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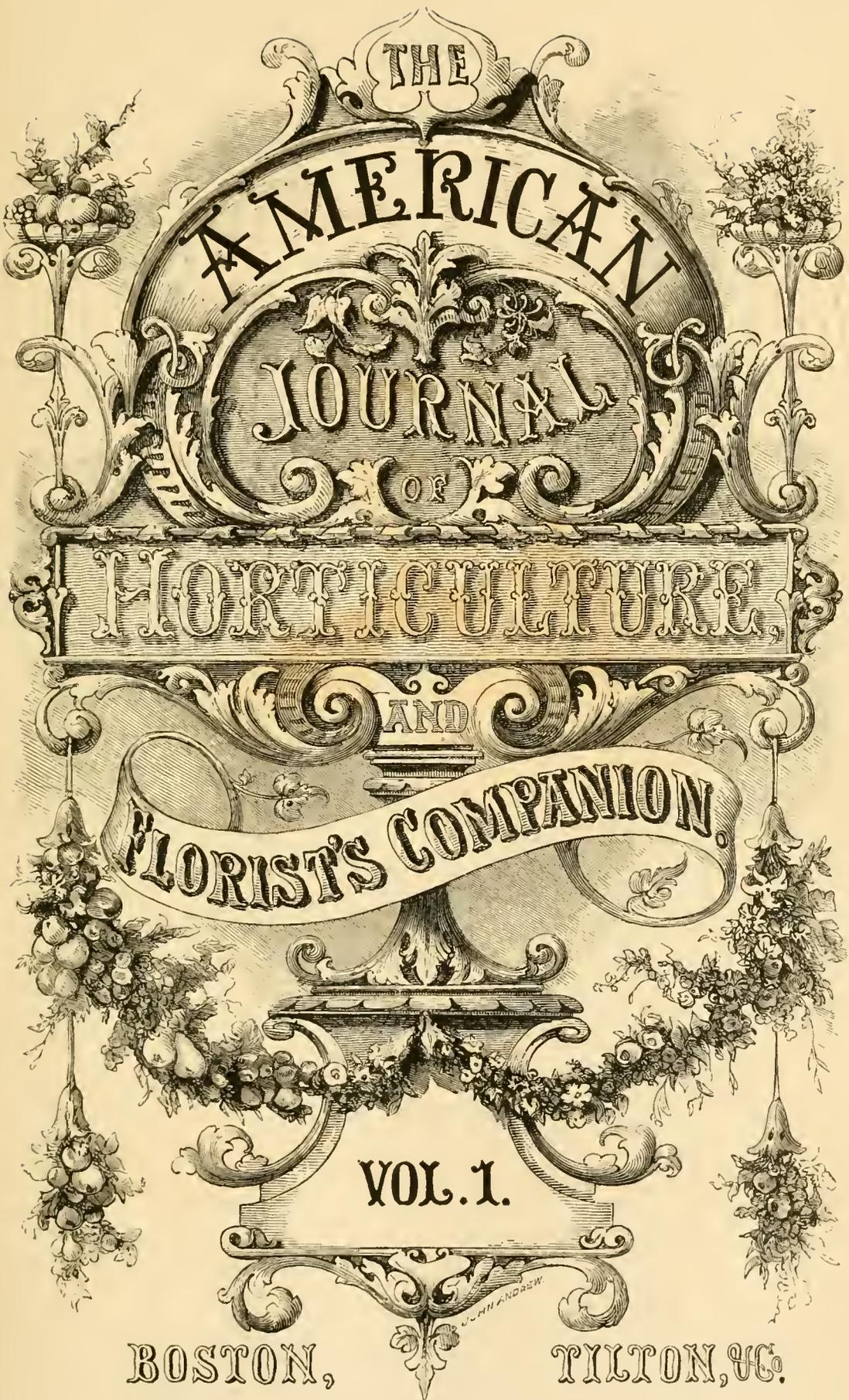


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THE
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VOLUME I.

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CONTENTS OF VOLUME I.

	PAGE
Achimenes Culture	305
" Specimen	247, 376
Adirondack Grape	380
Aloisia citriodora	<i>Cottage Gardener</i> 102
Alton Horticultural Society	388
Angræcum citratum	244
Annuals for late blooming	375
Apple, Bottle-greening	357
" Classification	<i>John A. Warder</i> 193
" Culture	<i>Alexander Hyde</i> 164
" Dwarf	372
Aquilegia Pyreniaca	237
Architecture, Garden	18, 103
" " 	<i>J. A. Hughes</i> 207, 343
Artichoke, Jerusalem	115
Asparagus-beds, dressing	153
" " making and planting	374
" " salting,	369
Asphalt-walks	371
Atmospheric Changes	<i>D. M. Balch</i> 216
Australian Spinach	368
Azaleas, propagating	238
Barleria Gibsoni	244
Begonia Pearcei	247
Benefits of Protection	381
Black Currants, pruning	367
Bohemian Black Bigarreau Cherry	241
Bottle-greening Apple	357
Buerré Clairgeau	301
" Fromental	231
Cacti, propagating	147
Caladia, shading	134
" Specimen	376
Calceolarias, Herbaceous, Culture of	362
Canna discolor	311
Cannabis gigantea	376
Camellia Mrs. Dombraïn	278, 309
" Polar Star	194
" Stocks for	238

MAR 23 1916

Camellia propagating		245
Cattleya Dowiana		237
Celtis occidentalis		369
Cestrum aurantiacum		271
Champion of Paris Pea		367
Cherokee Rose	<i>F. Parkman</i>	184
Cherry Profitable for Market Culture	<i>F. R. Elliott</i>	171
Chrysanthemum Pompon		309
Chrysanthemums, Newer		310
City Gardens	<i>E. S. Rand, Jr.</i>	32, 257
Claviga fulgens		244
Concord Grape		337
Congress, French Botanical		363
Conifers, New	<i>H. H. Hunnewell</i>	148
" pruning		303
Conservatory Glazing		238
Country House, Plan of a		236
Crow, Horticultural Value of the	<i>E. A. Samuels</i>	45
Cupressus Lawsoniana, propagating		395
Currants, Black, pruning		367
" from Cuttings		237
Cyclamen Sowing and Culture		373
Cynosurus cristatus		241
Cypripedia	<i>George B. Warren, Jr.</i>	327
Cypripedium insigne		301
Decorations, Table		49
Delaware and Iona	<i>C. J. May</i>	281, 339
Dessert-orange Culture		306
Dipladenia amabilis		278
Dirt, what is	<i>Solon Robinson</i>	129
Dressing Asparagus-beds		153
Editors' Letter-box		186, 249, 313, 382
" Table		127
Elais Guineensis		232
Enemies, Liliputian	<i>Chas. J. Sprague</i>	283
Ferns from Spores		119
" losing their Fronds		375
Field-culture of the Grape in Massachusetts,	<i>E. W. Bull</i>	201
Field-mice	<i>E. A. Samuels</i>	109
Flowers in Cities	<i>E. S. Rand, Jr.</i>	32, 257
Flowers, Spring	<i>Francis Parkman</i>	5
Flowers of May	<i>Francis Parkman</i>	74, 264
Foliaged Plants		310
Forcing Lilies of the Valley		372
Forget-me-nots		336
Frémontia Californica		162
French Botanical Congress		368

Contents of Volume I.

v

Fruit in Ground-vineries		370
Fruit-critics	<i>Donald G. Mitchell</i>	212
Fruits, Native	<i>D. L. Adair</i>	291
Garden Architecture		18, 103, 207, 343
Geranium, Blue Bedding		240
" Miss Martin		310
Gesnera Zebrina and Splendidissima		242
" Culture		305
Gladiolus		245
Gloxinia Culture		305
Gloxinias from Leaves		241
Glyptostrobos pendulus		228
Grape Culture in Cities	<i>C. W. Ridgely</i>	167, 294
" " of Greenhouse		117
" Concord		337
Grapes, Adirondack		380
" Iona		380
" Spiral-training and Summer-pruning of		379
" rusted		376
" Iona and Delaware	<i>C. J. May</i>	281, 339
" in Minnesota		243
" Field Culture in Massachusetts	<i>E. W. Bull</i>	201
" in 1866	<i>J. M. Merrick, Jr.</i>	11
" Summer-pruning of	<i>John A. Warder</i>	272, 353
Grape-vine, Novel Depredator of	<i>S. H. Scudder</i>	154
Grasses, Ornamental		311
Greening, Bottle		357
Griffinia, the		248
Ground between Strawberry-plants		369
" Vineries		370
Habits of Orchids	<i>Edward C. Herbert</i>	90
Half-hardy Foliaged Plants		310
Hepatica angulosa		287
Hop-plant Propagating		241
Horticultural Doings		190
" Hall, New		124
" Society, Illinois		122
" " Alton		388
" Value of the Crow	<i>E. A. Samuels</i>	45
House, Small Propagating		279
Hyacinths, Culture in Water		56
" done blooming		312
" Roman		245
Hybridizing Fruits		365
Hydrangea for Out-door Decoration		61
Illinois State Horticultural Society		122
Impatiens latifolia		244

