of the group, gradually coming down till the smaller flowers close its margin. A belt of higher Shrubbery is planted around the limits of the lot, to give privacy to its interior. Some fine specimens of trees or shrubs may occasionally be placed before the groups, near to the walk, where they may be seen to the best advantage.

A group of Evergreens, at the corner of the building, as shown in figure 3, will appear to good advantage. In the border surrounding the other side of the house, Climbing plants may be planted, to be trained on the wall, and to shade the porch, on the back part of the building. A numerous collection of plants can be cultivated in a small garden, as shown in this figure.

Fig. 4.



The design represented in this figure, might conveniently be executed on a square block in a city, to suit the wishes of an amateur of Flowers. The dwelling, A, is situated in one corner of the square; a conservatory, B, is built adjoining the house.

The ground is laid out in the ordinary flower-garden style, having various regular Flower-beds, in which a rich collection of flowers is to be cultivated. Being situated between four public streets, it will be necessary to surround the Garden with a dense *belt* of shrubbery and trees. This belt may be composed of various families of trees and shrubs, arranged in such a manner as to produce a pleasing variety of masses of foliage, differing in hight, shape and tints.

A Walk affords a free circulation through the ground, striking, in its course through the lawn, a shady Bower, surrounded by the shrubbery of the belt; it terminates at a back gate of the Garden. The various kinds of flowers are arranged on the

beds according to their families or colors, each section of the bed consisting of but one family or color.

Fine specimens of Evergreens and deciduous Shrubs are growing on the lawn, where they may be seen to most advantage, and have sufficient room to attain their full size and beauty. The Gardenesque Style, mentioned on a former page, will find its suitableness to such gardens.

CHAPTER XXII.

THE PLEASURE-GROUND,

Is the name given to that part of the grounds more immediately surrounding the mansion or dwelling. Coming more directly and constantly under the eye of the inhabitants and visitors, it is necessary that this part should receive an especial degree of culture and ornamentation, and that more than common attention should be paid to its after keeping.

On places of small extent, the most appropriate place for the Pleasure-Ground, and that where it is usually found, is in front of the house, generally, on such places as are most open to public view. In such cases, the back parts are devoted to the Fruit and Vegetable-gardens. On places of greater extent, and where the grounds adjoining the mansion are immediately connected with park or forest scenery, it is necessary to have a barrier

of some kind to keep cattle out of the Pleasure-Ground. A sunk fence, or one of wire, not too heavily constructed, and painted green, will be most suitable for this purpose, as being least obtrusive to the eye, and therefore presenting less obstruction to an extended and unbroken view.

On the Pleasure-Ground, the gardener lavishes his choicest treasures of trees, flowers and shrubbery, making use of the most pleasing and tasteful forms in their arrangement. To the ornaments afforded him by nature, he may here also add, without impropriety, Statues, Fountains, Vases, and other works of art, suitable to place among garden scenery. A graceful and correct, and above all, harmonious disposition of the different parts, in their bearings to each other, and to the dwelling they surround and ornament, is then only necessary to create a pleasing and perfect picture.

In laying out the Pleasure-Grounds, the gardener or proprietor may use as he wishes, the plain and natural Landscape style, or the more intricate, but often no less pleasing Geometrical style. But, whatever mode is adopted, it should be in keeping with the building whose surrounding it is

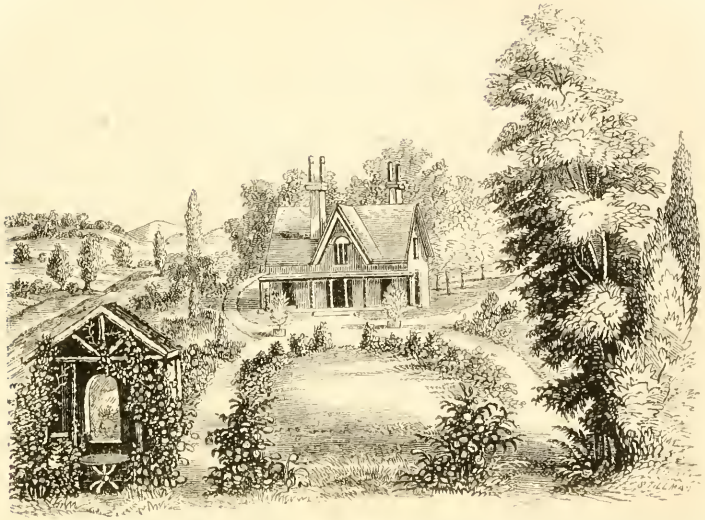
intended to embellish, and above all, the entire work should be consistent. One style should be chosen, and adhered to throughout. Nothing looks so poor and tasteless, as a mixture of the styles. Thus, it is ridiculous to see parterres, and laboriously constructed geometrical flower-beds, placed in the midst of a Lawn, or to see walks, in one place straight and stiff, in another, easy and flowing; or Plantation, here disposed in regular shapes, shaven and trimmed, in another place growing in irregular, naturally-shaped groups or masses. Such a confounding of styles is a grave error, but too often met with in this country.

In calculating the expenses connected with a Pleasure-Ground, it must be borne in mind that *keeping* is as important a matter, as laying out. The more tasteful and elaborate the design, the greater will also be the trouble and expense of keeping, and as cleanliness and order are the two chief requisites to beauty in gardening, it is well to think of this, in this country, where comparatively few working gardeners are kept. If the improver has not leisure or means to spare to have an elaborately-laid-out Pleasure-Ground kept

in perfect order and neatness, he will do much better to choose a style of embellishment which, though perhaps more simple, and to his taste less beautiful, he will eventually find much more pleasing, because easier to keep in order. In this country, where labor is very dear, every design, however beautiful or tasteful, must recommend itself chiefly by the comparative ease with which it may be kept; else, if carried out, as soon as it loses the charm of novelty, it will become a tiresome, costly burden, which will eventually only excite the disgust of the proprietor. Many a pleasure-ground, laid out in a costly and fanciful manner, we have seen changed into a simple lawn, whose smooth and pleasant turf gave much more pleasure than had the intricate and laboriously-arranged flower-beds and parterres. The improver should therefore aim to produce in his Pleasure-Ground, such features of Natural scenery as, while sufficiently showing the hand of art, will yet require but little care or attention. Such are groups and masses of lofty trees, which will, with comparatively little expense, grow up, and improve from year to year in beauty and shade. There is, to our taste, much

greater beauty in a verdant Lawn, enriched by masses and groups of flowers, and diversified by noble trees and shrubs, in whose shade rustic seats and benches may invite to rest and repose, than in all the fanciful gimcracks, and *pretty* things, that some gardeners have in common with the confectioner, and which are assuredly more in place when decorating a cake, than when embellishing a pleasure-ground.

The Pleasure-Ground should possess, if possible, charms for all seasons of the year. The flowers, shrubs and trees which bloom and bud earliest in Spring, should be placed nearest the house, in order to extend to its inhabitants as early as possible, the cheering influences of Spring. The finest masses of flowers and shrubbery should always be placed where they may show to best advantage from the windows. To enliven the scenery in winter, Evergreens should be provided; these also add much to the beauty and comfort of the place in summer. They should not, however, surround the house at regular distances, like sentinels. Grouped in natural forms, at the sides of the house, they will create a fine effect; and when the dwelling



THE PLEASURE GROUND.

Where this is done, sufficient room must be allowed for outside views, while unsightly objects are, as much as possible, concealed; thus, the mud of the street may be hid from sight by plantations of Roses, Jasmines, etc., as these would not conceal from us the movements of passing objects.

The Kitchen-garden and Orchard should be surrounded by Plantation; and all buildings belonging to these departments, as the fruit and dry houses, in the orchard, and the hotbeds, pits and greenhouses, in the Kitchen-garden, should be placed near them. The Kitchen-garden should be, if possible, near the stables, for convenience in obtaining manure. Greenhouses, where built in a tasteful style of architecture, and thus assuming the character of conservatories, may properly make part of the embellishments of the Pleasure-Ground. But where they consist simply of square walls, with an ugly, slanting glass roof, they can not be admitted to form part of elegant scenery. Proprietors, sometimes, spend considerable sums of money in the erection and furnishing of a greenhouse, and of course have a great desire to give it a conspicuous position on their grounds, not for any beauty they

might fancy such an object to possess, but simply to make evident to the passing world, that they are rich enough to afford a luxury of that kind. We need not say, that this is not an evidence of taste. Many gardeners, too, of more experience in growing plants and cultivating vegetables, than taste in laying out grounds, naturally give an undue importance to the "greenhouse," which has been the scene of their most extensive operations. And so the ignorance of the gardener combines with the vanity of the proprietor, in destroying the harmony and beauty which should be the main points in a Pleasure-Ground.

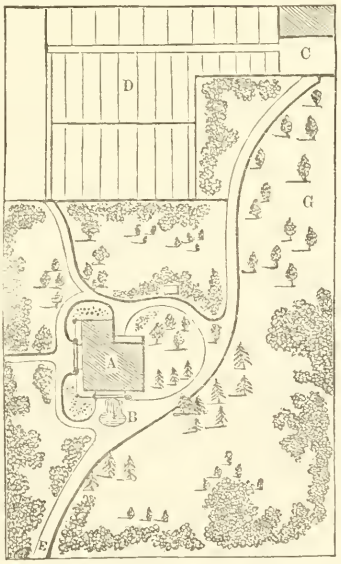
Where the distance from the dwelling to the highway or street is insufficient to admit of a winding approach, a straight road from the gate to the front door, with, if needed, a circle, for a turn for carriages, is the simplest way. To construct this, no gardener is needed, as any common day-laborer can do it as well, and cheaper.

Where a gardener is employed to do a plain job of this kind, if a man of little taste, as but too often happens, he invariably thinks it necessary to introduce some little fanciful additions of

his own, by the aid of which he generally succeeds, if permitted, in spoiling the whole work. Where simplicity is attempted, it should be duly carried out; where intricacy is desired, it can be had; but a grafting of one upon the other will never succeed.

In Figure 5, the house is situated between groups of flowers and shrubbery. The foot entrance of the Garden is from one street directly fronting the ground. The carriage-way is from the lower street; it passes on from the gate to the front of the house, and from there to the stables, situated on the back part of the premises. Behind the house, the outhouses are situated, in a group of Shrubbery.

Fig. 5.



A, House; B, Fountain; C, Stable-yard; D, Kitchen-garden; E, Carriage-entrance; F, Foot-entrance; G, Orchard.

A group of shade-trees is planted at the back corner of the house. A belt of trees and shrubs conceals the boundary fence of the front place.

The Vegetable-garden is placed back of the house, joining the stable-yard, and surrounded by a belt of Shrubbery. The walk leading to the Kitchen-garden, passes through a group of lofty trees, which afford shade to the house.

Two groups of Flowers are in front of the house; also a group of flowers on each side of the house.

Passing the house, the approach road enters a group of Evergreens, on its way to the stable-yard; fruit-trees are planted in the lawn.

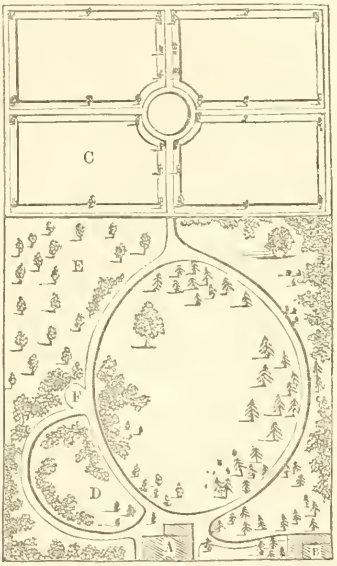
The margin of the belt surrounding the front Garden, should be composed of flowering Shrubbery and Flowers, united in bold, conspicuous masses; before some of the most prominent parts of the groups single, choice specimen-plants may be set between the grass, as shown in figure 5.

A Plan, as shown in figure 5, is easily accommodated to a place of one to three acres extent.

In Fig. 6, the Ground-plan of a Pleasure-Ground and Kitchen-garden is represented.

The house and stable are fronting the highway. On both sides of the house, an entrance is allowed. One part of the Pleasure-Ground represents a scene of evergreens; the other of groups of Shrubbery and Flowers.

Fig. 6.



A, House; B, Stable; C, Kitchen-garden; D, Flower-lawn; E, Orchard; F, Pavilion.

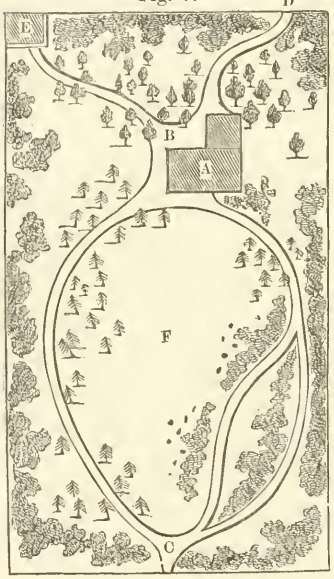
In F, a pavilion will find a convenient place. In E, the orchard is situated. The trees are not planted in straight rows, but must form a Grove. A few giant forest trees are seen on the lawn.

The Vegetable-garden is laid off in four squares, having a circular flower-bed in its center. Every square is surrounded by a border of Flowers — pyramid fruit-trees stand at equal distances.

A Plan, as shown in this figure, is well adapted to a place of two or three acres.

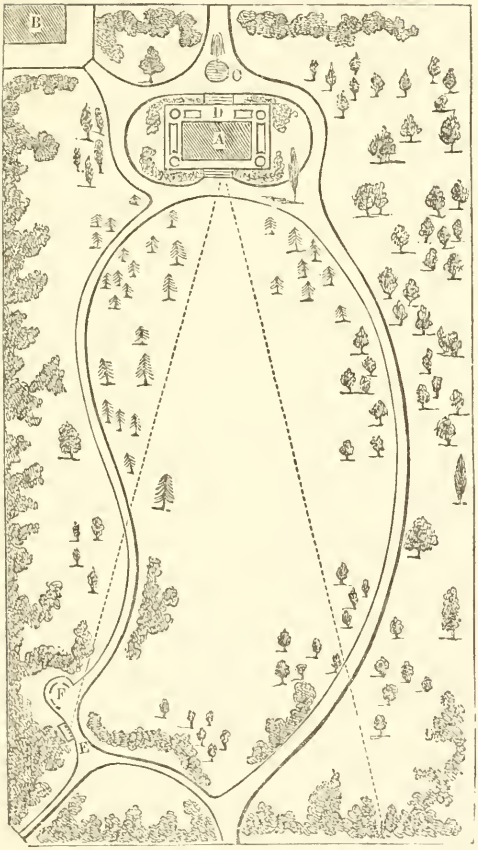
Fig. 7. The house is surrounded by a grove of Forest trees; the Carriage-road turns from the gate to the left; at the right, the ground is falling, making an *approach* road impossible. There are three leading scenes to be remarked in this Plan: The Grove surrounding the house; the Evergreen drive, from the gate to the house; and the Foot-entrance walk, which winds through a mass of shrubbery and flowers. The belt which is to hide the fence, may be composed of taller trees and shrubs, in those places where no outside View is wished. In other places, where *distant* views are desirable, smaller shrubs are selected. The Evergreens are grouped together to show to best effect. The Shrubbery and Flowers, on the opposite side,

Fig. 7.



A, House; B, Grove of Forest trees; C, Front-entrance; D, Back-entrance; E, Stable; F, Front lawn.

Fig. 8.



A. House.
B, Stable.
C, Fountain.
D, Terrace.
E, Temple.
F, Seats.

have to be grouped closely, so as to conceal the presence of two walks, when passing in one.

Fig. 8. The house is situated on a terrace, surrounded by a parterre, with flower-beds ornamented with Vases and Statues. Before the house, a large front lawn extends to the gate. The Carriage-road passes through a grove of lofty forest trees, which are worthy to be preserved.