Pampas Grass		366
Paradise Stock for Apples		372
Pawpaw, the		262
Pea, Champion of Paris		367
" Select Varieties of	<i>F. Burr, Jr.</i>	229
Pears, Culture of	<i>J. F. C. Hyde.</i>	40
" Popular	<i>J. F. C. Hyde.</i>	81, 144
" on Quince Stock		371
Pelargonium Silver Gem		278
Peperomia arifolia, var. argyrea		309
Plants of our Woods and Fields	<i>John Lewis Russell</i>	24
" New		120, 163
Pleroma sarmentosa		305
Pomological Society of Ohio		124
Prairies, Western	<i>M. L. Dunlap</i>	221
Primula-seed Sowing		239
Propagating-house, Small		279
Protecting Seedling Strawberries		249
Protection, Benefits of		381
Pruning Conifers		303
Quince Stock for Pears		371
Raphanus caudatus		304
Raspberries for the North-west	<i>C. C. Miller</i>	276
Red Spider		233, 298
" " on Wall-trees		248
" " Wash for		368
Rhododendron Archiduc Étienne		288
" Grafting		304
Roman Hyacinth		245
Rose, Cherokee	<i>F. Parkman</i>	184
" Mrs. Ward		288
Roses, Culture in Pots, and Forcing		53
" Grafting with Rubber-bands		239
" Nomenclature of		245
" in Pots in Greenhouse		377
Rubber-bands for grafting		239
Salt for Asparagus		369
Sarcanthus erinaceus		305
Seasons of 1865 and 1866	<i>Joseph Breck</i>	86
Silver Sand, Theory of		240
Skinner, George U., Death of		311
Sophonitis grandiflora		309
Sphaeria morbosa	<i>Charles J. Sprague</i>	204
Spider, Red		233, 298
" " on Wall-trees		248
" " Wash for		368
Spinach, Australian		368

Spring-flowers	<i>Francis Parkman,</i>	5
Squashes, Prizes for Mammoth	<i>F. P. Denny</i>	160
Squirrels, Our	<i>E. A. Samuels</i>	178
Stephanotis floribunda, pruning . . . . .	. . . . .	161
Strawberries, New	<i>J. M. Merrick, Jr.</i>	157
" protecting Seedling . . . . .	. . . . .	249
Symphocampylus Humboldtianus . . . . .	. . . . .	309
Table Decorations . . . . .	. . . . .	49
Tapeinotes Carolinæ . . . . .	. . . . .	244
Things New and Old	<i>W. C. Strong</i>	37
Thunbergia fragrans . . . . .	. . . . .	248
Tree, the Oldest . . . . .	. . . . .	367
Tritoma uvaria and Burchelli . . . . .	. . . . .	185
" Seed-sowing . . . . .	. . . . .	312
Tropæolums . . . . .	. . . . .	242
Tydæa and Achimenes . . . . .	. . . . .	247
Urceolina pendula . . . . .	. . . . .	288
Vegetables, New	<i>F. Burr, Jr.</i>	97
" "	<i>C. N. Brackett</i>	364
Verbena Culture . . . . .	. . . . .	374
Vineyard Culture	<i>M. B. Bateham</i>	254
Wall-trees, Red Spider on . . . . .	. . . . .	248
Walks, Weeds on . . . . .	. . . . .	376
Western Orchards	<i>John A. Warder</i>	321
" Prairies	<i>M. L. Dunlap</i>	221
Wilder, Marshall P., Biography of . . . . .	. . . . .	65

The word "Introduction" is written in a highly decorative, calligraphic font. The letters are intertwined with a dense wreath of roses and various fruits, including what appear to be apples and oranges, with detailed leaves and stems. The entire composition is framed by a thin, ornate border.

THE thirst for knowledge is as old as the creation ; and mankind ever has sought, and ever will seek, for novelty as for hid treasure. Trusting to this longing, which is a great incentive to action in the horticultural world, we venture, at this inclement season of the year, to lay before the horticulturists of the country a new Magazine of Horticulture. “ And in what,” we hear you say, “ do you propose to differ from the other horticultural magazines which zealous laborers in the fruitful field monthly present to us ? ” Pardon us : we wish to differ with none, but to aid all ; to go hand in hand with our fellow-laborers ; and to lend our aid, be it great or little, to the improvement of horticultural science, and the dissemination of information on floriculture and pomology. But let us plainly state our position : a number of gentlemen practically interested in horticulture, feeling that there is room for a horticultural monthly of high character and liberal tone, have agreed to issue such a magazine, and herewith present you the first number. To the thousands who are interested in horticulture, to whom each budding tree, each unfolding flower, each ripening seed, is a fresh and ever-new source of delight, we offer our aid, and the varied experience of our corps of contributors, many of whom are not unknown to horticultural literature.

To those whose good fortune leads them to enjoy a country life, where Nature, ever unfolding her varied pages of instructive beauty, insensibly makes the soul wiser and better, we proffer our aid to show new beauties, and to teach how to enjoy them.

To those who choose a city home, we would also teach the art of home-adornment; would show how the vine may for them yield its luscious clusters, how the little front-patch under the windows may be a constant well-spring of floral beauty, the drawing-room window be gay with flowers, the ivy twine around the rooms, and the delicate tracery of ferns and mosses look out upon them through the windows of Wardian cases. To the gardener, whose aim is to produce the most flowers in the least space, and to whom every new plant of free-flowering habit is a treasure, we hope to introduce new and valuable plants.

And we trust that in our pages the amateur may find cultural rules, and records of experience, for which he might look elsewhere in vain.

Horticulture, as treated by us, will be divided into the three great branches of culture, — flowers, fruit, and vegetables.

The wider field of agriculture we leave for the present, and confine ourselves to the garden; although, occasionally, we may find space to treat upon grasses and forage-crops, and the field-culture of vegetables and cereals.

And, first, floriculture. In this department, the garden, the green-house, the forcing and cold house, the orchid-house and stove, will each receive due attention. To us, the garden of a few square feet will not be neglected as insignificant: many of our finest plants have come from little garden-plots, where the zeal of some ardent floriculturist met its due reward.

Each season, all that is new will be presented; nor will old favorites be neglected. Cultural treatises on every plant of interest to the florist, with copious illustrations, will form a prominent feature of the magazine.

Window-gardening, the growth of house-plants, will be treated in popular language; and the wild-flowers of our woods and fields, often fairer than their garden rivals, and too much neglected, will receive well-merited notice.

Pomology in its many branches will especially engage our attention. Through the garden, the orchard, the forcing-house, the cold and hot grapery, and the orchard-house, we shall walk with our readers month by month, and note the needs, explain the difficulties, of culture, the applica-

tion of manures, the treatment in fruit and flower, the preservation and ripening of fruit, and the different modes of pruning.

The kitchen-garden, so important, and so much neglected, will be under the especial charge of correspondents whose long experience is sufficient guaranty for the practical value of their communications. Articles on architecture, as adapted to horticulture and to country-homes and the embellishment of grounds, will be contributed by one whose taste was never yet at fault; and the kindred subject of landscape-gardening will be specially within our province. Entomology and ornithology, as connected with horticulture, will be treated by competent writers.

And, to do all we promise, we present you a magazine twice the size of any now published in the country. Of its style and general appearance the opening number can enable you to judge; and we can only say, that, as improvement and progress are to be our aim, we trust each month may be an improvement on the past.

For our corps of writers, and other general information, we refer to the publishers' advertisement: but, as editors, we shall cordially welcome any contributions from any source; and we ask the aid of all interested in horticulture in carrying out our plans.

We shall hold ourselves ready to answer any questions on horticulture as far as may be in our power.

Our pages will ever be open for discussion on subjects of horticultural interest, in which, while avoiding all personalities, it will be our aim to develop the truth.

And we must invoke the assistance of our fair readers to aid our undertaking. A portion of our pages each month will be devoted to gardening for ladies, and the culture of plants best suited for the parlor will receive special attention.

Our course will be independent. Having no interest in any horticultural establishment, we shall aim to do justice to all.

These being our aims, we ask you to extend to us a cordial greeting; to take us by the hand on this morning of the new year, and bid us welcome. We will not always come with a wreath of holly-berries and evergreen, but, as the days roll on, will greet you with snowdrop and crocus, with rosy showers of apple-blossoms, with roses and lilies, golden-

rod and asters ; month by month, with the rich fruitage of the garden, and with autumn's ruddy apples and golden pears.

Thus, year by year, we trust to glide with you through the changing seasons, till we become a household guest, an old friend ; one with whom you could not bear to part ; one of whom the past has only sunny memories ; and the future, golden hopes.



JANUARY.

SPRING FLOWERS.

IN the month of May, an incredible multitude of little flower-pots — known to the expert as “thumb-pots” — go forth from innumerable green-houses and propagating-pits, and in the hands of amateurs, great and small, are scattered broadcast through the land. Each pot contains a verbena, a salvia, a geranium, a fuschia, or some other tender bedding-plant, which, if the purchaser is skilful or fortunate, will give him, towards mid-summer, an abundance of blossoms. Meanwhile, he must wait ; for, during the spring and early summer, the “bedding-plants,” with ordinary management, will do very little for him. Now, it is the aim of this paper to show how this season of expectancy, occurring at the very time when the appetite for floral beauty is strongest, may be turned into a season of fruition.

Every one knows something of the early-blooming bulbs, — snowdrops, crocus, narcissus, hyacinths, fritillarias, and others, the brilliant and beautiful harbingers of summer. They cannot be too heartily commended to the amateur gardener ; but their reign is short, and they will not, of themselves, supply his want. Their character and culture have been well

treated of elsewhere, and it is not of them that we shall speak here. There is another class of plants, of which very little is generally known, but which, if not more brilliant, are, in many respects, more interesting, and, what is no less to the purpose in the eyes of many people, quite as easy of culture.

Perhaps there is no better way of describing them than to take them in turn, in the order in which they bloomed under our eyes during the last spring. Our description, then, will be in the way of a garden chronicle. The times of blooming, as here set down, must, of course, be taken with allowance ; for they will vary with different seasons and situations. We begin with a contemporary of the snowdrop.

April 1. — *Eranthis hiemalis*, or winter aconite. This is a little plant, with a tuberous root and a bright-yellow flower, which often appears before the snow has gone, shining like a star on the surface of the black oozy mould. It grows close to the earth, and has a root shaped like a minute potato, whence it sends out long underground fibres, by which it spreads and increases. It is reasonably hardy ; but in a severe season, without snow, is occasionally killed.

The black hellebore, *Helleborus niger*, or Christmas rose, with its large white flowers, shaded with pink, blooms in the midst of snow-storms. In some parts of England, it is said to flower all winter. We have seen one, in a neighboring garden, covered with bloom on Thanksgiving Day, when the borders around were all darkness and desolation. It was protected during the night by a bell-glass ; and this would be very useful in the early spring also, when the frosts, though they cannot destroy its hardy flowers, are apt to disfigure them. There are other sorts of hellebore ; among the rest, one with green flowers : but the Christmas rose is by far the best.

April 5. — The next flower that appears is a shrub, *Daphne mezereum*. It is of small growth, and very pretty, both when in bloom, and when covered with its bright-red berries, which, however, are poisonous. The flowers — pink in one variety, and white in another — cling close to the upright stems, from which, as yet, the leaves have not appeared, and diffuse their sweet and powerful fragrance, for which the mezereum is well known. The shrub is compact and bushy. When young and small, its tenure of life is uncertain, and it is difficult to transplant ; but, when once well established.

nothing will kill it. There is another hardy *Daphne*, of which we shall speak in its season.

Now, side by side with the clumps of crocus and the drooping blue-bells of the Siberian squill, — a beautiful bulbous plant, deformed with an ugly name, — the hepaticas are opening their flowers. The wild single hepatica is a beautiful ornament of the garden, where, if planted in soil mixed with well-decayed leaves, or black mould from the woods, it does very well ; but the most beautiful of the family are the double red, double blue, and double white hepaticas of Europe. They grow here as well as our own species, and require, like them, a fresh light soil. They have, like the American hepaticas, a way of pushing themselves out of the ground ; so that they must be replanted every three or four years, — always in early autumn ; for they must not be disturbed when in growth.

April 14. — *Arabis alpina* and *Arabis albida* in full bloom. They grow close to the earth, in large circular cushions of evergreen leaves, almost hidden at present under the dense mass of pure white flowers. *Sanguinaria*, violets, pansies, and *Adonis vernalis*, as well as the narcissus and the hyacinth, come into bloom at the same time ; and, when planted in the same bed, give a rich variety of color. The *sanguinaria*, or bloodroot, is one of the most interesting of our wild-flowers. When fully open in the warm sun, it is in shape like a many-pointed white star ; and, when closed at night, it is no less beautiful. Even after the bloom has ceased, the leaves, which continue to enlarge for several weeks, are very ornamental. Nothing can be hardier, or easier of culture. It thrives in the common soil of the garden, with no special care.

Adonis vernalis is a fine hardy plant, with lustrous yellow flowers some two inches in diameter, and leaves finely cut, like parsley. It forms a clump about eighteen inches high, where its gay blossoms open in bright relief against the fresh green foliage. Its culture requires no skill, and we never knew it to suffer in the hardest winter.

Pansies are widely known. They come, by right, within the province of “ florist flowers,” — a class whose natural beauties have been enhanced by a painstaking culture through many generations, and which, to bring them to their greatest perfection, require a cultivation specially adapted to them. Pansies, however, will grow and bloom very creditably with ordi-

nary treatment. If sown in a rich garden-border in August, and protected with a few dry leaves or a little coarse hay during winter, they will bloom abundantly in early spring and throughout the season.

Of the violets which bloomed here last spring, the earliest and the most profuse in flowering was a single ever-blooming variety lately introduced. Early in April, the ground was blue with its countless blossoms; and it blooms again in October, filling the surrounding air with fragrance. The double white violet, the double blue English, and the Neapolitan, ought all to be cultivated, as nothing is easier than their ordinary management; and the little care they require cannot be better bestowed. Another pretty variety is *Viola bicolor*, striped with blue and white. There is a native violet, the Canadian, — *Viola Canadensis*, — which, though single, is of remarkable beauty. This, with our other wild violets, white, blue, yellow, and straw-color, is well worth a place in the garden of early flowers. They grow readily, and usually bloom better than in their native woods or meadows.

April 18. — *Erythronium dens canis*, the European dog-tooth violet. Though this is one of the bulbs, we notice it because it is so little known. It has no resemblance whatever to a true violet. Its ordinary color is a reddish-purple; but there is a white variety. It is as large as a crocus, and extremely ornamental. Our American yellow dog-tooth violet is very shy of flowering in the garden; but its foreign relative blooms without reserve. Both are remarkable for the peculiar mottled appearance of their leaves.

April 19. — *Pulmonaria officinalis* and *Pulmonaria mollis*. These plants, commonly called lungwort, are very pretty both in foliage and flowers. The leaves, especially those of the last-named species, are curiously blotched and marbled; and the flowers are of changing colors, from bright pink to sky-blue. They are of low growth, and the foliage retains its freshness throughout the summer and autumn. They are very hardy.

The saxifrages of various species come into bloom at this time. *Saxifraga crassifolia* and *Saxifraga cordifolia* are amongst the most showy, with their broad, smooth, succulent leaves, and their masses of pink flowers rising to the height of two feet or more. The *Cynoglossum*, or hound's-tongue, with its small flowers of vivid blue close to the earth, is also in

perfection. It is sometimes called forget-me-not ; but the plant to which that name rightfully belongs is of a different genus.

Doronicum Caucasianum is widely different from any of those named above. It is a *composite* flower ; that is, formed like a single aster, or a white-weed of the meadows : but it is of the brightest yellow, and, blooming in large clumps, makes a gay show in the garden.

Anemone pulsatilla is one of the best of spring flowers. It is of a bluish purple, star-shaped when fully open, and resting upon a tuft of finely-cut leaves. It has proved perfectly hardy here ; but, whether it would do so in all other situations of this latitude, we are not prepared to say. Probably it would be winter-killed in a wet, cold soil : in a moderately dry one, it may safely be trusted.

The *Vinca*, or periwinkle, improperly called the myrtle, — a name which belongs to plants very different, — is too well known to need description. Besides the common single blue species, there is a double blue variety and a pure white one, both very good. There are also varieties with variegated leaves ; the one marked with yellow streaks and shadings, the other with white. All these belong to the species *Vinca minor*, which has the excellent qualities of perfect hardiness, and of growing in the shade of trees, where the deep glossy green of its neat foliage will serve to carpet bare earth where little else will live ; but, to make it bloom in perfection, you must give it sun and air. There is another species, *Vinca major*, equally attractive, but much less hardy. A New-England winter commonly kills it to the earth, leaving the roots alive ; so that the plant grows again in the following spring. The variegated variety of *Vinca major* is very striking. Its large leaves are shaded with white, which, in contrast with their rich green, makes it one of the best of variegated plants. It can be grown out of doors by being covered with leaves and boards in winter.

The *Aubrietias* are early flowers not much known here, but exceedingly pretty. Several circular tufts of them, as large as a foot-cushion, are now a dense mass of purple bloom, almost hiding the foliage from sight. They have been in their places for four or five years, improving in beauty every spring.

Diclytra cucullaria is a native plant, smaller and far more delicate than

the showy Chinese dielytra now so common. It is of low growth, with clusters of pink-and-white flowers, which, from their eccentric shape, have given the plant the popular name of "Dutchman's breeches." Like many other forest-flowers, its culture requires some care, which, if successful, is repaid by the delicacy and prettiness of this very graceful little plant.

April 21. — *Forsythia viridissima*. The flowers of this shrub, like those of the mezereum, appear before the leaves. Its tendency is to a loose, straggling growth; but this can be completely corrected by a judicious pruning. When the bush is thus induced to grow compactly, it becomes, in the spring, a mass of vivid yellow; each one of its slender shoots being covered with flowers, followed, a week or two later, by the rich green foliage to which it owes its specific name. The other Forsythia — *Forsythia suspensa* — is hardly worth cultivating.

The following currants — the Missouri, Seaton's, and the *Ribes sanguinea* — follow close on the Forsythia, with their drooping clusters of yellow, orange, and red, than which few early flowers are more ornamental. At the same time, the flowers of the Cydonia, or *Pyrus Japonica*, begin to open. No family of shrubs is more beautiful, or more worthy of culture; for they are hardy and enduring as they are attractive. Their flowers run through various shades, from deep scarlet to a flesh-color, approaching white. There are semi-double varieties, and it is said that a yellow Cydonia has lately been discovered. For depth and vividness of color, the old red Cydonia has scarcely a rival in the whole catalogue of shrubs.