The upper part of the front lawn is ornamented with Evergreens which are grouped in masses. The Foot-entrance gate is in one corner of the place. The Walk passes a *temple* or *pavilion*, and resting-place, with seats shaded by the surrounding belt. Before the pavilion a group of Shrubbery is planted, to which masses of showy Flowers are joined, which will be favorably seen from the terrace.

The dotted straight lines, are to show the finest Views enjoyed from the house, the one being directed to the pavilion, the other to the distance, in the surrounding country. The Stable-yard is concealed from view by a belt of shrubbery; being near the main building, the outhouses may be built near the stable.

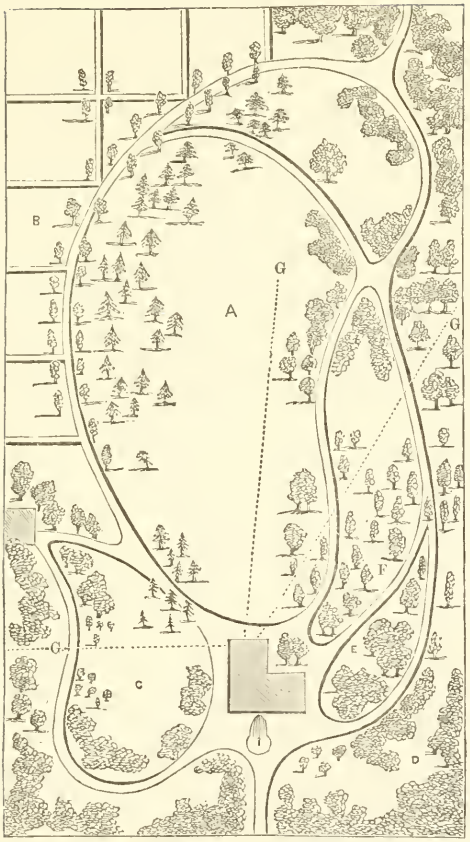
The walls of the terrace are covered with Climbing plants, planted in the four smaller groups. The outside belt, planted in some places, is necessary to give privacy to the place.

Fig. 9. In this Ground-plan it is attempted to show three different scenes; the first, is in front of the mansion, being composed of groups of choice trees, fine-flowering Shrubbery, and an abundance of Flowers; the second is a mass of Evergreens, screening the Vegetable-garden; the third is composed of lofty primitive forest trees, to which some dense groups of trees and undergrowth have been added, to conceal the junction of the walks.

The Vegetable-garden is conveniently situated on one side of the place; the walk leading to it has a row of fruit-trees on each side. The Views to the distant country are shown by three dotted lines. The stable is surrounded with trees and shrubbery.

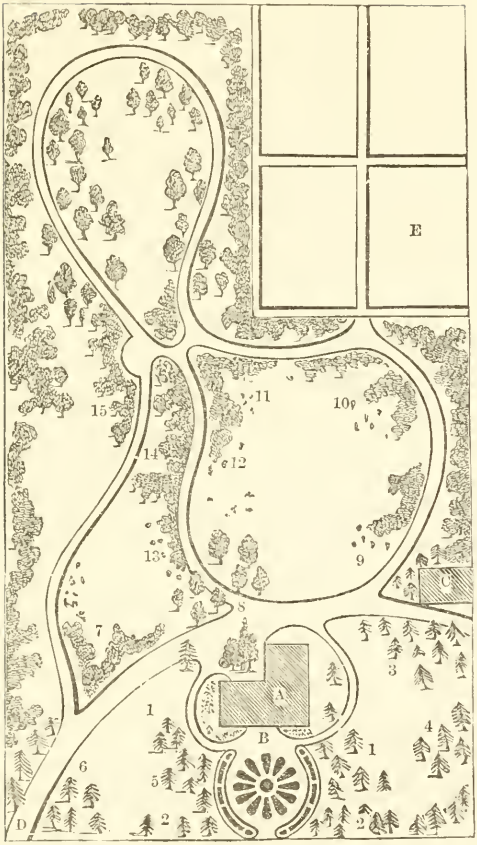
The groups in the front part of the place are made up with fine-flowering Shrubbery and Flowers, and contrasted by trees between them. The main entrance is in front of the house, opposite the fountain.

Fig. 9.



A, Main Lawn.
B, Vegetable Garden.
C, Flower Lawn.
D, Groups of fine flowering Shrubbery.
E, A dense group of Shrubbery, in which the Outhouses may be concealed.
F, Grove of Forest Trees.
G, Views to the distant country.

Fig. 10.



A, House.
B, Parterre.
C, Stable.
D, Carriage-entrance.
E, Kitchen-garden.
1, Norway Spruce. White Spruce.
2, White Pines and Arbor-vitæ.
3, Red Cedars. Hemlock Spruce in front.
4, Balsam Fir and Picea Fraserii.
5, Austrian Pine. Yew.
6, Larches.
7, Cratægus. Almonds in front.
8, Group of Maples. Catalpa.

Fig. 10. This Plan is to represent two leading scenes; the one this side of the main carriage-road, is made up of a rich collection of Evergreens; a Parterre of Flowers is in front of the house. The other is composed of *deciduous* Trees, Shrubs, and Flowers. The various walks meet in a thicket of trees and undergrowth, through which no second walk should be visible.

A grove of Forest Trees stands in the back part of the ground: the Kitchen-garden is concealed by a belt of plantation.

The *trees* to make up the Grove may be selected from the families of the Maples, Poplars, Ash, Elm, etc. The groups composing the *belt* may have higher trees, and undergrowths of Redbud, Dogwood, Hornbeam, etc. The Parterre, in front of the house, should contain a rich supply of Bulbous plants for spring flowers and greenhouse plants, as Verbenas, Heliotropes, Salvias, etc., for fall flowers.

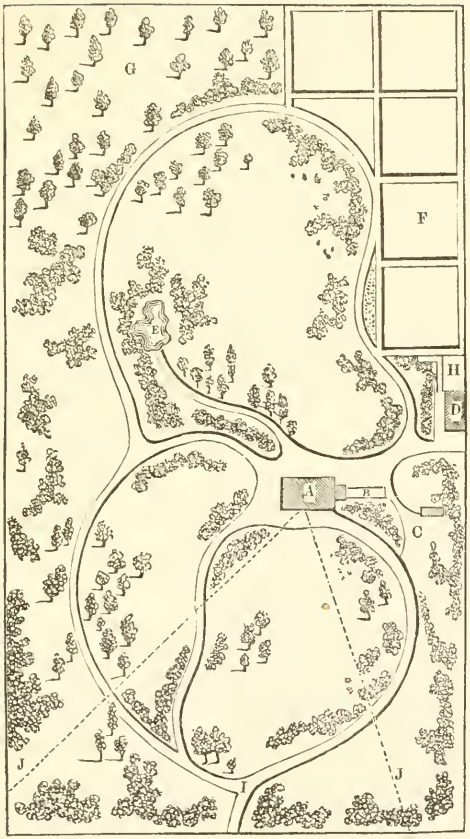
SEE FIG. 10.

9, Roses. Verbenas in front.
10, Mass of Roses. Pæonias. Petunias.
11, Jasmines. Deuzia. Salvia.
12. Tree Pæonias.
13, Hyppophæ. Bohemian Olive.
14, Lilacs. Snowballs.
15, Lonicera. Sophora.

The ground represented in Figure 11, might naturally be divided into two Lawns, extending on each side of the house. The Front-lawn is ornamented with the choicest Trees, Shrubs and Flowers; the back part, with the Pond, has more of the picturesque.

The shores of the Pond should be made with Rockwork, and planted out with Rhododendrons, Kalmias, Ferns, etc.; the belt, surrounding the pond, should be composed of higher trees, to shade the plants around the pond. A Summer-house or pavilion may be placed near the pond, under the shade of the belt. Several clumps of trees are planted on one side of the pond; they should be composed of different kinds of trees, to contrast, in shape and size, with one another. The Vegetable-garden should be concealed from view by dense masses of Shrubbery. The poultry-yard is surrounded by a wire fence, and groups of shrubbery. Each group should be made up of one family of plants — the Gardenesque style being adopted.

Fig. 11.



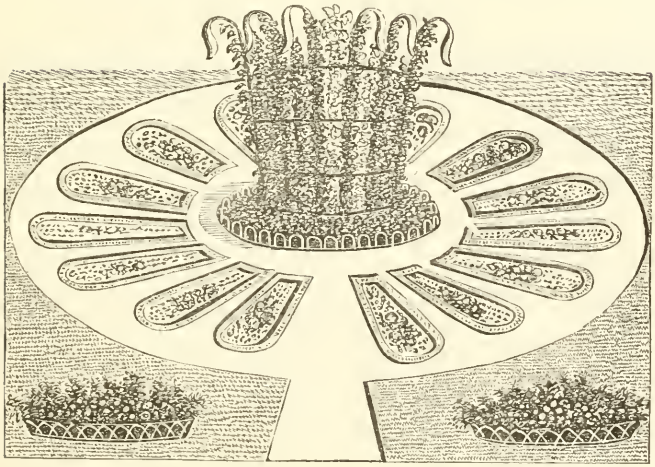
A, Dwelling.
B, Conservatory.
C, Poultry-yard.
D, Stable.
E, Pond.
F, Kitchen-garden.
G, Orchard.
H, Out-houses.
I, Carriage-road.
J, Distant Views.

CHAPTER XXIII.

THE FLOWER-GARDEN.

In introducing Flowers among garden scenery, we may arrange and place them in *two* distinct

Fig. 12.



A Parterre of Flowers; to be placed in front of the house or conservatory. The center is iron trellis-work, overrun with Climbing plants. In its place a Fountain may be adopted, and would be of good effect.

styles, either or both of which may be adopted, according to the style or peculiar advantages of the place to be ornamented.

By the Landscape-Gardener they are distributed in suitable places, among the natural scenery, and there help to enliven and diversify it. The disposition made of Flowers, by the Landscape Gardener, it has been attempted to explain by the *plans* and *directions* for Pleasure-grounds, in a preceding part of this work. We therefore come now, naturally, to the other style, where Flowers are arranged in a spot or place, set apart especially for their cultivation — as the Flower-Garden, or the Parterre. In the disposition of flowers, here, the fancy or peculiar taste of the gardener or improver has much wider sway, nevertheless, he must allow himself to be guided by principles of harmony and congruity, or general fitness.

The PARTERRE, placed, as it is, in front of the mansion, or the conservatory, should partake, as much as possible, of the character of the buildings to which it belongs, rather than to the surrounding scenery. The Parterre may, and indeed should be, ornamented with Fountains, Statues,

Vases, and other artistic embellishments, in keeping with the style of the mansion, which will add to the elegance of its appearance. Its keeping should always be above reproach, for cleanliness and neatness. It must be laid out in symmetrical and pleasing figures, such as may suggest themselves to the imagination of the improver or gardener. The lines in these figures should be very carefully and distinctly cut, and their regularity and symmetry of shape strictly preserved. None but the choicest flowers and shrubs are admitted into the Parterre, which is, indeed, the place where the proprietor may be appropriately lavish of expense, in procuring and introducing all that will tend to add to richness of appearance.

A Parterre is peculiarly suitable, where a mansion is built upon a terrace. Indeed, in such a situation, nothing else does so well. When the dwelling, however, stands on a level with the surrounding scenery, the introduction of a Parterre, in place of Natural scenery, is a question of individual taste, ruled, however, in some degree, by the style of architecture of the house.

The FLOWER-GARDEN, of greater extent than the

parterre, partakes, however, greatly of its character. It should be situated conveniently near the house, and surrounded by a belt of Shrubbery.

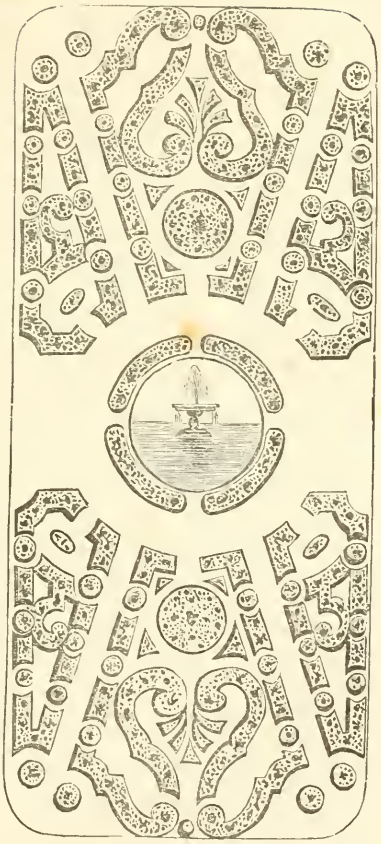
Where a conservatory or greenhouse is kept, and this joins the house, the Flower-Garden may appropriately join that. Many different Styles are adopted in laying out Flower-Gardens. A regular, *geometrical* design is often adopted, the beds being, by that means, regularly divided by walks, which renders access to them easy. The *irregular* method produces meandering walks, and beds of no regularity of shape or size. A third, and rather favorite mode, is to lay out the various beds in such shape as fancy or taste may suggest, in a smooth, well-dressed lawn. Beside these Flower-beds, specimens of fine Shrubs and smaller trees may be placed irregularly upon the lawn, and will there make a fine appearance. Many pleasing designs for the Flower-Garden may be formed of Rockwork.

Flower-Gardens should be ornamented also with Statues, Vases, Seats, etc. Fountains and Pavilions also have a fine effect. The various species and varieties of Flowers should be collected in masses, each Flower-bed having its own family, species, or

even its own color. To mix the different kinds of Flowers indiscriminately, in all the beds, will be productive of naught but confusion.

The skillful gardener can produce harmony and great variety, by following the same principle here, that he would adopt when grouping his trees and shrubs, to create a Natural scenery. The endless variety of shape, color and hight of the plants, as well as the difference in their seasons for blooming, must be taken into consider-

Fig. 13.



A Flower-Garden, in the regular Geometrical style. This design would also be well adapted for a Parterre, in front of an elegant building. The numerous Flower-beds are surrounded with turf. The edges of the main walks might be of Box-tree.

ation, and it is best to bring those kinds near each other, which, by their peculiar character, will either create harmony or contrast. The *Gardenesque* Style, which has already been mentioned, finds its greatest appropriateness in the arrangement of Flower-Gardens. In adapting it to this use, however, a very extensive and rich collection of Flowers and Shrubs is necessary.

The Flower-Garden, if rightly laid out and kept, will prove an unfailing source of pleasure to the proprietor and the various members of his family. In it they will see and study the most beautiful exemplifications of Nature's wonderful works. Kept as it should be, however, the care and keeping required to bring out and perfect a constant succession of flowers, will be found to be tolerably expensive.

CHAPTER XXIV.

CULTURE OF FLOWERS.

No success need be expected in the cultivation of Flowers, if the soil in which they are to grow, be not of such quality as the plants require. The most genial soil — that best fitted for all flowers — is a rich loam, composed in part of sand, to make it dry and loose. Dryness, looseness, and a sufficient depth to enable it to resist the droughts of summer, are the three principal requisites for the soil of a Flower-garden. None but well-rotted manure should be applied to Flower-beds. A supply of the ingredients used in the composition of the ground of Flower-beds, should be always near at hand, for the use of the gardener.

The ground should be carefully spaded in spring or fall. During summer, the plants must be kept clear of weeds and the surface of the Flower-bed

should be repeatedly hoed and stirred up. In the dryest parts of summer, the tenderest Flowers should be regularly watered.

The various Families and Species of Plants generally grown in Flower-gardens may, according to their culture, be classed under *three* different heads:

1. ANNUALS.
2. BIENNIALS and PERENNIALS.
3. GREENHOUSE PLANTS, which are planted out in the Garden during summer.

Annuals.— The Annuals are sown in spring, and flower and decay the same season. It is well to sow some kinds in the hotbed, in early spring, which are to be transplanted, afterward, into the Garden. Others may be sown in March and April in the Garden, in the beds where they are desired to flourish. It is well to cover the seed with fine leaf-mould, when sown in the Garden.

ANNUALS,

BEST ADAPTED FOR SOWING IN A HOT-BED.*

Ageratum Mexicanum. Blue Flowering Ageratum.
Asclepias curassavica. Orange Swallowwort.
Aster Chinensis. China Aster. Queen Margaret.

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* Buist. "American Flower-Garden Directory."

Anagallis Phillipsii. Blue Pimpernel.

Balsamina hortensis. Balsam. Ladies' Slipper.

Browallia alata. Blue and white Browallia.

Caccalia coccinea. Scarlet Cacalia. Venus' Paint-brush.

" sonchifolia. Orange Cacalia.

Calandrinia discolor.

Celosia cristata. Coxcomb.

Centaurea Americana. American Sultan.

" suaveolens. Yellow Sweet Sultan.

Clarkia elegans. Elegant rose-colored Clarkia.

" pulchella. Purple Clarkia.

Cleome grandiflora. Lilac Spider-plant.

Clintonia elegans. Elegant blue Clintonia.

Collinsia bicolor. Two-colored Collinsia.

" heterophylla. Lilac and white.

Commelina cœlestis. Blue Flowering Commeline.

Dianthus Chinensis. China Pink.

Gomphrena globosa. Globe Amaranth. Bachelor's Button.

Hibiscus manihot. Yellow Hibiscus.

" Africanus major.

Helichrysum bracteatum. Yellow Everlasting.

Xeranthemum lucidum. " "

Lophospermum erubescens. Climber.

" scandens. "

Loasa latericia. Orange Red. "

Malope alba and grandiflora.

Mathiola annua. Ten weeks' Stock.

Maurandia Barklayana. Blue Flowering Climber.

Maurandia semperflorens. Pink Flowering Climber.

Mesembrianthemum glaciale. Frozen Plant.

" crystallinum. Ice Plant.

Mimosa pudica. Sensitive Plant.

Mimulus Wheeleri. Monkey Flower.

" Smithii.

" variegatus.

" cardinalis.

" roseus. The Mimulus grows best in wet places.

Petunia. An endless variety.

Portulaca splendens. Purple Purslane.

" Thellusonii. Red Purslane.

Scabiosa atropurpurea.

Schizanthus retusus and pinnatus.

Shortia Californica. Yellow Shortia.

Tagetes. Marygold.

Tropæolum atrosanguineum. Nasturtium.

Thunbergia alata. Climber.

" alba. "

" curantiaca. "

Verbena candidissima. White.

" Mestonii. Scarlet.

" Algerii. Rose, and other varieties.

Vinca rosea. Madagascar Periwinkle.

" alba. White Periwinkle.

Zinnia elegans.

" coccinea.

" alba.

ANNUALS,

WHICH ARE BEST SOWN IN THE GARDEN.

Adonis moniata. Pheasant's Eye.

Amaranthus caudatus.

" hypochondriacus. Prince's Feather.

" tricolor. Three-colored.

Brugmansia Wagmeria.

Centaurea Moschata.

" cretica.

Collinsia grandiflora. Blue Collins-flower.

Convolvulus minor. Blue Bind-weed.

Calliopsis bicolor. Fair Eye.

Collomia coccinea. Scarlet Flowered Collomia.

Delphinium Ajacis. Rocket Larkspur.

" consolida. Branching Larkspur

Euphorbia variegata.

Eschscholtzia crocea. Orange.

" Californica. Yellow.

Erysimum Peroffskyanum.

Gilia tricolor. Blooming all Summer.

capitata. " "

Achillæfolia. " "

Heliophila Araboides. Blue Sunlove.

Hieraceum mutabilis. Changeable Hawkweed.

Helianthus Californicus. Dwarf Sunflower.

Iberis amara. Candytuft.

" umbellata.

Iberis violacea.

" odorata.

" splendens.

Ipomæa quamoclit. Cypress Vine.

Lathyrus odoratus. Sweet Pea.

Loasa lateritia.

Lupinus. Many varieties.

Mirabilis Jalapa. Marvel of Peru.

Nemophila insignis and atomaria.

Œnothera. Tree Primrose.

Papaver Marseillii. Double white Poppy.

Reseda odorata. Mignonette.

Tournefortia heliotropoides. Summer Heliotrope.

Viola tricolor. Pansy

THE BIENNIALS AND PERENNIALS,

ARE sown early in Spring, but do not flower until the second year. The Biennials decay after flowering. The Perennials, once well established in the ground, remain for many years, flowering every year. The roots, taken up in the Fall or Spring, can be divided; the plants being thus easily propagated. They should be largely used in the Flower Garden, being of great beauty, and requiring but little attention.

We shall name a few of the choicest kinds.

Agrostemma coronaria. Rose Campion.

Adonis vernalis. Yellow Adonis.

Althœa rosea. Hollyhock. An endless variety of colors.

Aconitum. Wolfsbane. A great many different species are cultivated in Gardens. Aconitum album, A. bicolor, A. Napellus, A. ochroleucum, A. lycoctonum, A. versicolor, A. sinense (Seiboldii), are very desirable kinds.

Anemone. Windflower. In Europe this genus of Flowers is highly esteemed; in this country it does not flourish, owing to the heat of the climate.

Antirrhinum. Snapdragon. There are many varieties, of different colors; the latest of which in the market, are of great beauty. They are either perennial or biennial.

Aquilegia Canadensis, A. glandulosa, A. leptoceras, and others.

Alyssum maritimum, Alyssum saxatile.

Aster. Perennial Aster, Aster amelloides, A. bicolor, A. formosus, A. grandiflorus, A. Novæ-Angliæ, A Virginicus, and many other species.

Asclepias. Many of the finest kinds are native plants of America. Asclepias incarnata, A. nivea, A. tuberosa, are worthy a place in the Garden.

Bellis perennis (hortensis). Daisy. There are many double and very large and beautiful varieties. They require a shady, retired situation.

Caltha palustris. Flore pleno. A well known, desirable border plant.

Campanula. Contains many brilliant species: well adapted for Gardens. Campanula grandiflora, C. Alpina, C. grandis, C. glomerata plena, C. persicifolia, alba plena, and cœrulea plena, C. urticæfolia, and others. Campanula media, and its varieties, are biennial.

Chrysanthemum indicum. Winter Aster. Has an almost endless variety of size, color and shape. There are many new varieties of remarkable beauty.

Chelone. (Native of America.) C. barbata, C. pulchella, C. Mexicana, and others.

Cheiranthus Cheri. The Garden Wallflower. There are many fine varieties; they are not hardy, and therefore require protection in Winter. Biennial.

Convallaria majalis. The red and double varieties are of peculiar beauty.

Coreopsis delphinifolia, C. grandiflora, C. tenuifolia, C. tripteris.

Corydalis nobilis, C. spectabilis, C. formosa.

Dictamnus fraxinella, D. albus.

Dracocephalum Louisianum, D. superbum, D. grandiflorum.

Dianthus. Pink. Dianthus Barbatus, Sweet William, many superb varieties exist of this species: D. plumarius, Double Pink, many varieties; D. cariophyllus; from this species the Carnation Pink and Picotée have been obtained; D. Alpinus, D. for-

mosus plena, D. grandiflorus, D. superbus, D. atropurpureus, and others.

Delphinium. Larkspur. D. grandiflorum, D. bicolor plena, D. sinense, and its varieties, D. hybridum, D. siboricum plena, etc. They are very showy border-plants.

Digitalis. Foxglove. D. purpurea, and varieties, are the best.

Dodecatheon. Cowslip. D. media, D. elegans, D. gigantea striata.

Galardia picta. G. aristata.

Gentiana acaulis, G. macrophylla, G. asclepiadea, G. ochroleuca, etc. Very showy plants.

Geum coccineum, G. Japonicum.

Glycine Apios.

Hibiscus palustris, H. roseus, H. grandiflorus, etc.

Gypsophylla paniculata. G. repens, G. saxifraga.

Iris. Fleur-de-lis. I. arenaria, I. Apollon, I. Germanica, I. cristata, I. longiflora, I. pumila, and its varieties.

Linum perenne, Linum flavum.

Lychnis Alpina, L. chalcedonica, and varieties, L. coronata, L. Flos-cuculi, L. fulgens.

Lythrum roseum superbum.

Mimulus, atrosanguineus, M. auranthiacus superbus, M. pictus, M. moschatus.

Monarda didyma, M. hybrida, M. purpurea, M. Russelliana.

Œnothera acaulis, O. fruticosa, O. Fraseri.

Phlox. One of the finest families of Garden Flowers. There are many species and sub-species worth cultivation; especially the new sorts, which are of exquisite beauty.

Pentstemon. There are many very choice varieties cultivated; many of them are not hardy: P. ovatus, P. procerus, P. pubescens, and others are hardy; the other varieties have to be set under glass in winter.

Pæonia. Is not surpassed by any other flower for showy effect: P. albiflora, P. amabilis grandiflora, P. elegans, P. anemoniflora, P. ligulata, P. prolifera tricolor, P. triumphans, P. edulis, P. officinalis.

Pæonia Moutan. Tree Pæonia.

Potentilla atrosanguinea, P. decora plena, P. Demayi, P. Gardneriana, P. Macnabina.

Primula. Primrose. An endless variety of sub-species have been obtained. The Polianthes have been grown from Primula elatior. Primula auricula has numerous varieties, generally called Auricula. In this country the Auricula can not be grown with success, as a hardy perennial, as it can in Europe, owing to the great heat of summer.

Sedum Kamstkaticum, S. purpuratum.

Silene viscosa, S. alpestris, S. maritima plena.

Saponaria officinalis fl. pleno.

Saxifraga cordifolia, S. ligulata, S. granulata, S. sarmentosa.

Spiræa filipendula fl. pleno, S. Japonica, S. ulmaria fl. pleno.

Statice Echinus, S. eximia, S. latifolia, S. Pseudo-Armeria.

Trollius Europæus, T. Asiaticus.

Veronica. Speedwell. V. gentianöides, V. dioica, V. saxatilis.

Valeriana phu., V. rubra, (Centranthus ruber.)

Yucca. Adam's needle. Y. flaccida, Y. filamentosa, Y. gloriosa.

THE BULBOUS PERENNIALS,

Are of great importance in the formation of a Flower-garden. They contain many of the choicest species of Flowers, as Hyacinths, Tulips, etc. According to their culture they may be classed into Two families, viz: those taken up every year, and those which may remain in the ground for years without transplanting.

THE TENDER BULBOUS FLOWERS,

Are generally taken up every year, and are as follows:

Amaryllis formosissima. Jacobea Lily. Planted in April; flowers end of May; taken up in fall, and preserved over winter in dry sand, in a temperature above freezing.

Polyanthus tuberosa. Tuberose. Highly fragrant; flowers pure white. The roots may be started in a hotbed, in early spring,

or planted in the garden in April. If started in pots, it will flower sooner and more luxuriantly.

Tigridia pavonia. Tiger Flower. Several varieties, differing in color from yellow to bright crimson. Planted in April; taken up in October.

Gladiolus. Sword Lily. There are many varieties cultivated, of this beautiful family: G. alatus, G. blandus, G. Cardinalis, G. communis, G. floribundus, G. Psittacinus, are some of the choicest species. The bulbs are planted in the garden at the end of March, and taken up in the fall.

Lilium. Lily. Nearly all the varieties of this species are hardy, and may remain in the ground for years. A few of the choicest varieties are to be taken up in the fall, and kept in a warm temperature over winter; such are L. eximeum, L. Brownii, L. Japonicum, L. longifolium, L. lancifolium, with many sub-varieties.

THE HARDY BULBOUS FLOWERS.

Are generally taken up every three or four years, to be divided and replanted; the season to plant them is fall or early winter.

The *Crocus*, flowers very early in spring; there are many varieties, differing only in color; they require removal every three or four years. They should be planted three inches deep, and, not growing very rankly, may be set closely together.

Tulips. The tulip has long held an important part in Floriculture. In times past a tulip rage existed in Europe, and enormous sums were paid for a single bulb of a favorite variety. They are of great beauty, and have an endless variety of bright tints. The flowers are either single or double. The bulbs are planted in spaces six inches square by three or four inches deep.

Hyacinths. A most delightful flower, very fragrant, and displaying an endless variety and beauty of coloring. They should be planted four or five inches deep, and six or eight inches each way.

Fritillaria imperialis, Crown Imperial, should be planted five or six inches deep, and twelve inches square.

Narcissus. A profusely growing bulb.

Jonquilles. Lilium candidum (White Lily); L. Tigrinum (Tiger Lily), L. Martagon, L. chalcedonicum, are hardy varieties of this beautiful family. They should be transplanted every three or four years, and set out in trenches or holes four or five inches deep by fifteen inches square.

The soil best adapted for the cultivation of Bulbs, is a rich, well-manured, sandy loam; it should be carefully and very deeply spaded; the beds must be raised in the middle, to turn the water; wet soil is not suitable for bulbous plants. The bulbs should not be taken out of the ground before the leaves are fairly dry. "No imbricated or scaly

bulb, ought to be retained long out of the ground; if once lifted, they should be immediately replanted."* No bulb should be planted with its offsets; these must be taken off, and planted in a bed by themselves.

DAHLIAS.

A well-known, and highly esteemed genus, whose flowers display an endless variety of color, shape and size. For a showy flower, the Dahlia is unsurpassed; it is well worthy a place in the flower-garden, though the droughts of our summers often interfere with its growth. A moist and substantial, rich soil is best adapted for its cultivation. As it grows to the hight of from three to eight feet the plants must be supported by sticks strong enough to resist the wind. In case of drought, it requires to be freely watered. The roots may be planted out in the Garden in April; it is best to sprout them in a temperate bed, under glass, and plant them out in May. It is easily propagated by dividing the roots; every part planted

* Buist's "Flower-Garden Directory."

must, however, have at least one eye. It is also easily propagated by cuttings, started in a hotbed; the sprouts are cut off when one or two inches long. They must be cut very close to the old stock or root. When planted in a moist, well-shaded hotbed, they strike root in a short time. In the fall, after the frost has killed the stems and leaves, the root is taken up, and stored away over winter in a dry and temperate cellar or greenhouse.

THE ROSE,

Is so well known as the choicest of all Flowers, that it is useless for us to say anything in its praise. Owing to high culture and continual crossing of different species, thousands of varieties and sub-species have been obtained, differing greatly in color, shape, and size.

The various kinds of Roses may be classed, in regard to their manner of growth, as either Standards, Bushes, Runners, or Climbing Roses; they may be classed according to their season of flowering, being either once-blooming, or ever-blooming:

The once-blooming varieties are generally called *Garden Roses.* A great many beautiful, yet older varieties are found among them, as the *Centifolia Rose*, *Provençe* (of the French), with

us generally called *Cabbage-rose;* the *Moss-rose*, with all its beautiful varieties; the different species of *White Roses*, and the different sorts of *Yellow Roses*, as *Harrisonii*, *Persian Yellow*, *Sweet-Brier*, and many other highly-esteemed sorts are also once-blooming. By crossing many of these sorts with the *Tea-scented*, the *Bourbon* and the *Noisette roses*, a class of flowers was obtained called *Hybrid Garden* or *Hybrid Chinese* rose: they are of great value and beauty. A few of this family are: *George the Fourth* (Rivers), *Brennus*, *General Lamarque*, *Roi des Hybrides*, *Violet de Belgique*, etc. They are of luxuriant growth and foliage, blooming, however, but once a year.

The Climbing Once-blooming Roses are of great value in gardening, being very showy, and fast-growing. They comprise the family of the French *Boursault* roses; the *Grevillia* or *Seven Sisters;* the *Multiflora;* the *Prairie roses, of which we only mention the Queen of the prairies, and Baltimore Belle;* and the *Banksia roses* (better adapted to the greenhouse than the garden).