April 24. — *Corydalis nobilis*. A fine perennial, remarkable for the beauty of its foliage, and for its large, dense clusters of yellow flowers, spotted with black.

April 26. — *Iberis sempervirens* and *Iberis corraefolia*, side by side with the opening buds of the "Guinea-hen tulip," — *Fritillaria meleagris*. These *Iberis* are perennial candy-tufts. The first is pretty well known; but the second is scarcely known at all, though it is one of the finest of hardy herbaceous plants. It is covered with clusters of the purest white flowers, contrasted with evergreen foliage of a deep shining green, and its bloom continues a long time. It has stood here five winters uninjured.

Magnolia conspicua and *Magnolia Soulangeana* are opening their large, cup-like flowers; the one of a creamy white, the other deeply shaded with

purple. A tree fifteen or eighteen feet high, covered by hundreds of these rich buds and blossoms, is one of the most splendid garden decorations which any season can boast. In the shrubbery below, the yellow clusters of the *Mahonia* begin to open, much like those of the common barberry, but far larger, and brighter in color.

Trillium grandiflorum unfolds its large triangular flowers of snowy whiteness; and the polyanthus, cowslip, and primrose, with their relative the auricula, display their many-colored blossoms. All these deserve more than a passing word; but we reserve them for the next month, when they are in their perfection.

We have reached now the end of April, and with it the limit assigned to this paper. In the next number, we shall speak of the flowers of May.

Francis Parkman.

GRAPES IN 1866.

I PURPOSE to give the readers of this journal a brief *résumé* of my experience with various kinds of grapes during the present year, indulging in a few introductory statements by way of preface.

My interest in grape-culture dates from the year 1862; and ever since that season I have taken the liveliest pleasure in planting vines, testing new varieties, raising seedlings, and accumulating from my own observations and notes all the information possible, both for my own guidance, and to help those friends who may have caught the grape-fever later than myself.

I compile, therefore, the present paper from a carefully-kept note-book, not only as a pleasant duty, but inspired with the notion that perhaps my brief experience may induce some yet grapeless man to plant one vine, — the progenitor of many, — and thus introduce himself to a new pleasure and most fascinating pursuit.

As, in fruit-growing, the results obtained in any given season, however anomalous they may be, are more or less directly influenced by the character of the previous year, a word or two about 1864 and 1865 may not be out of place.

The summer of 1864 was distinguished for the long-continued drought and steady hot weather that prevailed from June to August.

The weather up to June 8 was very dry. A slight shower occurred on the afternoon of that day ; and from that time until the first week in August not a drop of rain fell, while intolerable heat reigned supreme.

Vines made, perhaps, a little less wood than usual, but did not suffer at all : on the contrary, even the smallest and feeblest ripened their wood finely ; and what was made was firm and hard. Grapes ripened early ; and frost in gardens kept off till the 8th of October, affording even the late varieties a chance to mature their fruit.

No leaf-blight, mildew, or rot, came under my observation in 1864.

The season of 1865 was characterized by an extremely early spring (the roads being in good order, and free from all signs of mud, the second week in March), freedom from late frosts in May, very changeable weather until the middle of August, heat and drought lasting up to the 20th of September, and by the prevalence of mildew from the 19th of July till the last of August.

If we say nothing of the mildew, — and that, after all, did very little real damage, — we may pronounce 1865 an excellent year for grapes in this locality, and very early withal ; Concords and Delawares ripening at least a fortnight earlier than they did in 1864.

The Delawares on my vines were fit to eat, although not dead-ripe, on the 3d of September ; and Concords were about as far advanced on the 5th.

Before the 19th of July, I had sulphured my favorite vines, as a matter of precaution ; and on that day I detected the first spot of mildew, which made considerable headway by the middle of August, when it began to diminish, and soon disappeared.

The vines that were the most affected by the mildew were the Adirondac, Delaware, Diana, Isabella, Israella, and some seedlings from the Catawba : those that were slightly injured were the Rogers 4, 15, 19, To Kalon, and Clara ; while Allen's Hybrid, Concord, Iona, Clinton, and Taylor escaped untouched. The mildew of 1865 in this locality affected only the leaves ; i.e., there were no signs of that disease upon the berries, which certain writers call mildew, but which, as unfortunately seen in some places this year, appears to have a nearer affinity to the rot.

I have been unable during the present season to see any bad results, any weakness or feeble growth among my vines, that could be traced to the leaf-mildew of last season ; and I think that this disease, although it alarms the novice, is, when it occurs late in the season, after buds are well formed and wood half ripened, of no great consequence, and not likely to do any permanent injury.

That vine which mildewed worst last summer, a large Delaware, has borne a splendid crop of well-ripened fruit this season, without losing a leaf till frost.

The winter of 1865-6 was one of great severity. On the 8th of January, 1866, the mercury was reported in various localities in this vicinity as standing from 14° to 17° Fahrenheit. This "cold snap" killed the buds of peach-trees that had been carefully wrapped in straw, and undoubtedly destroyed tender grapes that were left exposed ; but my delicate varieties were all covered with earth, except a number of Catawba seedlings, which were utterly destroyed. As usual, I did not cover any of my Concord vines, nor did I have a single bud of this variety injured. The Concord is proof, not only against cold, but against sudden changes from warm to cold, and *vice versâ*.

The present season, although in very many respects about as bad for grape-raising as it could be, has, in a certain sense, encouraged amateurs and others to go on with what they have begun, to plant more vines, and to continue their experiments in search of improved varieties.

The process of reasoning that encourages us is very simple. If grapes do as well this extremely bad year as we see they have done, we may confidently expect a return for our labor every year ; and, in two years out of three, we *must* have far better success than we have had the present season.

The spring was extremely cold and backward : vines were slow in starting, but not tardy enough to escape a most disastrous frost that fell on the night of the 14th of May. A great many vines that escaped the frost set their bunches imperfectly. Cold, chilly nights in August checked the ripening of the berries ; and rather early frosts in September came in as a crowning trial and vexation.

If, after all this, we succeeded in getting good crops of ConCORDS, Dela-

wares, and Dianas, with moderately good returns from the best numbers of the hybrids, we may well rejoice that our luck is no worse, and go on planting vines, and preaching viticulture to the unbelievers.

Very many vines whose young growth was cut completely down in May pushed out vigorous canes from their dormant buds, and some of them even exhibited a tolerable show of fruit on wood of this second growth.

I saw in my own garden no leaf-mildew, but observed a few mildewed berries on Rogers 15.

In some situations where the vines were shaded by fruit-trees, mildew and genuine rot raged without let or hinderance in the month of August ; but the same varieties of grapes in dry positions were unaffected.

ALLEN'S HYBRID.

This vine, cut down by frost in May, made a strong, vigorous second growth, was untouched by mildew, and ripened its wood well. I had no fruit.

ADIRONDAC.

My solitary vine was nearly ruined by the frost. I saw this grape in E. S. Rogers's garden, in Salem, Mass., on the 17th of August, purple, sweet, and two-thirds ripe, in a very unfavorable situation. I infer that it is very early, and we are abundantly assured that it is very good.

CLARA.

Vine a strong, vigorous, and handsome grower. Grapes hard, sour, and worthless Sept. 29. Probably of no value here.

CONCORD.

This variety, of course, maintains its well-earned reputation. Not thoroughly ripe with me till very late in September ; but my vines bore a full crop, with many bunches weighing from eight to nine and a half ounces each.

CREVELING.

Vigorous and healthy. Vines cut down by frost, but made a good second growth.

CLINTON.

About three-quarters ripe on Sept. 15, and not improving much after Sept. 30. To those who may not be familiar with the fact, I can say that the despised Clinton makes an excellent jelly.

DELAWARE.

My vines mostly escaped the frost ; and one six years old, but which has been only two years in its present position, I had the pleasure of seeing ripen seventy-six fine bunches. The berries were nearly ripe Sept. 15, but not so mature as to satisfy a critical taste till after the 20th.

DIANA.

Vines luxuriant, vigorous, and healthy. Fruit well set, handsome, and ripening with tolerable evenness, Oct. 1. The Diana not only hangs well on the vine, but seems to go on maturing its berries after frosts sufficiently hard to strip off most of the leaves.

FRANKLIN.

Strong, rampant grower ; seeming, in this respect, much like the Clinton. Fruit prospects ruined by the May frost.

HARTFORD PROLIFIC.

Vines healthy. Berries dead-ripe Sept. 15.

IONA.

With one exception, my young vines of this variety were cut down by the late frost. They recovered speedily, and made a good healthy growth. If this vine proves as vigorous and hardy as its fruit is delicious, its rank is settled. I received some fine clusters of the Iona from Dr. Grant this fall ; and am obliged to say, in spite of my strong prejudices, that it is simply the best out-door grape I have ever tasted.

I am not familiar enough with the Adirondac to institute comparison between the two varieties ; but, speaking of the Iona alone, I am constrained to say that it is pre-eminently a beautiful, delicious, and, to borrow its originator's favorite word, refreshing grape.

ISABELLA.

When I laid the axe to the root of my old Isabella vines, I spared one for further trial. I do not see the need of keeping even this one. It is, in my experience, a most uncertain and untrustworthy grape.