The Ever-blooming Roses. They can not be called ever-blooming in the fullest sense of the word, as many of them only bloom in spring and fall, owing to the heat and drought of summer. They are the most valuable sorts cultivated. They are classed under various sub-families, as:

The Bengal, or Chinese Ever-blooming Rose, R. semperflorens. They are free-blooming all summer and fall, and of great beauty. With a protection of straw or leaves, they stand the winter out of doors. We mention, of their endless number of varieties, only a few:

The Pink Daily, and White Daily, are very free-blooming and hardy.

The Lawrenicana, smallest rose known, Purple Crown, Agrippina, Louis Philippe, Roi de Crimoisis, Sanguinea, Fabier, Le Pactole, Queen of Lombardy, etc., etc.

The Tea-scented Rose. Rosa odorata Indica. This family numbers many varieties of great beauty. The Tea-scented roses are not very hardy, and require a good protection of straw or leaves, in winter. They flourish best under glass. Some of the choicest sorts are, Comte de Paris, Clara Silvain, Belle Marguerite, Devoniensis, Eliza Sauvage, Saphrano, Madame Jaqueminot, Melville, La Sylphide, Lyonnaise, Triumph of Luxemburg, etc.

Noisette Rose. Rosa Noisettiana. The Noisette roses are strong and rapid-growers. Mr. Buist says of them: "The great profusion and perpetual succession of flowers, from June till November, of immense clusters, frequently from fifty to one hundred in each, make them truly ornamental objects, and are well calculated for covering fences, pillars, or trellis-work." Aimé Vibert, Bengal Lee, Cœur Jaune, Cloth of Gold, Fellenburg, Lamarque, Solfatare, etc., are some of the choicest sorts of this family.

Bourbon Rose. (Isle Bourbon.) Rosa Borbonica. The Bourbon roses are of great beauty, and value, they are free-growing and free-blooming during summer and fall. The flowers are in great clusters; their foliage is large and luxuriant. They are perfectly hardy. We mention a few of the choicest kinds: Hermosa, Marshal de Villars, Bouquet de Flore, Du

petit Thouars, Gloire de Paris, Phœnix, Paul Joseph, Princesse Adelaide, Queen of the Bourbons, Souvenir de la Malmaison.

Perpetuelle or Rémontant Rose. Portland Rose, Rosa Bifera. The Rémontant Roses are justly called the finest of all roses. They are perfectly hardy, fast-growing, and abundantly blooming. They frequently stop blooming in the hottest months of summer. In early summer and fall, they attain their hight of beauty. Du Roi, St. Fiacre, De la Reine, Comte de Paris, Duc d' Aumale, Duchesse de Nemour, Baron Brevost, Madame Laffay, Giant des Battailles, Cornet, Mareschal Soult, Prince Albert, and Louis Bonaparte, etc., are some of the most desirable varieties.

The Rose can be raised in almost any kind of soil; a deep, and substantial loam is best adapted to its growth. The choicest ever-blooming kinds should be planted in rich and well-prepared ground. The Tea-scented roses, especially, require a well-manured and deeply-dug bed. The ground should be sufficiently drained, either naturally or artificially — a surplus of moisture being destruction to the plants, especially in winter. Those kinds requiring protection in winter, may either be bent down to the ground, and thus be covered with litter or leaves, or they may be surrounded with

straw or matting. Fall or spring is the most favorable season to transplant the hardy kinds. To have the Rose bloom in early spring, it is advisable to take up some of the youngest and healthiest plants in October or November, and to transplant them in pots or cases. If they are kept under glass, in a uniform temperature above freezing, they will generally be in bloom in March and April.

The ground where roses are growing, should be freely manured; this is most conveniently done in the fall and winter, before spading the ground.

The Rose generally requires pruning every year; being once well established in the ground, they will soon become too strong and irregular for the neat borders and beds of the Flower-Garden. In pruning, it is recommended to leave a good supply of *young* wood, which will produce the most flowers. It is therefore necessary to take off some of the oldest stems, in whose place new and strong shoots will appear, promising an abundance of flowers for the next year. It is also necessary to shorten the largest shoots, according to the hight and space the plant is desired to occupy. In this way the

plants can be trained to any shape and size desired. Pruning may be done in winter, and early spring.

The Garden Roses frequently produce many suckers, round the main plant; these should be taken up and planted by themselves. This is the most common way of propagation for the hardy kinds. Young shoots may also be bent to the ground, and *layered*, by which they freely strike roots and form new plants. Many of the *Garden* and *running* roses are easily propagated by cuttings, selected from thrifty, well seasoned shoots, of one year's growth, which are set in the ground in early winter; it is well to protect the bed where the cuttings are to grow, from the severest cold, by a covering of litter, or which is better, by a frame, covered with boards.

The Ever-blooming roses are propagated in various ways, of which we shall mention only a few, most generally followed by gardeners. They may be propagated by cuttings, taken from the *old* wood, of one year's growth, and by cuttings of the young and tender wood. Cuttings from the old wood are made in fall and early winter. They

may be cut to the length of from one to three inches, having at least one eye. After taking off the leaves, the cuttings are set in a bed of sand, or sandy earth, in the greenhouse, or in a cold frame, not exposed to the frost. The bed should be kept constantly wet, sufficient air being also admitted. The cuttings will very soon be sufficiently prepared to strike their roots. To make cuttings from the young wood, it is necessary to transplant some of the old plants in pots, in early fall; these plants should be set in a temperate greenhouse, where they will develop their new shoots in February or March. About this time a hotbed should be made, into which fine earth, to the depth of four inches, is to be placed. The earth is covered with fine sand, to the depth of two inches, and slightly beaten with the hand, to make it solid. When the bed has arrived at its greatest heat, the young and tender shoots are cut off from the old plants, and planted in the sand. They require to be freely watered, sufficient air also being constantly admitted. The cuttings are sure to strike roots in from six to fifteen days. This is the best and most advisable way of propagat-

ing the rose; by proper management, scarcely any of the cuttings will be lost; we have propagated almost all sorts of roses, except the Moss-rose, in the above manner. The young plants are set out in the Garden in the beginning of May; if possible on a rainy day.

Budding is another manner of propagating the various kinds of roses. It is the most usual way of rearing them in the Gardens of Europe, yet little practiced in this country. Budded roses are generally short-lived, and but little admired in this section, at least with us, in the west; they are scarcely salable in the markets, unless a new and rare variety. The Maiden's blush, the Dog Rose, (Rosa canina) and the French Eglantine (Eglantier), are most suitable for stock to bud on.

The limits of this volume will not allow us to say more on the culture of the Rose, as practiced to its greatest perfection, by many of our merchant gardeners and Florists. We can mention but a few of such flowers as properly belong to the Greenhouse, they being only planted out during summer, to ornament the Flower-Garden and the Parterre.

It is to be remembered that this class of flowers should not be set out before the warm weather of early summer has set in, and the ground should be prepared and enriched with rotten manure, previous to their removal from the greenhouse.

Abutilon striatum, A. Venosum.

Datura (Brukmansia), bicolor, D. arbuscula.

Canna indica, C. gigantea, C. rubra.

Fuchsia. Many varieties.

Gardenia radicans.

Heliotropium Peruvianum, Hel. Voltarianum, Hel. Souvenir de Liege.

Hydrangea hortensis.

Lantana aurantiaca.

" Sellowii, L. crocea, L. multiflora, L. nivea.

Loasa volubilis.

Lobelia erinoides.

erinus grandiflora, L. compacta alba.

Nerium oleander fl. pleno.

Pelargonium (geranium), many varieties of the Scarlet geranium.

Pentstemon. Many varieties.

Plumbago capensis, P. cœrulea.

Salvia patens.

" azurea, S. floribunda, S. splendens.

Stevia Mexicana.

Tropœolum atrosanguineum, T. Lobbianum.

Verbena. An endless variety of colors.

Veronica speciosa.

Viburnum Tinus.

Volkameria Japonica fl. pleno.

CHAPTER XXV.

FRUIT-TREES—THE ORCHARD.

In no department of Husbandry have greater improvements been effected within the last ten years, than in the raising of Orchard Fruits. And thanks to the interest excited in the public mind by numerous publications on the subject of *Fruit-growing*, from the pens of different Gentlemen, Scientific as well as Practical Experimenters, America now boasts, and justly too, of having originated varieties of our most common Fruits, as Apples, Pears, Peaches, etc., equaling, and surpassing any raised in the older Fruit-growing countries of Europe. The able, and justly celebrated work of *Mr. Downing*, on "The Fruit Trees of America," by which their nomenclature and knowledge were first fairly established,

did very much toward exciting, among Country Gentlemen and Farmers, a desire for a higher degree of perfection in Orchard Fruits; and this has been fostered and increased by various publications on the subject, and by Periodicals devoted to this branch of Agriculture, among the ablest of which we will mention, the *Horticulturist*, published by Mr. Barry, at Rochester, N. Y.; the *Ohio Cultivator*, by Mr. Bateham, Columbus, and the late *Horticultural Review*, by Dr. Warder, at Cincinnati.

Fruit-growing forms already, a very important and highly remunerative branch of Agriculture, and is every year spreading and increasing. In the West, particularly, immense quantities of choice Fruits are every year raised, and that part of the United States bids fair soon to be the greatest Fruit-growing country the world has ever seen. It is not the object of the writer of this work to give lengthy details on this important branch. Want of space would forbid it, were it even in other respects desirable; but the number and ability of works, already before the public, treating

exclusively on this subject, would render such a proceeding on our part supererogatory. We shall therefore be content with giving in this place, a few hints for the *placing* of Fruit-trees, with the view of combining, so far as possible, the two ends of Utility, and beauty of Appearance.

The ground intended for an Orchard, should be thoroughly, and deeply broken up, to make the soil as mellow as possible — poor soil being at the same time well manured and fertilized. The situation should be airy, the soil dry. Where the ground is marshy, or wet, it can be improved by drainage. Inclined situations, high and airy, and having a good exposure to the sun, are especially preferable for Stone Fruits. The general directions, given in another part of the work, for Planting Trees, apply to setting out Fruit-trees. The holes should be made abundantly large, and the trees should be well watered, whenever the weather is dry, during the first year after setting out.

The most advantageous mode of setting out Orchard Trees, is, doubtless, in straight lines.

But to connect the straight lines of an Orchard with the highly improved surface, and beautifully variegated shapes of a Pleasure-ground, without a line of demarkation, would not be harmonious or congruous. We therefore run a belt of Shrubbery between the two, gradually changing, from Forest Shrubbery to useful Shrubs, as Peaches, Quinces, Raspberries, Currants, and others; these being intermixed with lower Fruit-trees, and backed by higher Fruit-trees; the entire Plantation forming a natural, easy transition from the Beautiful to the Useful — from the Pleasure-ground to the Orchard. Or, the Orchard may be planted in groves, or natural groups, thus substituting Fruit-trees for Forest-trees; thus we form groves of Apple, Pear, Cherry, and Peach Trees, interwoven with thickets of Quinces, Raspberries, etc. If desirable, a group of Forest-trees, or ornamental Shrubs, might be planted here and there, in the midst of such a scene, adding variety to the picture, and breaking the stiff, regular top lines of the Fruit-trees, which are nearly all of one hight. Such scenery will not, of course, have the variety of hue

and hight and form, which is so charming in groves of Forest-trees; but a skillful arrangement of the different parts will make quite a fine scene. Such an arrangement of Fruit-trees, as the last mentioned, has the additional advantage, that it does not interfere at all with the growth of the trees, leaving them sufficient room and light. Where groves of Fruit-trees are planted, they may be placed at convenient distances. Where it becomes necessary, for the preservation of harmony, to plant the Trees close together (in thickets), we would advise to plant Wild Apples and Wild Cherries, which will be found to flourish in such situations, and whose fruits are useful — the first for Cider, the latter to make excellent Preserves. We have recommended (by plans), these Ornamental Orchards to several gentlemen about to improve their grounds, and they have expressed themselves highly gratified at the result.

While upon this subject, we desire to say a few words upon the Grape culture. Several varieties of the Native Grape have, within a few years, been found to make most excellent Wine.

Wine-culture has already attained a highly important stand in the great Valley of the Ohio, and is rapidly progressing. As an investment of capital, the culture of the Vine, when followed upon Scientific Principles, as it must be to succeed at all, yields larger returns than almost any other Agricultural Product.

CHAPTER XXVI.

THE FARM.

A FEW words on improvement, addressed more especially to Farmers, will not be out of place in this volume. The great majority of our farmers are comparatively wealthy men — that is to say, they are not engaged in that struggle for day-to-day existence, which is the lot of the chief part of our laboring population. Themselves employed in the production of the most important of the necessaries of life, they may with truth be said to be, if not wealthy, still as a class, independent. Yet viewed as a class, there are no stricter utilitarians than American farmers.

The greater portion of our agricultural population pass through life, knowing but little of those peaceful rural enjoyments which are placed, almost without charge, at their command, and which so

much tend to calm the spirit, elevate the mind, purify the heart, and ennoble the desires and aspirations of man. How often do we find the owner of hundreds of acres living contentedly all his days in the midst of a barren "clearing," without making, in all that time, a well-directed effort to assemble around his homestead, those homely, rural charms — Flowers, Shrubs and Trees — which, with little labor, and less cost, would make of his home a paradise instead of a desert waste, and the power of their associations, of himself and his progeny, thinking, feeling, human beings, instead of mere producers of certain quantities of corn and pork!

To disseminate among such, the principles of correct taste, and excite in them a love of the beautiful, seems to us highly desirable; and if the present volume should be, in the slightest degree, instrumental in effecting this object, the author's fervent wishes would be fulfilled.

As we have said, in another part of this volume, much more is to be done in this country, and particularly in the West, in preserving the natural beauties of the forest, than in creating new and artificial charms.

Beauty of scenery, and utility are not so opposite that the two can not be united on a farm. How many corners and nooks are there about a farm-yard, which, now left year after year to barrenness, might, with a very little labor in winter, be stocked with young Maples, Elms, and other forest trees, which would make shade for man and beast, and add infinitely to the beauty of the scene! How often do we see the picturesque bank of a creek stripped of all its beauty by cutting down the overhanging trees; or the noblest forest trees destroyed to make a "clearing," in the midst of which to set a house, and their place supplied by some ragged Locusts, whose innumerable sprouts break up the ground all round, and render it impossible to make even a respectable-looking lawn?

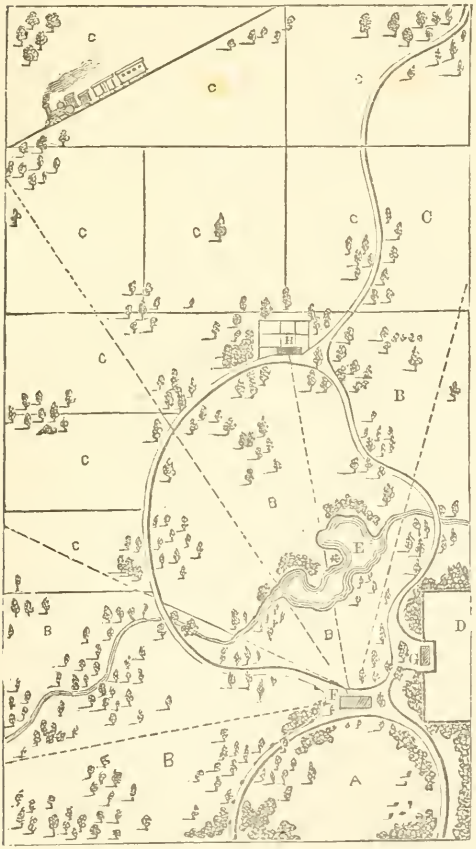
There is no good reason why the farmer's residence should not look as neat, and clean, and simply beautiful, as the country gentleman's! Instead of ash-heaps, chips, etc., scattered round the house, we would see a smooth and beautiful Lawn traversed by regular walks. His dwelling and the outhouses should be shaded by forest trees, proportioned to the buildings. His spring or well, instead

of standing naked and exposed to the burning sun, as is but too often the case, might be surrounded by a little grove. His doors and windows should be festooned with Running Roses and Grape-vines, while other hardy flowers are disposed in beds, in front. His springhouse might be shaded by Creeping plants; his smokehouse overrun with Ivy or Honeysuckle; and the whole would, with a little trouble, and at a very small outlay, be turned into a charming country scene, attracting the eye of even the most tasteless by its simple beauty, and affording a constant pleasure to the inmates. This *might* be done, we say. We are glad to say that many just such scenes are to be found through the country, but as yet these are so small, in point of numbers, as to form the exception, rather than the rule. With but too large a class of our farmers, the *ash-heap* is yet a permanent institution, trees (except Locusts) are considered nuisances, which it is a meritorious act, under all circumstances, to abate, and flowers and shrubs are unthought of.