ISRAELLA.

Vines injured by frost. Vigorous, healthy, and free from all signs of mildew. No fruit.

LOGAN.

A good grower, with very distinct foliage. Fruit well colored Sept. 4, unripe Sept. 15, and not particularly good a fortnight later. This grape is deceptive in regard to coloring, and of no great value.

REBECCA.

My vines, in sandy soil well manured, are feeble, delicate growers, making slender wood, and dropping their leaves far too early in autumn.

ROGERS'S HYBRIDS.

I have fruited only the numbers 4, 15, and 19, this year ; but all these have come up to the usual standard.

Number 4. — I permitted too many bunches to remain on the vine ; and the consequence was, that they did not ripen till Sept. 30. Sweet, good, and in many respects desirable, but not equal, in my opinion, to the other two.

Number 15. — My vines were badly cut down, but ripened a tolerable crop by Sept. 20.

Mr. Rogers calls this his best number ; and in growth, vigor, and good qualities of fruit, it is certainly a very fine grape.

Number 19. — Vigorous, strong, and extremely productive. The berries began to color Aug. 27 ; and, by the 4th of the next month, were thoroughly purple.

On the 15th of September, they were about ripe, being full as early as the Delaware, and one of the handsomest and showiest grapes raised out doors. I think highly of this number, and shall plant a good many vines.

TAYLOR.

Vine strong, vigorous, and handsome. Berries very small, green, deceptively like Delawares when young, getting semi-transparent by Sept. 30, but at that date sour and worthless. It seems hardly possible that this is the grape praised at the West for its wine-making properties.

UNION VILLAGE.

Vine vigorous, luxuriant, and healthy. Not hardy : a fact that has impressed itself upon my notice by the way in which some seedlings of mine from this variety were winter-killed. They seemed almost as tender as a foreign kind.

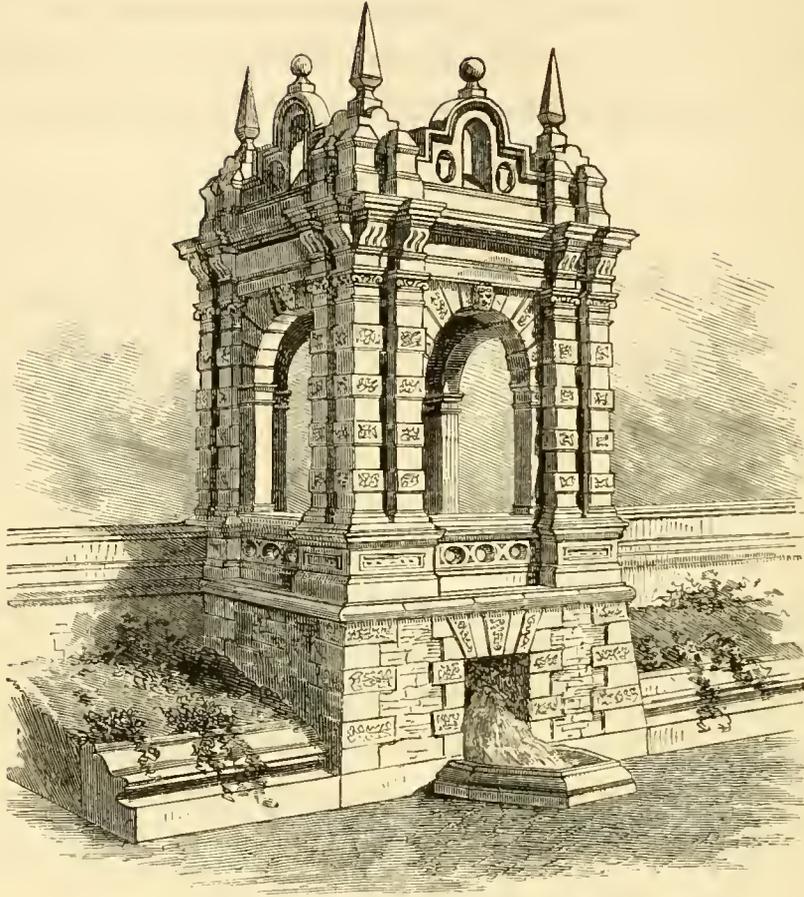
Berries well colored, and about three-quarters ripe, Sept. 30. One vine of this kind should have a corner in the garden, for the sake of the display the bunches make even if not ripe.

I find I have omitted in the above list Alvey and Conby's August, tolerable growers, and healthy, but of no great merit or value in this latitude.

We shall all live, I trust, to see the present immense list of grapes cut down to six or eight good, trustworthy kinds, the rest vanishing, unwept, into the limbo of the rejected ; while amateurs and grape-growers impose the most rigid tests upon new candidates for favor, approving none that do not approximate, at least, to the high standard of the Iona, Delaware, and Diana.

Nothing but the most rigid sternness in this respect, on the part of those who undertake to instruct the grape-planting public, will save purchasers and growers from immense vexation, loss of time, and discouragement.

J. M. Merrick, Jun.



ON GARDEN ARCHITECTURE.

A GARDEN is, strictly speaking, a piece of ground highly embellished. Its use is to please, to gratify the senses ; and it does this by presenting to the eyes at every step the most choice and delightful images and combinations. In this country, perhaps in others, it has been the custom to call many a piece of ground a “garden” which could with little propriety lay claim to the name. They are so called, in fact, only by the same democratic courtesy which accords to women of every character and degree the title of “lady.” A parterre of flowers mixed up in heterogeneous confusion is not a garden : a piece of ground, part lawn, part wood, part swamp, part strawberry-beds, part shrubs, part beds of flowers, is not a

garden. But a plot of ground, however small, in which the objects (many or few, according to its size and the style which it assumes) are designed, selected, and combined with artistic views of their natures and relations, so that, in whatever aspect the spectator may behold them, he receives a sense of delight, arising not only from the beauty of the individual objects, but heightened by the harmonious relations which they bear to each other, is truly a garden.

The objects which may enter into the combination of a garden are quite numerous ; but, for our present purpose, they may be divided into two classes, the natural and the artificial. Of the natural objects are flowers, shrubs, trees, walks, turf or grass, and water in its various forms ; all of which in a garden must be made amenable to the laws of harmony and contrast which govern the design. Of the artificial objects are gateways, terraces, steps, balustrades, vases, fountains, basins, statues, pavilions, &c. ; all of which in a garden should be in the most exquisite taste of which the style selected is capable.

It is the purpose of the present article to treat of the artificial objects which may enter into the composition of a garden, under the head of "Garden Architecture ;" all these objects coming within the province of the architect to design and arrange. It is obvious, that, as the use of a garden is to delight, it should, as far as possible, be so designed as never to present a disagreeable aspect ; never to call up unpleasant ideas and associations ; never to suggest unhappy trains of thought. Now, the natural objects which enter into the composition of a garden are constantly changing : with many of them their beauty buds and blooms, and wanes to decay. It is the business of the gardener so to plant, arrange, tend, and dress the plants and flowers, that this constant change will, as much as possible, lend beauty to the garden ; as little as possible give to the natural transitions the signs of decline and death : and it is the business of the architect so to design and combine the artificial objects, that they may add to the beauty of the garden when the natural objects with which they are surrounded are in the prime and plenitude of their beauty, and leave as little as possible to be desired by the lover of beauty when both leaf and flower have withered and decayed. Many artificial objects which are generally considered as peculiarly in place in a garden are thus at once seen to be properly excluded. Of these

objects are what are called "rustic summer-houses," "rustic fences," "rustic gates," "rustic steps," and lath and clapboard trellises, arcades, and pavilions, with many others which we shall meet in our progress ; in general, all objects which have an unfinished and temporary look, and all which, like "rustic steps," so called, suggest the idea of rottenness and decay. These things are all well enough in their places. A rustic summer-house is very well as an accompaniment to a gate-keeper's lodge or a rural retreat ; but it is not fit for a garden. A shingle and clapboard pavilion will answer very well for a "cottage ornée," in the "carpenter's Gothic" style, or for a "bier garden ;" but it is quite unsuited to a garden.

It is proper to specify that by rustic summer-houses are meant those which are built of logs and cat-sticks unstripped of their bark, and with their rough arms but half amputated ; which catch you by the garments as you go in, fray them when you sit down, and tear them from you when you rise to go out ; which, in the rough sinuosities of the bark, afford eligible habitations, breeding-places, and retreats for innumerable insects ; over which beetles delight to clamber ; and which are the nearest approach to a paradise that a spider can comprehend. These are as unsuited to a garden, as the primitive log-hut, from which they are directly descended, is well suited to a "hard-cider campaign," and should be forever banished. There is, however, a kind of rustic edifice which may be used to advantage in a certain kind of a garden, to which we shall come by and by.

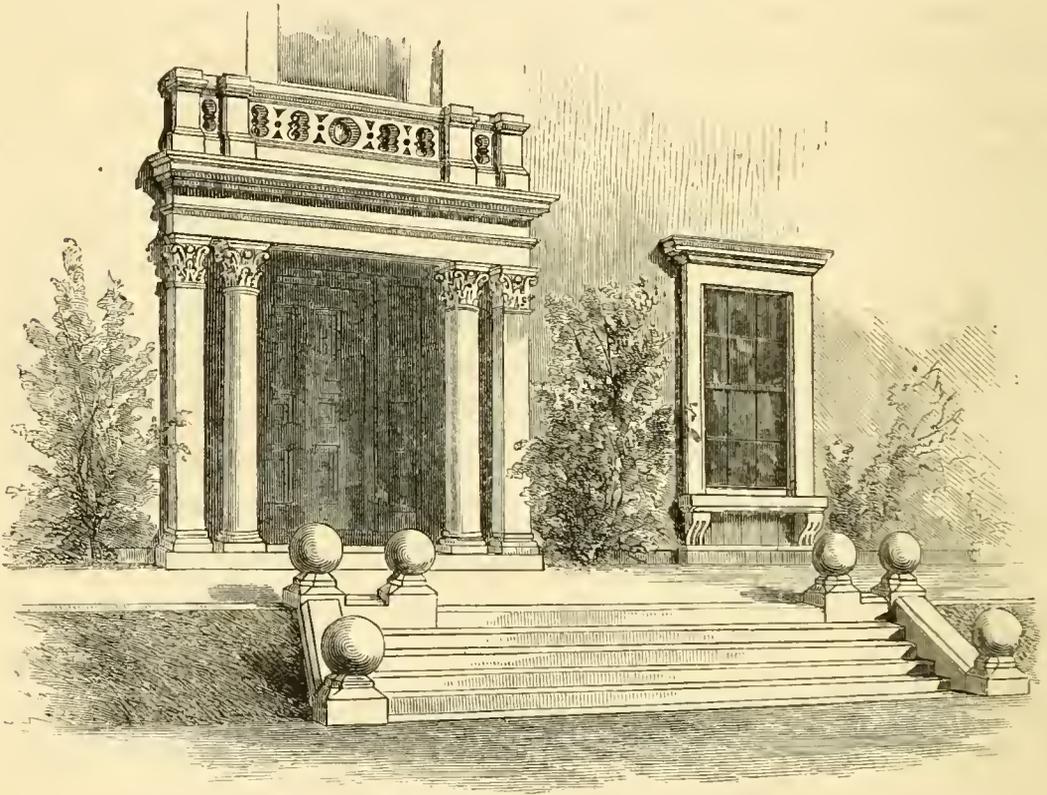
All artificial objects in a garden should have the appearance of both elegance and stability. Summer-houses or pavilions should look as if they could outlast the winter, without being disintegrated by frost, or blown away by the wind : and they should not present the appearance of being the especial homes of bugs and spiders ; for ladies should be able to go into them and sit down, dressed in silks or muslins, as they would go into a drawing-room, of which a garden pavilion may be regarded as a sort of out-door synonyme.

As the garden is and should be an adjunct to the house, communicating directly with it, and having for its purpose to add to the delight of its occupants, it should be laid out, and all its details should be designed, in reference to it. From the house, the garden should always present an aspect

of beauty : its pathways should attract the beholder from the drawing-room or parlor, hall or boudoir, to wander amid their beauties ; its fountains and terraces should invite him to linger beside and upon them ; its grottoes and pavilions should allure him to rest beneath their protection. From the house, it should be but a step, as it were, to the garden ; and the garden should be so arranged, that this step should not only be direct and natural, but should give at the first glance a general insight into its beauties, and excite the desire to explore and admire them. It is, then, of the greatest importance how the garden is approached from the house.

As a general rule, the approach to the garden from the house should be not directly from an apartment like the drawing or sitting room, but by a hall, vestibule, or ante-room specially designed for the purpose ; for while every view of the garden should present beautiful features, and especially so every view from the house, it would be destructive of the privacy generally desired in the apartments of a dwelling-house to have the chief entrance, or even an important entrance, to the garden opening from one of them. This objection, however, might not be felt in some cases at all, especially in a house used only as a summer residence ; and there would probably always be a choice of the apartment to be made the vestibule to the garden, should it be desired to avoid having a hall or ante-room especially for the purpose. Moreover, it is necessary in almost every design to husband the resources of art, and concentrate them upon the principal features. This principle, however, is subject in practice to great modifications, arising from the peculiar circumstances of each case, — the situation and extent of the grounds ; the size of the house and its apartments ; the use of the dwelling, whether it be for a mere summer residence or a permanent dwelling-place. These, and a variety of other conditions, would determine in what way the entrance or entrances to the garden from the house should be designed and arranged. If, for instance, the house were merely a summer residence, the garden-front on an extended scale, the garden itself large and varied, and it were practicable to have a path and vista opening opposite a window of each of the principal apartments, the windows of the garden-front might be French casements carried to the floor ; and thus from each apartment there would be an entrance or entrances to the garden. But, even in such a case, it is extremely doubtful whether it would not be better to preserve

the privacy of the apartments, and, by making an open arcade or colonnade in the centre of the garden-front, give an entrance to the garden which would be at once elegant, commodious, and convenient of access to the different apartments. Every architect would certainly give this method the preference, as it would add to the dignity of his design ; and it is the practice sanctioned by all the great masters of the art. It may then be regarded as the rule, that the entrance to the garden from the house should be by a vestibule, hall, or ante-room, designed expressly for the purpose ; and that any departure from this rule should be justified by peculiar circumstances.

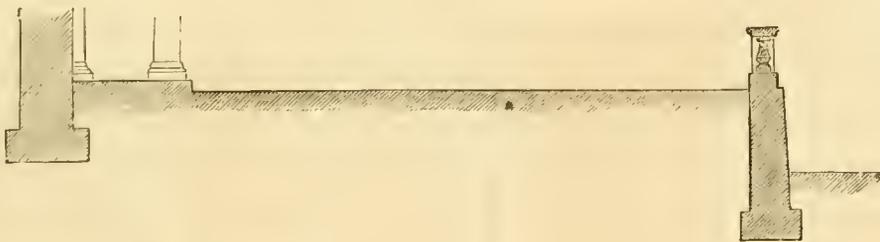


The garden-entrance, in whatever shape or style it may be designed, should not be highly elevated from the ground. A high basement has the disagreeable effect of cutting off the house from the grounds ; whereas it should, in every possible way, be connected, and made to harmonize with them. At the same time, the house should be so set as not to appear too low when viewed at a distance ; and the most natural and at the same time elegant way to avoid this is to set the house up by means of a terrace, making not more than three steps from the terrace into the house.

Terraces are of two kinds ; the first a level, with an earth-slope leading to a lower level. This is the original form, a simple embankment to make a high level on a long inclination of ground.



The other is a level terminated and kept in place by a wall, with a rail or balustrade on top. This is a highly ornamental, architectural feature, capable of great modifications in treatment, and of producing varied and beautiful effects. The cut shows a section of this kind of terrace.



If the house is simple and unpretending in its design, the first kind of terrace would be appropriate, and the descent to the lower level would be by a flight of steps without a rail or balustrade, but which might be decorated with vases, designed, perhaps, to hold flowers. If, on the contrary, the house is much decorated in its character, the terrace and its accompaniments must be designed to correspond. A more complete consideration of terraces and their accompanying features must be reserved for the next number.

Hammatt Billings.

THE PLANTS OF OUR WOODS AND FIELDS.

THE high regard which the native plants of this country hold abroad renders their better acquaintance and their cultivation an object of interest to the garden. The wide area, of thousands of miles extent, embraces the most showy, and likewise the most charming, herbaceous sorts which are sufficiently hardy to endure the winters of this vicinity. An article of the necessary brevity for these pages could do but feeble justice to their claims ; and, if we take a very superficial and hasty glance at them, it will at least serve as an introduction to their merits, which could be urged to a greater expansion of detail.

Beginning, in our enumeration, at the lower orders, the admirer of *ferus* may find in the superb fronds of the Californian species some of the most attractive of these plants. Need we mention scarcely others than the representatives of the golden Gymnogrammes of that favored region ; the elegant forms of *Adiantum*, or maiden-hair ; the hardier and alpine ones of the Sierra Nevada, or the brakes (*Pteris*) of the Yo Semite Valley ; the two new parasitic Polypodies described by Professor Eaton ; and the rock-brakes (*Allosurus*) near the Bay of San Francisco, hinting to us of novelties yet to be found, and worth the search ? For the open border, we have, in New England alone, species well suited for cultivation. Our maiden-hair becomes always attractive, and grows without difficulty ; the climbing fern, once thought so rare, but now found in several new localities, can scarcely be excelled, even by foreign species of the same genus ; the curious broadly lanceolate fronds of the rare *Scolopendrium*, rediscovered near Pursh's original locality the past summer ; the more curious walking-leaf (*Camptosorus*), which we have successfully cultivated in a covered glass jar in days prior to the Wardian cases ; the magnificent ostrich-fern (*Struthiopteris*), now growing in the shade of our little garden ; the pretty Polypodiums, which will survive transplantation, and fit themselves to the rock-work ; the ebony-stemmed and black-striped spleenworts of exquisite proportions, and the larger and stronger species, which adapt themselves to the garden ; the bladder-ferns (*Cystopteris*), delicate and graceful ; the wood-ferns (*Aspidium*), enlivening the woods in mid-winter with their sempervirent fronds ; the sensitive-fern, whose spikes of fruit-capsules are used for mantle ornaments