But we desire to go beyond the mere ornamentation of the grounds more immediately sur-

Fig. 14.

GROUND-PLAN OF AN ORNAMENTAL FARM, DEVOTED TO CATTLE-GRAZING AND TILLAGE.



THE House is surrounded by a Pleasureground, ornamented by Shrubbery and Flowers. The Pleasure-ground is divided from the Park by a Wire Fence, to keep the cattle off. The various groves of Forest trees in the Park, will add much to the beauty of the place. The shores of the Lake should be planted, in some places, with close groups, which should be made to deceive the eye as to extent. The Farm-buildings are placed in the middle of the grounds, surrounded by a grove of Forest-trees. Behind the buildings various subdivisions are made where cattle are fed.

A, Front Lawn. Pleasure-ground.
B, Park. Undivided range of Pasture, and groves of Trees.
C, Tilled Fields.
D, Kitchen Garden.
E, Lake.
F, Residence.
G, Stable.
H, Farm-house and Farm-buildings.

rounding the house. We wish to see all parts of the farm beautified, when it can be done without injury to *profit*, naturally the first consideration. And no portion of the farm is more benefited, as well as beautified by the improving hand of the gardener, than the cattle-pastures. The cattle-grazer, with his vast domain "his broad acres of Bluegrass," to use a Kentucky phrase, dotted with cattle and sheep, occupies the place among us, held in England by the nobleman, as the owner of parks stocked there with deer and game. Stock-raising is becoming the most extensive and remunerating part of farming, in the West. It needs large tracts of land, and when stocked with groves of forest trees, either of natural growth, or placed there by the proprietor, these tracts form the *American* Parks. Much of the woodland now left unemployed on large farms, might, by a judicious use of the ax, in thinning the heavier wood, and eradicating underbrush, giving room to Bluegrass, be made the best of pastures for catttle, thus adding wealth to the farmer's store, while beautifying the country.

Our farmers should read more. Read to form a taste for the beautiful, wherever it may come to light, and then read, to learn how to satisfy that taste; — read to learn how they may combine utility and beauty — how they may benefit themselves, while beautifying the country — how they may cultivate in themselves and their children, a taste for the refined and elegant in nature and art — which, and which alone will elevate the farmer to his proper place in the social ranks.

CHAPTER XXVII.

PUBLIC SQUARES AND PARKS.

NEARLY every city, town, and village, in this country, has surrounding its public buildings, a Square, of greater or less area. This Square is generally left barren, and intersected by random paths and walks, or it is put in grass. In neither case does it present as beautiful an appearance as it might be made to assume, if laid out in the Geometric style. This would be in keeping, too, with its position, surrounded as it is on all sides by houses. If intersected by walks, flower-beds would add a grace and charm to the busy scene of the town's center.

The grounds surrounding a building of large dimensions, and of more importance, as a State-House, should be laid out strictly in harmony with the style of the building, either plain, or highly

ornamental. A principal requisite about such places is, that they be kept clean and neat, the grass short, and all in perfect order.

Our large cities are lamentably deficient in Parks, those "lungs of cities," as they have been appropriately styled. In some, however, the evil is being remedied, and we are glad to see public attention looking that way in every large city through the land. The public Park is a delightful place of recreation for all classes of citizens, from the poorest to the richest. At the close of the labors of a day or week, the artisan or tradesman repairs here to enjoy a breath of free, pure, unadulterated air — to imbibe the fragrance of beautiful flowers, and refresh his toil-worn senses with a glance at the bright colors of Nature, and the gay carols of her feathered songsters.

The scenery of a public Park, should be composed of grand and impressive masses and groups, and pleasant groves of forest trees, smiling lawns, occasional groups of flowers, and beautiful shrubbery, the whole intersected and variegated by broad and smooth walks and roads. Natural scenes should be imitated as closely as possible, as the

more natural and unrestrained the appearance of the scene, the greater the pleasure it will give to those who have come forth from the restraints of the city to enjoy it.

It is much to be hoped that, before it is too late, every American city will provide for a public Park, and in the laying out of future cities in the far West, this subject should be taken into consideration from the first.

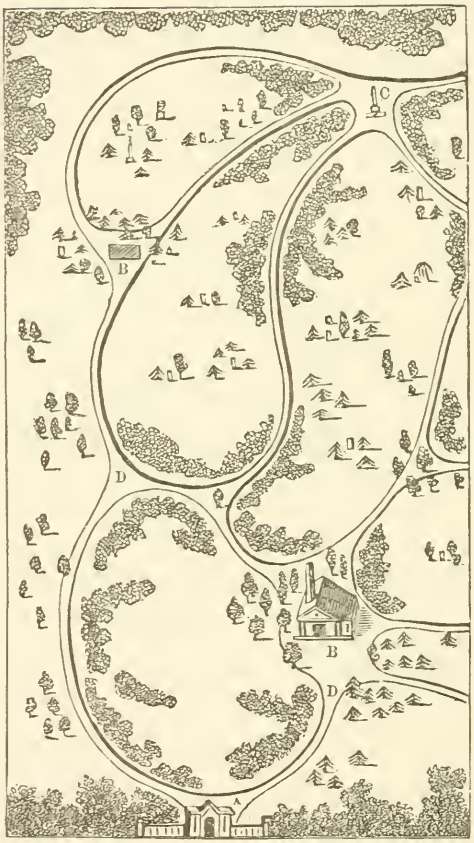
CHAPTER XXVIII.

THE CEMETERY.

Among all civilized nations, from the earliest ages to the present day, the Burial-place of the dead has received much care and attention from the living. The amount of care and pains bestowed upon the decorations of the graves of deceased friends and great men, in ancient times, was very great, and was always in precise ratio to the degree of civilization enjoyed by the living. It is a great, though melancholy pleasure, to muse over the resting-place of the loved one lost, to pay those attentions to their graves which are dictated by the highest and purest feelings of affection and love, of which the human heart is capable.

In many countries of Europe, and particularly in France, much attention is paid to the tasteful laying-out and decorating of Burial-grounds. But from

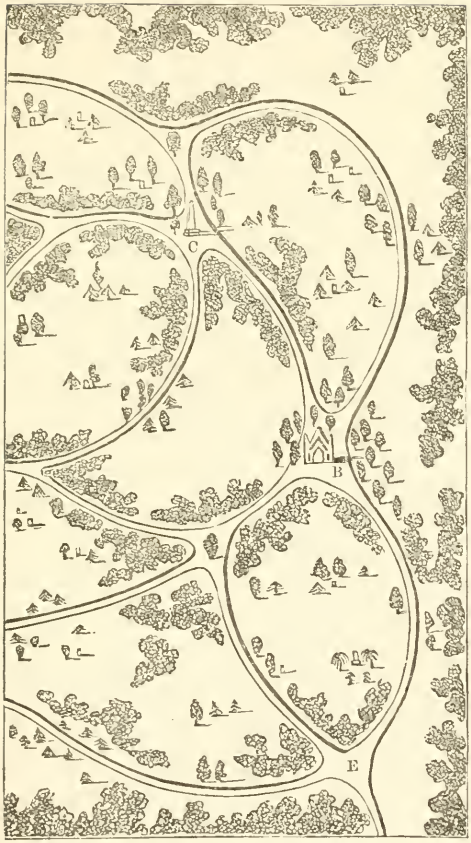
Fig. 15.



A, Main Entrance Portal.
B, Receiving-vault.
C, Public Monuments.
D. Main Carriage-way.
E. Exit Carriage-road.

The scene around the Entrance Portal and the Main Receiving-vault, is set apart for Ornamental Improvement only, no graves being admitted there. The front Lawn is ornamented with groups of fine Flowering Shrubbery

Fig. 15.



and Flowers; around the Main Vault, the scene should be solemn and earnest; many Evergreen-trees are planted around. The junctions of the Carriage-roads are planted with solid masses of Trees and Shrubbery. The graves are made on the open lawns, each grave and monument receiving its own embellishment with Evergreens and Shrubbery.

present indications of the American taste, this country will soon, if she does not already, excel all others, in the beauty of her Cemeteries. And, in the absence of public parks, such as we find in the great cities of Europe, our Cemeteries, aside from their appropriateness, as beautiful resting-places for those we have loved on earth, are calculated to, and do already, exercise a powerful influence upon the public taste for rural improvement. Laid out in accordance with the most approved rules of the Art of Landscape Gardening, as most of them are, and all should be, and chastely and tastefully decorated, they are the schools in which the eyes of our people will be trained to perceive the truly beautiful, and their minds to appreciate it, and to distinguish between it and a false and unnatural taste.

We design giving a few remarks upon the situation and planning-out of Cemeteries, and the style of ornamentation proper to be adopted in them, hoping that such may prove both interesting and useful. And, first, the situation should be one commanding fine prospects, either seaward, if situated upon the sea-coast, or extending over a wide

and pleasant range of country, if inland. It should be of convenient access from the city, and should contain, naturally, within itself, the elements out of which may be formed a fine Landscape. Mt. Auburn, near Boston, and Greenwood, near New York, are specimens of finely chosen situations for Cemeteries. That near Frankfort, Ky., is also placed in a highly picturesque spot.

In the first laying out of the place, the entire plan should be formed and firmly settled upon by men of experience, correct taste, and sound judgment. The surveyor is *then* empowered to make his subdivisions into *grave-lots, in accordance with this plan.* Where the surveyor is allowed to divide and subdivide, as *he* sees fit, unless he is also a Landscape Gardener, which is not always the case, he will inevitably spoil many beautiful scenes, and render the whole grounds a simple patchwork.

A substantial fence, or better yet, a hedge, must surround the entire grounds. The style of the principal buildings, as the Keeper's Lodge, the Entrance Portal, the Receiving-vaults, etc., should be strictly in accordance with the character of the

place. Light, fantastic shapes, or fanciful designs, are, of course, entirely out of place. The scenery about the principal or receiving-vaults, in particular, should be earnest and solemnly impressive. The different carriage-roads should meet near these vaults. The entire grounds must be intersected in various directions by carriage-roads. Grass-walks, or sweeping gravel-walks should lead from these to each individual grave-lot, giving free, unrestrained access to all. In the general plan, the best and most level parts of the grounds are, of course, reserved for grave-lots, the lower and broken parts giving a spot for plantation. Here powerful masses of trees should be formed into shady groves, adding variety and beauty to the scene, and bring into bolder relief the smooth lawns devoted to graves. Plantation should be carefully and skillfully arranged, with a view to the prospects attainable, both to within and without, from different points on the grounds. Conspicuous objects in the scenery, should receive additional effect from the manner in which they are brought to the eye. Interest should be maintained by partial disclosures, in the *views within*,

too many fine monuments, or other objects not being allowed to appear to the sight at once. The entire arrangement of the plantation having been previously fixed upon, lot-holders should be forced to pay regard to the rules of the grounds, and not arbitrarily spoil, by their lack of taste, the appearance of the whole grounds. The graves should not be allowed to be surrounded with high, conspicuous railings or fences, iron or otherwise, as such are entirely out of keeping with natural scenery. If especially designed to have a fence, (which, however, is not at all necessary) it should be a low, unobtrusive railing, of a chaste design. An able and tasteful Superintendent should have charge of the grounds, and it should be his duty to see that private fancy or caprice does not, in any place, interfere with the harmonious beauty of the entire landscape. He should be able to furnish to such as desired it, plans for tasteful decorations of graves. It should be the aim to divest grounds of this character entirely of the forlorn appearance, common to Graveyards and Cemeteries, and to form as natural and variegated a scene as is

possible, to unite with the solemnity necessary for such a place.

The ideas detailed above, are applicable, not only to the magnificent and expensive Cemeteries attached to larger cities, but also to the more confined village Burying-Ground, which, by a tasteful arrangement of a few flowers, shrubs and trees, may be made a most beautiful place.

THE VEGETABLE-GARDEN.

REMARKS.

The Vegetable-Garden is generally laid out in regular forms, as squares or oblongs; and straight walks are required to divide its different parts from one another. Every square may again be subdivided into beds of from four to five feet in breadth, or it may be used for the cultivation of but one kind of Vegetable. The outside of the square is frequently formed into a border, in which the smaller fruit-trees, as dwarf Apples, Pears, etc., are planted at regular distances. Between such fruit-trees Vegetables may be raised, or flowers may be planted to ornament the Garden.

In Gardens of great extent there should be one main road, wide enough to admit a cart or wagon,

as there is constantly need of fresh manure. In smaller patches, sufficient manure is easily brought on wheelbarrows.

In dividing the different parts of a Kitchen-garden, care must be taken to allow each kind of vegetable sufficient room to grow, so that it may arrive at full perfection.

For the operations of planting, hoeing, and cleaning, free access must be had to the different squares or beds, without being obliged to cross one bed to get to the next. The various kinds of Vegetables should not be planted as accident may place them; they generally vary in regard to the season when used, as well as in the time required to bring them to perfection, and strict regard must be paid to these considerations, when laying out and planting. Thus, the earliest kinds, as Radishes, and Lettuce, and Peas, Beans, Early Cabbage, etc., for midsummer, should go together, while Carrots, Parsnips, etc., for winter use, should form another department. It is only by thus systematically dividing the ground, that an orderly management of the whole can be kept up.

ASPECT.

One of the first requisites of a suitable Kitchen-garden, is, that it should bring forth its crops as early as possible, especially in spring, when new and tender Vegetables are in greater requisition than at other seasons. The garden is, therefore, to be placed in a warm situation, facing the south or southeast. Southwest is not so favorable as southeast, yet highly preferable to a northern aspect. Ground slightly inclining toward the south and east is undoubtedly the most suitable, as the sun's rays naturally strike such ground more directly than if perfectly flat.

The ground intended for a Vegetable-garden, must be so situated as to receive the greatest possible benefit from the enlivening, life-giving rays of the sun. There should be no shade-trees in its neighborhood, sufficiently near to affect the Garden. The situation must be airy, yet not exposed to north and northwest winds. Such an exposure will retard, and oftentimes destroy, the growth of all the vegetables. A northern and western exposure may be guarded against by tight fences,

or thick plantations of shrubbery along those sides of the Garden.

SHAPE OF THE GROUND.

It was remarked above, that an easy inclination of the surface toward the south is to be preferred for a Vegetable-garden. If the ground is too steep, and thus likely to be washed away by heavy rains, it becomes necessary to improve it, by forming it into terraces, either with stone walls or grass-banks. The beds, or squares, on such terraces, are choice spots whereon to raise the earliest Vegetables; they are preferable to all level situations. If the ground is nearly level, yet broken by small eminences, it is only necessary to bring it to such a level as will conveniently admit tillage.

Where a Vegetable-garden is laid out according to the Geometrical style, in squares, circles, borders and beds, the ground, if not terraced up, should be made as nearly level as possible — the Geometrical style, wherever introduced, requires level ground.

THE SOIL,

Must be dry, loose and rich. Sandy soil is generally preferable for the growth of early vegetables, but being rather light and loose, it is not calculated to resist the effects of drought and summer heat, as well as soils of a heavier and more substantial nature. A rich loam is undoubtedly the best for a Vegetable-garden. It forms the just medium between light and sandy soil, and stiff, heavy clay soil. It brings forth Vegetables at a very early period in spring, and will also resist the effects of drought.