when dead and dry ; the tiny moonworts (*Botrychium*), which are very accommodating, and root readily in the lawn or on the grassy banks, and come out afresh when the year is on the decline ; and, lastly, the regal flowering ferns, stately and handsome as flowers, but never knowing any distinguishable floral organs (the microscopic botanist only able to tell you where they are), — what a catalogue of native plants, too little cultivated, yet all waiting for a better acquaintance with man ! Many of these will grow where nothing else would. We can see them springing up spontaneously in the cool, shaded fronts of city houses, where the sun never shines : others spring out of old mortar, and from between the crevices of walls ; and others under the shade of trees. Those who visit conservatories and greenhouses are often attracted by the superb ferns now so universally cultivated. Most of them are from foreign climates, and some from tropical regions ; but others, whose forms are the most singular, are from climates no more genial than our own. The same care bestowed upon our New-England ferns would, in the course of time, produce as curious and as grotesque forms. The odd forms of the hart's-tongue are the effects of high culture, causing an abnormal condition in the young seedling plants. We have specimens of undulated fronds of this fern from species taken from wild specimens brought from the Azores. The singular *crested* variety of the buckler-fern (*Aspidium filix mas*) is but an accidental variation by seed, and carefully propagated ; but any careful observer can find similar peculiarities in the fronds of native species, as we know from experience. Cultivation will produce others ; and the facility with which they produce offspring offers an incentive to the experiment. We have said nothing of the beautiful and peculiar species of the South : suffice it to say that we have the superb golden-rooted fern (*Acrostichum aureum*), whose dark-green shining fronds rise to the height of eight feet ; the tropical form of the common brake is seen along the Gulf coast ; the pretty trichiomanes has been found by Curtis in East Tennessee, and elsewhere by others ; and the delicate anemia, with its black, velvety root-stock, of Southern Florida, reminds us of co-species of Brazil. Our native ferns, then, sustain the high reputation which their flowering sister-plants possess ; and the cultivator of beautiful ferns can find at home the grace and beauty in these plants which wealth seeks abroad in costly importations of European or Asiatic novelties. The

same remarks will hold good in the Lycopods and Selaginellas ; the exquisite *S. densa* of the greenhouse being represented in *S. apoda*, of the swampy and grassy meadows of Massachusetts, and other foreign kinds in the co-species of California.

The seed-catalogues give us lists of grasses as attractive objects in gardening. What can we do here? Let us remember that *Uniola latifolia*, whose flat and stiff seed-spikes rise so prominently upon the stout culm, and hang so gracefully on one side, as it were, is found on the prairies of the West, and extends southward as far as Florida ; a much-esteemed garden ornament, and deservedly so. Some of the Andropogons are rivals of the pampas-grass ; the Aira, with its silvery husks and slender wiry stems, waves on the dry and gravelly soils, and will grow elsewhere ; the Eragrostis, or love-grass, has attractive spikelets of glaucous green ; the cord-grasses, if not so common, would be admired for stateliness ; the hair-grass is of the most delicate character ; the annual quaking-grass of the garden has an equally beautiful representative in the *Briza media* of our pastures ; the delicious vanilla-scent of the *Hierochloa* entitles it to consideration independent of its lustrous chestnut florets. We have species of *Erianthus*, which would stand favorably beside the sort advertised, and grasses in the West and South as curious as any from abroad. Nor should the sedges be overlooked, represented in some of remarkable grace, and which we have found no difficulty in cultivating, — many indigenous to a dry soil, and adapted to the garden, such as *C. plantaginea*, *platyphylla*, *vestita* ; and that most remarkable species, adapted to rockwork, and so rare, found in the rich woods of the south, — the *Caix Fraseriana* of Sims, with strange broad leaves and odd flower-spikes pushing out so early in May.

The Messrs. Hovey & Co., so well known for their fine taste, and success in cultivation, received a prize, at the last Annual Horticultural Exhibition in Boston, for the best specimen-plant. It was a sedge, and called the *Cyperus alternifolius*. Loudon says it is "curious," grows two feet high, and is a native of Madagascar, having been introduced into cultivation in 1781. The tropical Cyperi are showy plants ; but we have native species. They grow almost everywhere. Some are showy too, and all are pretty : but being weeds of the cornfield, or common in the sands, nobody deems them fit for flower-beds ; though who can tell what cultivation might do, rewarding

somebody, perhaps, with a variegated leaf variety, when it would henceforth become all the rage? A small pot of a delicate and wiry-leaved grass-looking plant stood out conspicuous at that floral festival among other wonders; it was some kind of *Scirpus* or bulrush: but no name accompanied it; and, whether from abroad or from near at hand, we were not informed. It was very pretty, and its weak stems and leaves hung profusely over the pot's edge: but any one may find just as pretty, and perhaps the identical, who seeks for *Hemicarpha* on the sandy borders of our rivers and ponds; and a chance bit of this completely filled, in a single summer, a large pot, in which it sprang up from the soil employed by us in cultivating an aquatic plant.

The beautiful spider-worts, now of every color, white, rosy, light-blue, and purple-blue, all spring from carefully-selected seedlings of a wild plant we find growing plentifully on the rich hills and woods of the West, and are the garden products of *Tradescantia Virginica*, commemorating the elder *Tradescaunt*, gardener to Charles I., and the part of North America from where it was brought by some student of the great Linnæus. The delight of my old friend Carter, of the Cambridge Botanic Garden, at these new varieties, as they appeared, I well recall, though many years have flown by since that time. Closely related is the day-flower (*Commelyna*). The sky-blue flowered (*caelestis*) comes to us from Mexico: it finds a place in our seed-lists, and knows of variation in its flowers; but there are two or three species nearer home, and belonging to the United States. I have often wondered why some attempts have not been made to induce the pickerel-weed to grow in dryer spots. Its rich purple spikes vie successfully with the vernal hyacinth: perhaps a border of peat and sphagnum would tempt its growth. *Caltha palustris*, which ordinarily prefers a similar situation of mud and water, will thrive in the border, and is cultivated in its double-flowered condition. For effect derived from stateliness and foliage, the false hellebore (*Veratrum viride*) can be recommended: it does best in the black soil of decayed leaves on the edges of meadows; but we have seen it flourish very well in other soil. A pretty red-berried and rosy, bell-shaped, flowered, herbaceous plant is the *Streptopus roseus*, occasionally found in our rich moist woods, and worth the seeking for. It belongs to the bell-wort family, and is a fitting companion to the elegant golden-flowered,

large-blossomed *Uvularia*, which we find growing wild in the woods of Vermont, and yet known in many gardens as a prized border-flower. The Adams needle, or *Yucca filamentosa*, so universally introduced into gardens, and so conspicuous for its stately column of pure white hanging blossoms, is nothing but the wild bear-grass of Kentucky, and used for strings and ties in its tough green leaves. It is, however, the Northern representative of the Spanish bayonet of the South, and humbly imitates the superber species seen with us only in conservatories.

The seeker for early flowers in May is gratified to find in his rambles the yellow adder's-tongue (*Erythronium Americanum*), whose two leaves, scarcely rising from the ground, are so curiously spotted and mottled with purplish blotches, and which clasp at base the flower-stalk, surmounted by its nodding gold-colored flower. We have known this successfully cultivated; but let it be planted under some thickly-set trees, or in the shade of bushes, where its erratic habits will do no mischief. In blossom or without, it is a pretty plant, and perfectly hardy: we only wish we could say as much for its finer co-species, the *E. albidum*, whose whitish or bluish-white flowers are so pretty; but we can record no instance of any attempt to make it better known than in its wild condition in the rich soils of the West.

Admiration for lilies — as increased of late years by the Japan kinds, and recently by the golden-banded lily (*Lilium auratum*) — attracts the notice of amateurs to our native kinds. Conspicuous in the meadows of Taunton and Providence, in July, may be noticed the elegant and stately superb lily, or native Turk's-cap, bearing on its summit from two to forty rich bright-orange flowers, spotted and dashed with dark blotches on the inside of the sepals. It transplants readily, even if taken up when in flower; and, treated with a little peat and sand when planted in the border, will repay all cost and care. Quite similar to it, but not so fine and showy, is the wild yellow lily (*L. Canadense*), more common, and equally readily cultivated. Its color is usually yellow; but now and then a red or salmon tinted one can be met with. The blossoms are not so large in this species as are those of the superb lily: often they are as numerous, and culture will do much to enhance their value. In June and July, the whortleberry-pastures of Eastern Massachusetts are enlivened by the elegant wild orange-red lily, its graceful stem seldom bearing more than three

blossoms, oftener two, or even one ; but its erect and rich sepals, narrowing at the base into mere threads, form a beautiful open-work cup of rare elegance. Though not so readily yielding to garden treatment, it may be subdued to the purposes of ornament ; and it is probable that raising from the seed would prove highly advantageous. The North-American lilies have been for many years known and appreciated abroad, as may be familiarly seen in the orange lilies of the Dutch catalogues, which, so far as we can perceive, differ in no respect from the southern red lily of the Southern States but in the minute markings on the interior of the petals. We have found no difficulty in raising both, and even cross-impregnating the garden hybrids by the original, or *Lilium Catesbæi*, which is indigenous to the South. The superb lily, too, has been sent to this country, with other bulbs, from Holland ; and travellers speak of its culture there, in beds or masses, of great beauty, and even magnificence, when in full flower.