Clay soil is, in most cases, too stiff and heavy; it is extremely hard to work, and is apt to bake hard on the surface, after every rain, in summer. It has also a disagreeable subsoil, making it wet and unfit to work at an early day in spring. Clay is the most troublesome of all soils for vegetable-gardening. To make it suitable for a Garden, it must be thoroughly drained, and highly manured, in order to change, if possible, its nature, that it may become gradually loose and rich. Some clay soils will never make ground fit for a Kitchen-

garden, and such places should be carefully avoided, when selecting a garden-spot. Where no other soil is to be got, it will be found necessary to take the original ground out of the beds, to the depth of one or two feet, and replace it with better soil.

MANURE.

Whatever be the quality of the soil, it can not be expected to yield Vegetables for a succession of years, without being frequently manured, to renew its strength. Rich, sandy loam, requires less manure than the poorer clay soil. The gardener should never be afraid of making his ground too rich; he may put on it, perhaps, too much manure at one time, yet he can not give too much strength to his ground. The manure, when it is put on the land, should be well rotted, especially in spring, when the operation of planting or sowing follows immediately after manuring and tilling. In fall or early winter, almost any kind of manure will do, as it will rot during winter, when under ground. To manure the land in fall, after the crops are taken off, and to work the manure under by a deep

tillage, is undoubtedly the best plan to prepare the ground for raising Vegetables. Cow manure is considered the richest, yet well-rotted horse manure, when applied in sufficient quantity, will answer as well. It is a good plan to set up piles of manure and earth, in alternate layers of nine to twelve inches deep, each, working these over after laying for three or four months, and taking pains to thoroughly mix the ground and manure. Let them then remain for a space of time again, and the whole heap will be found a most excellent fertilizer. Such piles of compost should be found in every Kitchen-garden.

TILLAGE.

It is necessary to work the ground of the Kitchen-garden with much precaution and care; the success of the crops depends, in great measure, on proper tillage in spring. The ground should on no account whatever, be touched in spring, before it is sufficiently dry to be worked with advantage. Sandy and loamy soils arrive at this state much earlier than clay soil, which generally can not be

worked under a fortnight later. If clay soil is worked wet, in spring, it may be considered spoiled, often being almost useless for the whole season. The ground, when taken up with the spade, should break and divide freely, and while it has any tendency to stiffness, it is not fit to be worked.

Gardens of smaller extent are best tilled with the spade; the ground must receive a deep and careful spading, and must be made sufficiently fine on the surface, with the rake, to receive either seed or plants. Larger gardens, affording sufficient room for operation with the plow and harrow, are cheapest worked in this way. In plowing ground for the Vegetable-garden, it is important, to run the furrows as narrow as possible, to make the ground finer. In heavier soils, where the ground breaks in large lumps, it is necessary to run the plow twice, and even three times, till the earth is made fine enough for garden purposes. The harrow must then pulverize the lumps and clods. After harrowing, a heavy plank, four feet in length and two or three feet broad, should be used. The horses are hitched to this, and, the driver standing on the plank, it is carried over

the field, leveling all inequalities, and completely pulverizing the soil wherever it goes over it. Where the process of plowing, harrowing, and afterward smoothing, as above described, is carefully performed, the ground will be found in every respect suited to the wants of the gardener, and at much less cost than if it had been worked with spade and rake.

A common field or pasture, when about to be turned into a Vegetable-garden, should be dug with a spade, two spades deep; or, where the plow is used, a heavy subsoil plow must follow the common plow, to deepen the furrows and break up the lower stratum of soil. Deep plowing and spading are much opposed by some practical men, but there is nothing more certain than the fact, that they form the most important item in the cultivation of ground, for purposes either of agriculture or horticulture.

WEEDING AND CLEANING.

No Vegetable-garden can be expected to be successful, if the plants, while young and tender, are left to shift for themselves. They must, by

all means, be kept entirely clear of weeds, and the ground around them should be frequently well stirred and loosened round the roots, during the time they are growing. Only a few fast-growing species of Vegetables, as Radishes, Turnips and Wintergreens, are sown broad-cast. All the more important kinds must be sown or planted in rows or drills, that they may be more easily tended. In eradicating weeds from the soil, it is worth while to remember, that much wearisome labor will be saved if weeds are carefully destroyed when they first appear above ground. If neglected at that time, and allowed to shoot up with the Vegetables, they will not only take from the latter a portion of the juice which should properly go to nourish them, but it will be found a matter involving much labor to destroy them afterward, without injury to the crops. It should be made a rule, that on the first appearance of weeds, the entire Garden should be gone over thoroughly to destroy them; and this will be found the cheapest, in the end, even where a large force has to be engaged for the purpose. It is certain that this is the only way in which a satisfactory crop can be obtained.

The ground between the rows should be deeply and thoroughly hoed after the weeds are destroyed, thus giving the young plants a chance to spread their roots, and rapidly gain strength. If these directions concerning hoeing and weeding are strictly followed up, there will be but little after trouble about weeds, or loosening the ground. If, on the contrary, through unwise haste, the work is done but imperfectly at first, all future operations will involve much more labor, and after all, the crops will be retarded, and yield returns not at all equal to those of ground carefully tended from the beginning.

In small Gardens, for family use, hoeing and cleaning is done by hand. On more extensive tracts, the *Hoe-harrow* or *Cultivator* is used. The best pattern of Cultivators now made, is manufactured in Louisville, Ky., by the inventor, Mr. Briscoe. His machines are by far the best ever offered for sale in the West.

It is of the utmost importance in Kitchen-Gardening, to use none but the very *best of seed.* But unfortunately, it is a matter of much difficulty, sometimes, to obtain seed in such perfection as is

to be wished. The seed sold in seedstores is not always found to be what it is sold for, and in fact no man can be sure of what he purchases in this line, unless he deals with a man, either grower or seller, of known probity. The establishment of David Landreth & Co., Philadelphia, is one of the best known and most trustworthy in the country, and seeds obtained there, are perfectly reliable.

The cheapest, and by long odds the surest way of obtaining seed, is to raise it on the grounds, or by the persons intending to use it. Of the method of doing this, in various plants, we shall speak farther on.

Most of the ordinary vegetables must be sown or planted every year. A few, however, if once well established in the ground, will last for years. The most important of these are Asparagus, Rhubarb and Artichokes.

ASPARAGUS.

Asparagus is a quite well known and highly esteemed Vegetable. It varies much in strength of growth, according to the soil in which it is grown.

Substantial, loamy soil is the best adapted for it. *It can not be too richly manured.* To raise a bed of Asparagus, the seed should be sown thinly, in drills, after being soaked for a few days in water. If the young plants are afterward kept clear of weeds, and the ground well hoed about them, they will obtain sufficient strength during the first year to bear setting out, the second spring, into the beds in which they are to remain. Plants of one or two years old are, however, generally to be found for sale in the seedstores; and in raising Asparagus for table use, it is best to purchase of these, thus saving a year's growth and attention, which would otherwise be lost. The patch or bed into which Asparagus is to be transplanted, should be prepared with great care. The most convenient size for beds is, from four to five feet wide, and as long as desired. In these beds, the ground should be very deeply dug (trenched), and *profusely* manured. To throw rotten wood and decayed vegetable matter of any kind as a bottom layer, into the bed, will be found useful. In short, the richer, deeper and mellower the ground is made, the more luxuriant and tender will the Asparagus be. The

plants should not be set out until just as they begin to push or give evidence of returning life, in spring. This should be carefully attended to, in order to make them uniform in coming up. They are set four or five inches deep in the ground, in rows twelve inches apart both ways. The beds must be filled every winter anew, with manure and earth, that the roots may be always six inches below the surface. In the spring, the beds should be well dug with a fork, not with a spade. A layer of salt applied to the surface of the beds, in spring, is highly beneficial to the plants.

RHUBARB, OR PIE-PLANT.

The foot-stalk of the leaf of Rhubarb, or Pie-plant, is used in the kitchen, and is highly esteemed as an esculent. There are several varieties, which bear different names in various places. A small variety, with purple tinted foot-stalks, is the earliest in spring. The *Victoria*, a variety lately introduced, is the largest and most esteemed of all. The root of the Rhubarb may be divided into as many different parts as there are eyes, each of which will grow, if planted out. When it is desired

to raise them from seed, this should be sown in good ground in the garden, or better yet, early in the spring, in hotbeds. They may then be transplanted or set out during the summer. Beds for Rhubarb may be placed in any part of the Garden, where the soil is not so wet as to rot the roots in winter. The beds should be well manured, when first used, and afterward every winter. The richer the ground is made, the finer will be the plants.

ARTICHOKE.

The Artichoke is a vegetable but little sought for or even known in this country. It is not quite hardy with us, and requires to be well protected from the frosts and moisture of winter, which are apt to destroy the plants. The part mostly used, is the pulpy receptacle in the flower-heads, termed the bottom, which must be freed from the pistils or seed-down.

ANNUAL VEGETABLES,

Or those which may be sown every spring, we have arranged below, in regard to their uses, in three classes. First, those of which the fruits are

used; Second, those of which the leaves and stems are used; and third, those of which the roots are used.

Under the first division come Peas, Beans, Melons, Cucumbers, Squashes, Tomato, Okra, Egg-plant, Pepper and Sugar-Corn.

In the second division we have Cabbage, Cauliflower, Winter-greens (Kale, Spinach and Turnip-greens), Sorrel, Parsley, Celery, Lettuce, Chervil, Endive and Cresses.

The third division comprises the Radish, Beet, Parsnip, Turnip, Salsify, Carrot, Onion and common and Sweet Potatoe.

BEANS.

Of these there are two distinct varieties; the *Dwarf* or *Bush*-Beans, and the *Running* or *Pole* Beans. The best varieties of Bush-Beans are the *Early Six-Weeks* Bean — the earliest variety known; the *Speckled Valentine* Bean, the most productive; and the *China Red-Eye*, a very good variety.

It is not well to plant Beans too early in spring, as they are tender when young, and liable to be killed by frost. In planting, they are

dropped in drills, two or three Beans together, and ten or twelve inches apart. The drills should be twenty-four inches apart. The seed is covered with ground to the depth of an inch. When they come up, it is generally necessary to thin them out, in order to give those that are left, more room to grow. The space allotted to them in the Garden should not all be planted at the same time, but at intervals of a week, or two weeks, whereby there will be provided a constant succession of green Beans. The Snap-Bean (*Valentine*), may be planted at different times during the summer, as it stands the heat better than any other kind. The soil, for Beans, should be well manured, in order to bring them to perfection in the least possible time.

Pole Beans are used either shelled, as the *Lima* Bean, or green, as the *White Dutch*, the *Wren's-Egg* Bean, and other varieties. The *Lima* Bean is planted in hills, five feet apart, each way. It is a rapid, strong grower, and requires strong poles. The soil should not be too rich, as, if so, it has a tendency to run to vines instead of pods. The other varieties of pole Beans, used green, may

be planted in hills, three feet apart each way. They are not of so strong growth as the Lima Beans; are often planted with corn, and when raised alone, do not need such stout poles as the Lima Bean.

PEAS.

There is an endless variety of this family. The earliest, and those producing the largest seeds, are the most esteemed. The *Landreth's Extra Early*, is known everywhere to be the earliest of all Peas. *Early Frames* are from eight to ten days later than the Extra Early. For a later supply than these afford, it is best to plant the very largest varieties, called the *Marrowfat*. These are either dwarf or higher growing. *The Blue Imperial Dwarf* is an extremely sweet variety.

Peas are sown in rows, which are laid off, two together, and three feet apart. The peas are sown tolerably thick in the drills, and should be covered with well-rotted manure, finely pulverized, to protect them from severe frost. They are supported by brush, firmly sunk in the ground, along the rows. They may be sown as early in spring as

the ground can be worked, as they are hardy when once out of the ground. When hoeing them, it is best to hill the ground along the roots and stems. The early and late varieties are sown at the same time, and form a natural succession. The *Early Frame* may be sown at different intervals, in smaller quantities, to have a continuous succession. The ground for the early varieties should be rich; the Marrowfat peas being strong growers, do not bear well if planted in too rich soil.

OKRA,

Is a vegetable highly esteemed by many persons, as an ingredient in soups and stews. The seed is planted in drills, the plants ten or twelve inches apart in the row. The drills should be two or three feet apart. The beginning of May is the best time to sow the seed, which should be put thickly in the ground, as only part of it is likely to come up. It requires, like all other vegetables, careful tending, while growing. The soil can not be made too rich for it.

TOMATO.

This is one of the most highly-esteemed Vegetables to be found in the American Kitchen-garden. There are several varieties: The *Large Red*, bearing the finest fruit, the *Large Yellow*, and the small Pear or Cherry-shaped variety. It grows without difficulty in almost any soil. For an early supply, as soon as warm weather has set in (about the first of May, in an average season), the plants may be set out in the open air, from hotbeds, where they may be raised to great size. They are transplanted without difficulty, and should be five or six feet apart each way. A warm, sheltered spot, should be picked out for early Tomatoes. For a late supply, seed is sown in the beginning of May, and the plants are afterward set out in beds. The Tomato bears best in rather poor soil; in rich ground it is apt to run to vines. The vines are commonly allowed to run along the surface of the ground, although some gardeners think best to train them on brushwood — either way will do well.

EGG-PLANT.

With many this vegetable is a great favorite. It is no rarity in our markets. The seed should be sown in a hotbed, and started there to the hight of ten or twelve inches. The plants, when young, require considerable heat to bring them on. They should not therefore be planted out before the middle or end of May. They will only come to perfection in the very richest ground. Planted out, they should stand in rows two feet apart each way.

PEPPERS.

These are principally used for pickling. The different varieties bear fruits varying in size. The *Large Sweet* is the most highly thought of. There is another species much resembling this, but of inferior quality, called the *Bullnose* Pepper. The variety bearing long pods is called the *Cayenne*. The plants should be started from the seeds, in a hotbed, and planted out in the garden in the beginning of May. The seed may also be sown, in a warm border, in the open air, late in spring, and

when they sprout, the plants are thinned out to the proper quantity. Peppers require a rich soil to attain perfection.

MELONS.

The *Citron* and *Nutmeg*, are the two favorite varieties of the Sugar or Muskmelon; the *Carolina* and *Mountain Sprout*, the two choicest kinds of Watermelons. In planting, the seeds are laid in hills, from six to twelve in a hill, these being laid off in squares of four feet. When the plants have got fairly started, they should be thinned out to four in each hill. The beginning of May is the time to plant Melons. The roots of this plant run near the surface, and it is therefore an advantage to surround the stems with fine ground, that the roots may have an opportunity to spread. Care must be taken, in hoeing, that none of the roots are cut or destroyed. Early plants may be started in a hotbed, where the seed may be planted in small flower-pots, or on little pieces of sod, and set out in the garden, in a warm place, about the middle of May. The Melon tribe requires a well-

manured, rich, but light soil — sandy loam is peculiarly suitable to them.

CUCUMBER.

There is but one kind worth growing, the *Long Green*. The *Early Frame* may be some little earlier than the *Long Green*, yet the fruit is not near so large. The mode of raising the Cucumber is similar to that stated for Melons. It is to be remarked, that in many parts of the country the young plants of Cucumbers, Muskmelons, and Squashes, are frequently destroyed by swarms of small yellow bugs, called by gardeners the Cucumber Bug. Where these bugs prevail, the only way to save the plants from destruction, is to set a box, made of rough boards, twelve inches square, over every hill, before the seed has sprouted. A piece of fine musquito-bar muslin is lightly nailed over the box; the four sides of the box are then well surrounded with fine earth. Thus the plants are protected, till strong enough to resist the enemy. For pickling, Cucumbers are planted in the middle of summer.

SQUASH.

The best variety of the Squash is the *Early Bush*. Its culture is similar to that of the cucumber. The Squash and Pumpkin should be at a distance from the Muskmelon beds, as they are apt to deteriorate the choicer sorts of melons.

THE PUMPKIN.

The culture of the Pumpkin is extremely simple. Lay the seed in hills, in the month of May, in rich ground, and keep the weeds down for some time, till the plants are fairly started; the balance they will accomplish themselves. Pumpkins are very frequently raised with corn.

SWEET CORN.

The *Evergreen Sugar*, and *Sweet Sugar*, are the earliest kinds, and most valuable for table use. It is planted in hills, two and a half feet apart, each way, and must be frequently worked. Three or four plants in one hill are sufficient. It is

a fact well known among farmers, that the *richer the land*, the better the corn.

CABBAGE.

Early York, is the earliest kind known. The *Large York* and *Early Sugar-loaf* are some later, but of larger size. The *Large Drumhead*, and *Flat Dutch*, are the choicest later kinds, generally raised for winter use. The *Green Curled Savoy*, and *Red Dutch*, are very good late varieties also. The seed of the earlier kinds should be sown under glass, after New Year, or under some kind of shelter, at the end of February. It is necessary to sow at the same time some of the late *Drumhead* also, to have an uninterrupted succession. The plants, raised under glass to a strong size, are planted out at the end of March or beginning of April. The earlier kinds may be set two feet apart in the row, the rows being two and a half feet from each other. The late *Drumhead* should be planted three feet apart each way. For later use the seed of the *Flat Dutch* and *Drumhead* is sown, early in the spring, in a warm spot in the Garden.

This later sowing may be repeated during spring, to have a good supply of plants for winter use. It is better to provide, early in the spring, for a great quantity of plants, as further on the young plants are often destroyed by the *Cabbage-fly*. There is no sure prevention of this plague.

Cabbage requires a well-tilled and very heavily-manured soil, to come to satisfactory perfection, especially the earlier kinds. It should be well hoed and weeded.

The *Turnip-rooted* Cabbage, a favorite Vegetable with many persons, is treated in the same manner as the common Cabbage; it may also be planted for early, as well as for winter use.

CAULIFLOWER,

Is one of the choicest Vegetables known. Its success in open air is very uncertain in the western and middle states, owing to the dry heats of early summer. In the eastern states the climate is more favorable to it. It requires a moist, temperate atmosphere to come to perfection. Burning heat or drought is sure destruction to it. The plants

should be raised over winter in cold-beds, yet under protection from the severe cold of the season. Good sized plants should be planted out at an early period in the spring; in case of severe frost they must be protected with litter or boxes. Cauliflower can only be raised in the best and richest ground. The plants, set out in cold-beds, and under glass, in February, being fairly started till spring, and freely watered, are much more apt to form fine heads, than those planted in the Garden. There are two varieties: the early *Asiatic Cauliflower*, generally used for an early crop, and the *Late Dutch*, best adapted for fall use. For fall use the seed is sown in spring, in the Garden, and transplanted like late cabbage. If the heads are not formed in fall, the plants are interred like cabbage, and frequently form fine heads during winter.

BROCCOLI,

Is a vegetable similar to the cauliflower, and grown in the same manner. It is a more certain crop than cauliflower, when planted in summer for winter use.

GREENS.

German Dwarf-Greens, or Kale, Turnip Greens, and *Spinach,* are sown broadcast, on rich ground, in the latter part of summer and early fall. They should attain strength enough, before frost, to resist the cold of winter. They are used in winter and spring for Greens. The Cabbage-fly frequently destroys the young plants when coming up, in consequence of which it is often necessary to sow the ground over again. In early spring, Kale and Spinach are sown, to have a fair supply of Greens till the early Cabbage comes on.

LETTUCE,

Is the most esteemed Vegetable for Salad. There are many varieties cultivated. *The Early Curled Indian,* and *Royal Cabbage* are the most valuable sorts. It is sown in hotbeds during winter, where good sized plants are raised. In March it may be transplanted into a warm, well-manured border of the Garden; for a later crop, some seed should be sown in the Garden, and when strong enough,

transplanted. The plants are set twelve inches apart, each way. Spring is the only season for Lettuce; as soon as hot weather sets in, it goes to seed, and becomes very bitter and unwholesome. For a late supply, some little seed may be sown in early fall. Lettuce is a good plant to raise under glass, to have a fair supply in early spring.

ENDIVE,

Is raised for Salad, for fall and winter use. The *curled* white and green kinds are generally used. The broad-leaved *Scarolle* is a very good variety, but is little known in this country. The Endive is sown in spring and midsummer, in drills; when an inch or two high, it is thinned out to stand a foot apart. Its leaves naturally lie flat on the ground, and it must therefore be tied up to bleach. It can be preserved a long time in water, in a cellar, under the staging of a greenhouse, or in a cold frame under glass.

Cress is an herb of little value, generally used for small Salad. The seed is sown thickly, in drills; when two or three inches high, it is cut off close to the ground.

SORREL,

Is used for Salad, or as greens. The seed may be sown in drills, and when sprouted, thinned out. Full-grown roots may be taken up in the fall and spring, and divided, thus propagating it. It stands over winter, and endures for many years.

Chervil is, like the Cress, of little value, except for Salad. It is sown in spring, in drills.

PARSLEY,

Is sown in spring, in drills. The *Double Curled* is far preferable to the single-leafed variety. Roots of Parsley are often taken up in the fall and planted in a frame, under glass, where they furnish a supply of green leaves during winter.

CELERY,

Should be sown early in spring, in shallow drills; the seed, being very fine, is to be covered but slightly. The young plants, also being small, must be carefully weeded and otherwise tended. As they grow up, they should be frequently hoed.

Moisture is the life of Celery; if the ground is dry, the plant must be frequently watered. In midsummer they should be transplanted in single or double rows, ten inches from each other. The rows should be seven feet apart. Some gardeners make ditches, six or eight inches deep, manuring the bottom, and plant the Celery in; as it grows up, the ditch is gradually filled up. Others make the ditch but three inches deep, hilling the ground around the plants with the spade; the latter way is preferable. If the weather is very hot and dry, the plants should be often watered and shaded, in the hottest hours of the day, else they are likely to burn out. In the hottest time, the ground should not be hilled around the stalks; this is best done after a shower, yet never, as long as the leaves or stalks are wet from rain or dew. Neglect of this, causes rust on the stalks, which should be white and clean. In October, the weather is generally favorable for the growth of Celery, the nights being cool and moist. The ground is gradually hilled around the plants as they advance. For winter use, Celery must be well secured from too severe frosts. A substantial dam should be raised on both sides of

the row, fully as high as the outside leaves; the leaves, however, should not be entirely hilled in by the ground. The top of the ridge, thus formed, is then covered with straw or litter, over which a board is laid, to turn the water off from the center of the stalks. Secured in this way, the stalks stand a considerable degree of cold without being injured. A very rich and substantial soil is required to bring Celery to perfection. A moist situation is far preferable to a dry one.

RADISH.

The best varieties for spring use, are the *Turnip-rooted Red* and *White*, the *Long Scarlet*, and *Yellow Turnip-rooted*. For summer and fall, the *White* and *Black Spanish* are preferable. The early kinds are sown broadcast, in the very beginning of spring. They are quick, hardy, and easily withstand the later frosts, if not too severe. A fine, loose, and very rich soil is required to bring them on, at an early day of spring.

The *Long Scarlet*, the best kind for table use, is sown at intervals of a week, during spring. It

does not stand long in the hot days of summer, without going to seed; and consequently, being unfit for use.

The *Yellow Turnip-rooted* is sown as early as possible in the spring, and follows the *Red Scarlet*. It is the best Radish for late spring use. For fall and winter use, sow the *White Summer*, or *White Spanish*, at any time during summer.

BEET.

There is a quite early variety — *Landreth's Extra Early*. The color of the root varies from yellow to red. The *Early Turnip-rooted Red*, is of a dark, purplish color; this is quite early, also.

The *Long Blood-Red*, is most preferred for winter use. Good seed is very important, for success in growing Beets. There is much bad seed sold. The early kinds are sown early in spring, at intervals of a week, as the young plants frequently suffer from later frost. For winter supply, the seed is sown some time during May. The seed should be sown in drills, thick enough to secure a full crop. The drills should be twelve inches apart, for

culture with the hoe; for culture with the Cultivator, the drills require to be two feet apart. As the plants grow up, they are thinned out, to stand six inches apart in the row. Careful hoeing is required for the early crop. The ground must be constantly loose around the roots. Rich ground is necessary to obtain a satisfactory crop.

TURNIP.

For table use there are but two varieties worth growing — the *Flat Dutch* and the *Red-topped*. For spring use, the seed should be sown as early as possible in spring, in drills. When an inch high, they should be thinned out. The spring crop is very uncertain, owing to heat and drought, as well as to the cabbage-fly. For fall and winter use, sow broadcast, at different times, late in summer, in good and loose ground. Care should be taken not to sow too thickly.

CARROT.

There are two varieties grown in gardens: the *Early Horn* and *Long Orange*. The *Early Horn*

is quite early, when well attended and in rich ground.

Parsnip. Sugar Parsnip.

Salsify. Oyster-plant. *Scorzonere.*

These three species of Vegetables are similar in culture and use. They are sown early in spring, in drills, the drills twelve inches apart. When up, they are thinned out, to have sufficient room. When well worked during summer, they form a certain crop. They are quite hardy and stand winter without protection. The leaves of the parsnip should never be touched when wet from rain or dew, as they cause painful blisters on the hand or arms, when coming in contact with them.

ONION.

The *White Silverskin* is a good variety for summer and fall use, but does not keep well over winter. The *Large Yellow*, is the best variety of onion raised. The *Top Onion* is a larger kind, but coarser and less finely flowered than the two former kinds. It bears on the top of the stem

a bunch of small *sets*, which are gathered and planted again. The sets of the two first kinds are raised from seed; in early spring the seed is sown very thickly in drills. These seeds produce small onions, from the size of a pea to a hazel-nut. These *sets* are planted out, in the spring, (by some as early as the preceding fall,) in drills an inch deep, four inches apart in the drill. The *sets* need not be covered up with earth. While growing they must be frequently cleaned and hoed. When the tops are nearly dry, the Onion is ripe, when it may be taken up and stored away. Onions are very hardy, and well able to resist frost. When in a frozen state, they should never be touched, and all animals, as chickens, rats, etc., should be carefully kept from them. To have green onions in winter and early spring, plant onions of any size, in furrows six inches deep, in August or September. They sprout the same fall, and keep green all winter.

Leek is, like Parsley, a Vegetable to be used in soup. It belongs to the onion tribe. Sow the seed in drills, in spring; when grown up, trans-

plant the plants in rows, or thin out the seed-bed, to give room for further growth. It is quite hardy, and stands frost.

POTATO (IRISH).

The mode of cultivating the Potato is so generally known that it is not necessary to take up space here with its details. There are many early varieties, bearing different local names. Of these the kinds, called, in Ohio, the *White* and *Blue Meshannicks*, are far superior to all others, either as early Potatoes, or for winter use.

Sweet Potatoes.—There are several varieties, known by their colors, as the *Red*, *Yellow*, and *Purple*. The earliest are the *Red*. The *Yellow* attain the largest size, and are the surest crop. The Sweet Potato is a native of a warmer climate than that of the middle States. Its foremost requirement is a very loose, sandy soil, rather poor than rich. The ground should be finely pulverized and then raised in hills or ridges, in which the Potato plants are set. When hills are made, three or four plants should be put in a hill. In ridges the plants should

be twelve inches apart. The interior of the hill or ridge should contain no clods of ground, but be composed entirely of loose, fine soil.

Sprouting the Potatoes and raising the plants, until ready to transplant, is the part requiring most knowledge and attention. The bed wherein the plants are to be sprouted, and which requires to be in a very sheltered place in the Garden, if not under glass, should be first warmed with fresh horse manure. After this has nearly done steaming, it is covered with a layer, six inches deep, of dry, sandy soil. The Potatoes are laid on this bed, near each other, and covered with dry sand and earth, to the depth of an inch. While they are sprouting, and not yet above the ground, it is highly important to keep them entirely dry, as water will cause them to rot. When two or three inches high, they may be watered. They remain in the bed until the time comes for transplanting, which is during the month of May, early or late, according to the season. Sprouting-beds should be under sashes, or else covered with a tight cover of boards. It is the practice of many Gardeners, to lay the entire Potato in the bed, and afterward to nip

off the sprouts, without taking with them a portion of the old Potato. Sprouts, when procured in this way, are not very certain to live. A far better plan, we have found to be, to cut the Potato in small pieces half an inch long. These pieces are then spread thickly over the bed, and covered with pure sand. Each piece will produce one or more sprouts, and these can be much easier transplanted, because they have a piece of the old Potato with them, from which to draw their nourishment, until they are firmly established.

Where Sweet Potatoes are to be preserved over winter, they must be handled with much care, that they may not be bruised. In order to keep them from rotting, it is only necessary that they be put in a place where they will be *dry* and *warm*. When first dug, if the weather is fair, they should be exposed to the sun for a day or two. In the room where they are put over winter, they should be put in boxes, of any size most convenient, and then covered over with dry sand or dry dust from the roadside, saved for this purpose. The place in which they are to be put should be so constructed as to keep out the frost.

THE STRAWBERRY.

Much has been written on the nature and the best modes of culture of this favorite Garden-fruit. Such multitudes of rules and explanations have been offered by cultivators, botanists, and amateurs, as have rather befogged these matters, than rendered them plainer. We will content ourselves with giving a few simple directions, which, if followed by the amateur, will give him productive beds, with but little trouble or expense.

The Strawberry plant is by nature very much inclined to run to vines, and spread over a large surface of ground. The want of knowledge how to remedy this evil, is the main cause of the general ill-success of Strawberry "patches," in private Gardens. The end of April or beginning of May, is the best time to set out a bed of Strawberries, which will not, of course, bear until the following year. Great numbers are set out in the fall, but they do not thrive so well, in the middle States. The ground must be carefully tilled and dressed. It is then laid off into beds four feet wide, with a narrow walk between every two

beds. Two rows are planted in each bed, two feet apart, and the plants, eighteen inches apart. In the course of the summer and fall, the vines will overrun the whole bed, entirely covering the ground. In the fall, three rows, nine inches wide, are marked off on each bed, with a garden-line, and all plants outside these lines are taken up. If the three rows which remain are then too full, they may, and ought to be thinned out, to give the plants sufficient room for the next season, when they will be found to bear very full. The ground between the rows should be well hoed in the fall, and covered thinly with well-rotted vegetable manure, some of which may also be sprinkled between the plants. Thus the beds remain during winter, except that if in an exposed situation, they will be benefited by being covered with a layer of straw, or fine brush. In the spring they should receive another thorough hoeing. The runners should not be allowed to grow before the fruit ripens. This is prevented by pinching them off. After the close of the bearing season, the plants are allowed to grow as they please, until fall, when the mode of treatment above described, should be again gone through with. By

following these directions any one may secure an ample harvest of Strawberries, with but little trouble.

We have seen proper to quote another mode of raising Strawberries, which we have seen in Mr. Elliot's "American Fruit-Grower's Guide:"

"*Culture in alternate Strips.* — Strike out the rows, three feet apart, with a line. Plant along each line about a foot apart in the row. The plants will soon send out runners, and these runners should be allowed to take possession of every alternate strip of three feet; the other strips being kept bare by continually destroying all runners upon it. The whole patch being kept free of all weeds, the occupied strip or bed of runners will now give a heavy crop of berries, and the open strip of three feet will serve as an alley from which to gather fruit. After the crop is over, dig and prepare this alley or strip for the occupancy of the new runners for the next season's crop.

"The runners from the old strip will now speedily cover the new space allotted to them, and will perhaps require a partial thinning out to have them evenly distributed. As soon as this is the case, say about the middle of August, dig under

the whole of the old plants, applying a light coat of manure. The surface may be then sown with Turnips or Spinach, which will come out before the next season of fruits.

"In this way the strips or beds occupied by the plants are reversed every season, and the same plot of ground may thus be continued in a productive state for many years."

In setting out a new bed, *young* plants should be selected, as *old* stocks are worthless for this purpose. The beds must be carefully weeded, and the spread of the *little white clover* plant must be especially guarded against. It grows very fast, and will soon overrun a whole bed; and a patch overrun with clover, had better be dug up at once.

Strawberries are not choice as to soil. Almost any moderately deep Garden-ground is suitable for them.*

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* Owing to the high price Strawberries bring in the markets of our cities, their culture has been, of late years, brought to great perfection, by much experimenting upon their growth, and wants. It is confidently stated in southern papers, that by proper care, Strawberries may be made to produce a continuous succession of berries, from the time they first commence,

It is important that beds should not be kept too long, as they deteriorate. They should be changed entirely, at least every three years.

In regard to barren and fertile plants, we will not attempt to give any lengthened explanation, as the subject has been frequently spoken of by various writers. Mr. Elliot, in his excellent work on "Fruit-trees," says on this subject: "It is an old saying, that every person enjoys some hobby on which to ride. Mr. N. Longworth, of Cincinnati,

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in early summer, until the close of autumn. This very desirable result is said to have been brought about by constant and regular watering of the plants. "Vegetable manure only, and plenty of water morning and evening," says a report on the subject, "will (in the opinion of the gentleman who published an account of the experiment, a South Carolinian), produce a continuous crop of Strawberries, anywhere in the Middle, Western and Southern States." Animal manure is said to be highly injurious, as it fosters a natural tendency to run altogether to vines. We have not yet seen or heard of any one in the Western or Middle States, who has experimented in this newly suggested treatment, and can not, therefore, vouch for its applicability to the latitude of the Middle States; we give it for what it is worth, hoping that some of the readers of this work will give the plan a trial.

has received the credit of starting the hobby of (in common phrase) male and female Strawberry blossoms, and so vigorously has the hobby been ridden, that with locomotive power and speed, it has found its way into every journal in the country, whether horticultural or otherwise; and so generally is the distinction of Staminate (male) and Pistillate (female) flowers understood, that we do not deem it necessary here to re-describe."

The same author further remarks, "With this understanding, therefore, that varieties are continually produced, in which one organ is most prominently developed, and measurably to the destruction of the whole, as a fruit-bearing flower, it has become a requisite, in planting, to secure such portions of fruit-bearing or pistillate plants, with the fructifying or staminate varieties, as to return the desired yield of fruit. The Pistillates being regarded as the female, are counted valuable in newly formed beds, as of ten to one of staminates or males."

The following varieties have been selected and pronounced the very cream of all sorts of Strawberries, by the same author:

Burr's New Pine.— Fl. pistillate: very productive.

Western Queen. — Flowers pistillate; very productive.

Longworth's Prolific.— Flowers Hermaphrodite; productive, regular and sure bearer.

McAvoy's Superior.—Flowers pistillate; fruit very large.

Jenney's Seedling.— Ripening late; flowers pistillate; very productive (3,200 quarts having been gathered from less than three-quarters of an acre).

Prolific Hautboy.

Beside these choicest kinds, we would mention two other kinds, universally esteemed and most extensively cultivated:

Hovey's Seedling.—Flowers pistillate; productive and very early.

Hudson — Pistillate; more extensively cultivated than any other variety. It ripens later than others.

Rich, deep, loamy, inclining to clayey soils, are generally found to produce the largest berries, as well as most in quantity.

Trenches two feet wide and two feet deep, with one foot of straw or leaves laid in the bottom, and filled up with good soil, well repay the labor in the extra crop produced. Wet ground,

where water stands after rains, or springy, cold soils, should never be selected."

FORCING.

Forcing Vegetables, under glass, is one of the most important operations in gardening. It is very largely carried on, and is a profitable business in the neighborhood of all large cities, where it is in the hands of professional gardeners. In private Gardens, where no regular gardener is employed, it is of course carried on on a smaller scale, and only to forward, in early spring, the few plants, as Cabbages, Tomatoes, etc., which could not otherwise be planted until early summer.

Forcing is a department of gardening of itself, and we shall not attempt more, in this article, than to give some plain directions for the guidance of the amateur.

There are two ways of *forcing* Vegetables, viz: in *Hotbeds*, where artificial heat is produced by the fermentation of manure, and in *Cold-beds*, where a sufficient degree of heat is produced by the action of the sun throwing his rays through the glass.

Hotbeds, can be made at any time during the winter, while *Cold-beds* can only be started in spring, when the sun's rays are more powerful than in winter.

For *Hotbeds*, the frames are made of rough boards, to suit the size of the sashes. They are set on a bed of fresh horse manure, which has been well tramped down and made level. The best of ground is filled on the bed of manure, six to eight inches deep, after which the sashes are put on the frame. A few days are required to break the brisk heat of the bed. After the ground has acquired a mild heat, the seed may be sown. Much care is required when the seed is coming up; if the weather is favorable, air must be freely admitted, else the tender plants are in danger of *damping up*. When they have attained the hight of an inch or two, another bed or sash should be ready, into which to transplant them. In the new bed they should stand two inches apart each way. In this way the plants, for most of the Vegetables which have finally to be transplanted into the Garden, may be raised. Tomato-plants require to be transplanted frequently, else they grow too high

and weak. Salad may be planted in the same way as mentioned above. A bed stocked with Lettuce, will supply a family a whole season. Radishes, in hotbeds, require much air; they are, to the unexperienced planter, a very uncertain crop. It is more advisable to raise them in cold-beds.

For particulars on hotbed culture, see works especially treating on the subject; it is not the intention of the present book to occupy this ground, which is indeed a very extensive one, and difficult to explain without explanatory engravings.

The management of *cold-beds* is less difficult. They may be started about the middle of February, according to the weather. A bed of the very best and finest of ground should be prepared in the fall, and kept covered over winter, to have it in readiness in spring. A frame covered with sashes is then put over the bed. On a mild day, sow the seed of Radishes, Cabbage, or whatever is designed, in the ground, or plant out some stronger plants reared in the hotbed. The bed should be protected from frost by sufficiently surrounding its sides with manure, and covering the sashes with straw mats or boards. Plants raised in cold-beds

are naturally much stronger than hotbed plants, but come on somewhat later than the latter. In March and April the plants will grow very rapidly; they should freely enjoy the mild, fresh air, and in case of warm showers, the sashes should be taken off.

Forcing-beds, should be placed in the warmest spot in the Vegetable-garden. If possible, they should be sheltered against north and west winds, by a tight fence or wall. They must have an aspect to the south, and a fine exposure to the sun's rays.

RAISING SEED.

Two rules are to be strictly observed in raising seed:

1. Never to plant related kinds of Vegetables near each other, when it is desired to obtain seed from either.

2. Always to select the best fruits, roots, or plants of each kind for seed.

The related kinds, if going to seed near each other, will frequently deteriorate; thus, if two

varieties of Radishes, Beets, Turnips, etc., are planted together, the seed of either will produce many different varieties, which are not to be relied on.

A certain part of a row of Peas or Beans should be selected when in fruit, and set apart for seed. Thus the plants will produce a full crop of fruit, which is taken home when fully matured and perfected. To save only the last, which is always the poorest, for seed, is bad policy, and no good seed can be thus obtained.

Of Tomatoes, Eggplants, Peppers, Melons, Cucumbers, and Corn, the earliest and largest fruit should be saved for seed.

From a patch of late Cabbage, the best, fullest, and hardest heads should be selected, well taken care of over winter, and planted out in spring. The seed of the main stem is far preferable to that of the lower side-branches. Early Cabbage and Cauliflower seed is mostly all imported from England, our climate being unfavorable for perfecting the seeds of those varieties.

Greens, as Kale, Spinach, etc., run to seed in early summer, when the tops are cut down and saved.

Of Lettuce, the best heads are saved for seed; all the rest should be removed before going to seed. Endive is planted out in spring for the production of seed.

Roots, for seed, should be selected with especial care. The round-rooted Vegetables, as Radishes, Beets, and Turnips, should be well shaped, having but one thin and short root (tail); all forked roots are unfit for seed. The long-rooted kinds, as Carrot, Parsnip, Salsify, Blood-beet, etc., must be of straight and uniform shape, having but one root; no forked Carrot, Beet, or Parsnip, should be planted out for seed. The roots, except early Radishes, are all to be kept over winter and planted out in spring.

The Onions set apart for seed should be of large and flat shape. The careless seed-grower indiscriminately plants all that comes to his hands, and thus a great quantity of worthless seed is produced yearly, and palmed off upon the public as a first-rate article.

INCLOSURES.

FENCING, HEDGE-PLANTING, ETC.

As a substantial and permanent Inclosure is indispensably necessary to the safety of any place, we desire to make a few remarks on the material of which they should be composed, and on their relation to the scenery which they surround.

Owing to the scarcity of suitable rail timber, and the high prices of fencing lumber, in many parts of the country, public attention has, of late, been directed to the cultivation of Hedges, to which a plant indigenous to this hemisphere, the Osage Orange (Maclura aurantiaca), is peculiarly well adapted. Many experiments have been made with this plant, and it is now a well-established fact, that, by proper management, it will make a dense, strong, and permanent living fence, equal to any Euro-

pean thorn hedge, and far superior to other inclosures constructed of wood. Hedge planting, where performed without due understanding and precaution, will not naturally be attended by favorable results, which is the reason why some men, disappointed after the first trial, have dropped the subject, and openly pronounced the whole a humbug of the day.

It would be useless for us to give any lengthened details on the cultivation of Hedges, in this volume, as sufficient light has been thrown on the subject, by the various writings of practical men; we will, however, mention three fundamental points, acknowledged by all writers and practitioners, to be necessary for the successful cultivation of the Osage Orange, viz: The careful preparation of the ground before planting; a sufficiency of plants in each row, and the proper attention in pruning and trimming, especially during the first years of its growth. If these three things are well attended to, hedge planting will, in most cases, prove satisfactory, as so many beautiful specimens of young Hedges throughout the country may testify.

A place pretending to be a Garden, should be

provided with a substantial *inclosure*, whose shape and appearance are in accordance with the degree of elegance of the whole premises. To surround a well-kept Pleasure-ground with a heavy rail fence, or a scanty-looking board fence, would surely be a grave fault against all relative fitness. Whether a board or paling fence, or an iron railing, it should please the eye by its well-finished workmanship.

A well-trained Hedge, is undoubtedly a suitable inclosure for such a place; and though its clipped shape may not be in conformity with the natural groups and forms of the inside, yet its presence will be fully justified by the sense of its necessity to protect them properly from the encroachment of outsiders — man or beast.

A rage for the "picturesque" obtaining, with some gardeners and improvers, has induced them to try their skill, even on the cultivation of Picturesque Hedges. The system of hap-hazard mixture, is said to produce wonderful effects on hedges. Let flowering shrubs, as Roses, Snowballs, etc., be set between the plants composing the body of the hedge, and let these shrubs attain a natural form; to break the uniform top line, this is one of the

recipes to form a picturesque Hedge. We would hesitate to try an experiment of this sort on a large scale, as we consider the *picturesque*, and a *hedge*, to be two extremes in the economy of plantation, which can never be harmoniously brought together. We remember to have seen wild-growing, and completely neglected hedges, but we never thought of calling such "*picturesque*."

Another pattern of picturesqueness, in hedging, is to choose a serpentine line, in the place of the old-fashioned straight line, generally met with in hedges. It is useless to say anything against such a picturesque taste — which can only gratify the notions of the adopter, and disgust everybody else.

A hedge, when ornamented with fanciful feathers, is sure to lose, beside its usefulness, its reasonable sense of necessity, which alone excuses its stiff form, and justifies its presence; it should not pretend to be any more than what it really is — a permanent line of separation.

To conceal the boundaries and fences as much as possible, is a rule generally acknowledged in Landscape Gardening. This is done to give a natural freedom to the scenery, and to hide the ugly

shape of fences. The smallness of many places, also, may even make it desirable, to give an idea of greater extent of property.

In the parks of Europe, often containing thousands of acres, and surrounded by a large tract of land, also controlled by the proprietor, it is an easy matter to give an idea of an unbounded range of property, by expelling all unsightly boundary fences. It is there the duty of the Landscape Gardener, to use every means in his power to impress the beholder with the magnitude of the wide-spreading domains of his employer. Mr. Repton recommends, in one instance, that every milestone, and every tavern-stand round about, should be stamped with the arms of a certain nobleman. Deceptions and impositions in this way, would prove useless and ridiculous in a republican country like ours, where no one acknowledges in his neighbor the right to domineer, and where real estate repeatedly undergoes the process of speculation, and consequently is divided and re-divided. The passing crowd find it difficult to believe that all their eyes behold, for many miles round, is the property of a single individual.

To give an idea of unbounded property, should in no case be attempted, where everything around contradicts it. On the other hand, it is very common for us to see a proprietor employ, beside a Landscape Gardener, a whitewasher* also, who is set to work to whitewash the entire boundary-fence, to make it conspicuous, and to show to beholders at a distance, the extent of the patch under his control.

We feel somewhat doubtful whether this is in harmony with a correct taste, though no one will dispute that painting, or even whitewashing of the most conspicuous part of a neat boundary-fence, along the highway, or otherwise, is desirable and even necessary.

Proper attention should also be paid to a neat and tasteful entrance-gate. The fence and gate should, under all circumstances, be congruous to one another, and collectively to the whole grounds.

A Gate-Lodge, built in a plain, yet nevertheless tasteful style, will add considerably to the

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* Whitewashing the stems of noble forest-trees in the garden, betrays a want of taste.

importance of the entrance, and more yet to the safety of the premises, if occupied by a trustworthy keeper.

Fences are necessary to divide the various departments of the premises from one another. Thus the parterre of Flowers surrounding the house, if situated on a terrace, should have a protection-balustrade, which might very appropriately be ornamented with Flower Vases, and should in all cases be elegant and of a tasteful pattern.

The Pleasure-ground should be divided from the Park by a line of separation, to keep the cattle and sheep at a proper distance from the Flowers and Shrubbery which embellish the scenery round the mansion. This line, however, should not be made conspicuous, by a heavy board fence or stiff hedge, as this would divide the ground into two scenes, which ought to be but one — differing one from the other only in the degree of elegance and high keeping; the pleasure-ground being but a beautifully-polished foreground, to the wide-spreading, picturesque scenes of the Park.

To this end two kinds of Fences may be chosen; a wire fence, painted green, which is scarcely visi-

ble from a distance, or a sunk fence, often called, Ha-ha. The sunk fence is built on the same principle as a common board fence; it is set in a trench, with slanting sides, having the same depth as the intended Fence. Thus two lawns, of which the one is kept under the scythe, and the other grazed by cattle, will appear to be one scene, animated by the movement of the animals, which are, nevertheless kept at a proper distance from the habitation of the proprietor.

It is evident that a wire or sunk Fence, is only necessary at such points, as are open to the eye, as the Lawn. In the thicker parts of masses of Shrubbery and Trees, almost any common fence will do, if not visible from a distance. Where a Pleasure-ground is bounded by tilled fields, which is often the case in the country, it should naturally, also, be divided by a Fence; which, if respectable-looking, will not be objectionable.

The Groves of Trees and masses of Shrubbery of the pleasure-ground, should not be harshly cut off at this fence, but should occasionally extend beyond it, while detached clumps of trees may be set at some distance from them, in the field, to

give some continuity to the scenes of the pleasure-ground.

The Vegetable-garden, also, must be secured by a boundary Fence. For this purpose a *hedge* may be chosen, or which will be more economical, a *board fence* might be made, on which Grape-vines may be trained.

The masses of plantation in a Park, when newly set out, must be surrounded by a temporary Fence, as long as the trees are small, if it is desired to pasture cattle on the lawns. Such fences may be removed as soon as the trees have attained sufficient strength to resist the encroachment of animals.

THE END.

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