The lily tribe is represented in our North-American flora by a variety of interesting plants. We well recall the pleasure we derived from seeing the wild hyacinth (*Scilla (Camassia) esculenta*) on the clayey hills of Ohio, and have succeeded in raising it from the seed ; and a friend assures us that it grows readily in his garden from bulbs brought from the Western States. Among the Indians, it is known as the *quamash*, and very well represents the *Scillas* of the garden. The star of Bethlehem, or sleep-at-noons, so pretty with its starry, white flowers, is fast becoming naturalized, and is to be noticed in orchards and meadows ; none the less pretty because of a weedy character ; hardly a native, coming to us from abroad, but adopting our northern climate for its home. We cultivate it in a very thin, gravelly soil, and with success. Who does not know, and who denies merit to, the lily of the valley ? yet, according to Gray and Chapman, it grows spontaneously on the Alleghanies, and is in no respect distinct from our garden kind. In like manner, the garden Solomon's-seal proves identical with our own found in the Northern United States, — a fact of sufficient importance, if known, to banish it from some collections, because not entirely a foreigner ; but, for our part, we shall adhere to it still, despite its running, subterraneous root-stalks, which make it a little weedy. It is accommodating, and grows where scarcely any thing else would.

With the brief notice of a few other and very beautiful native plants, we bring this article to a close. We refer to the Trilliums, which we will principally enumerate, as they occur in New England, and therefore are more readily obtained by any one disposed to cultivate them. The nodding Trillium, or wake-robin, though the least conspicuous, is by no means uninteresting. It may be found in rich woods, especially if they are moist; and we have seen it growing quite near the margin of brooks in such places. Its leaves are large and broad, while beneath them the pure white flower hangs suspended on a short and declined stalk. It grows readily in the garden, and increases. In the cool, damp woods near Burlington, Vt., we have found the painted Trillium, — a beautiful species, and so called from a few faint crimson stripes upon the upper surface of the petals: it deserves cultivation. The purple Trillium, or birth-root, grows, usually, between the crevices of rocks, in mountain glens: we have noticed it at the base of Mine Mountain, at Chesterfield, N.H.; and since, in quite a different locality, — a wet, rich maple-swamp in this State. Its flowers are conspicuous, and of a deep, dull purple color, and emitting a very disagreeable perfume: its admirer must be content with its color, and not venture beyond. A young friend who discovered it in this situation has since found the curious greenish-yellow-flowered variety growing there also. Plants removed thence to my garden, yearly produce an abundance of showy and early blossoms; and, under the culture of a gardener in this city, even the yellow variety, which is quite attractive, flourishes equally well; it being brought several years since from the woods of Temple, N.H. We have seen also dried specimens of the dwarf white Trillium, from the rich woods of Ohio, appearing in April, with its pretty white blossoms, of snowy purity. Another small and dwarf species is known as the *Trillium sessile*, with dark-purple flowers, and varying, likewise, to greenish flowers; rhomboidal, sessile leaves, elegantly mottled and blotched, and found in the woods of the West. Still another, of a similar character, points to the Western and Southern States for its occurrence, and known as the recurved Trillium, with rich, dark-purple flowers. The South is represented in this beautiful native plant still further in two or three other species, of which I know nothing but the enumeration in descriptions. The finest by far, however, and the gem of the garden, is

the *T. grandiflorum* of New England, of surpassing loveliness. Thirty-three years ago, I brought four tubers of this species from Burlington, Vt., and planted them in my garden. Some of their descendants, from offsets and seedlings, remain in the precise spot where they were first planted. This clump yearly gives me a large amount of flowers; and others still, distributed among friends, succeed equally well. In May, nothing can surpass it in beauty: its three broad, pure-white petals, supported by the green sepals, also three in number as well, rising from the bosom of three broadly rhomboidal leaves, supported on a stout herbaceous stem, and crowded into a mass of forty or fifty flowers, strikes every visitor with delight. As the petals are about to fade, they become of a pale violet-purple tint, which creates a pleasing variety of color. The seeds are numerous, and fall soon from the fleshy capsule, germinating readily, and appearing as young plants during the next spring, and, in two or three years, blossoming. As yet, I have noticed no variation from the original type of color or form: a double sort would be a veritable monster, and another color would not be desirable.

We earnestly recommend to florists just so much of the study of botany as will make them familiar with the native treasures of our country. We are quite sure that they can find, either quite contiguous to their homes or not very remote, beautiful plants enough to render their gardens the sources of enjoyment and recreation; and familiarity with genera of other plants brought from abroad will surprise them oftentimes that the *native habitats* and homes of many are American, first collected here, cultivated for a while in Europe, and then imported from foreign nurseries and gardens as novelties of the season: in confirmation of which statement, it occurs to us what a botanical friend told us, — that, among certain *new* shrubs, almost every one was familiar to him here, but furnished with new names!

John Lewis Russell.

FLOWERS IN CITIES.

WHILE the country and the suburbs afford most space for gardens, and the display of floricultural beauty, many flowers may be grown in the city; and the limited space afforded may be used to great advantage. Most city houses have a front plat of ground under the parlor-windows, seldom containing less than two hundred square feet; and all have a back-yard, a portion of which could be advantageously used for a flower-garden.

The city, also, has the advantage of having a longer season. In the country, the danger of frost is not over until the middle of May; and the first frosts of autumn seldom fail to cut off tender vegetation with the full moon of September. In the city, on the contrary, frosts seldom occur after the 20th of April, and thus a month is gained in spring; and tender annuals and bedding-plants are often in full beauty after the first of November; while the large-flowered chrysanthemums often carry the season of flowers to the first of December, thus adding six weeks or more in autumn.

As a general thing, the capabilities for gardening are not improved in the city: the front-yards are sodded, and sometimes contain a few shrubs, and thus look neat and trim, but do not produce the effect of which they are capable. Occasionally we see one planted with flowers; but the selection of species is usually confined to a few weedy annuals, such as petunias, larkspur, and ageratum, which, rank and spreading, give a multitude of blossoms, but produce no effect of neatness, beauty, or order. Some few are, in early spring, gay with early-blooming bulbs, such as snowdrops, crocus, hyacinths, and tulips; but in a few weeks they present a rank growth of withering leaves, and the promise of the spring is not borne out by the rest of the year.

Others again are parched with drought after the middle of May, where, in a southern exposure, the heat of the sun is intense, and is aided by the reflection from the brick houses. There is no reason for this, with the abundant supply of water which can be given in large cities; and with plenty of water, and a deep soil, these sunny exposures, while unfit for the more delicate, low-growing plants, might be made masses of tropical vegetation, and thus become most effective.

The exposure, however, has much to do with the capabilities of the front plat for a garden. Where the street runs north and south, there is little difficulty ; for the houses receive on both sides an equal amount of sun, and there is little difference in the fitness of the front-yard for flowers, and a garden may also be made in the back-yard.

Where the street runs east and west, either the front or the back yard, as the case may be, will receive very little sun : but the yard having a sunny exposure may be the flower-garden ; and that facing the north may be ornamented with such shrubs and plants as thrive best in the shade, some of which are very beautiful.

One primary obstacle to city gardening is the shallow soil of these garden-plats. The yards are generally the depository of all the *débris* of building ; and, while a thin skimming of loam is spread on top in order to support the sodding, the subsoil is a compost of broken brick and stone, lime, bits of wood, and the multitude of other materials used in the building of the house. No wonder that on such a soil nothing grows, and that the ground is parched with drought, as a deep soil is essential to freedom from drought ; and, even with constant watering, a shallow soil will become dry and baked.

Therefore the first step is to prepare a proper soil. The yard should be excavated to the depth of at least three feet, and filled in with a compost of rich loam and well-rotted manure in equal parts, with about one-half a part of sharp sand. Such a soil will grow most plants, and, if well prepared, will last for years without manuring. It is well to throw a load of old sods in the bottom of the hole. This preparation may be made either in autumn or early spring : the former is the best season, as spring-blooming bulbs may immediately be planted, and the garden will begin to give flowers in early April.

We will, however, suppose the renewing of the soil to have been made in April, and will give the management of the garden for a year from that time.

About the first week in May, all danger of frost will be over ; and, except in exposed situations, seeds may be planted, and bedding-plants set out. The garden should be dug over, and, unless the soil is rich, a few barrows of well-rotted manure spaded in. As the space is small, it should not be divided into beds ; but a strip or border of turf a foot wide may be laid

around the front and the two sides, which may serve for a footpath, and which should always be kept well shaven. A neat trellis should be placed between the two parlor-windows (which will be about the centre of the garden), against the house ; and some woody climbers should be planted to cover this. For this purpose, the wistaria, the Virginia creeper (*Ampelopsis*), the trumpet-flower (*Bignonia*), or the Dutchman's pipe (*Aristolochia*), are most suitable. But, in a future article, we propose to give a list of many plants that may thus be used. Herbaceous plants are not generally suitable ; for, though showy for a time, by the end of summer the foliage becomes ragged and unsightly, and the general effect is impaired. We must therefore depend mainly upon bedding-plants, annuals, and bulbs.

Of bedding-plants, almost the whole class is serviceable, as they continue to grow until cut off by the frost, and flower profusely. The point to be especially looked to is; not to plant too many or tall rank growers.

Annuals should be carefully selected. A large proportion of them remaining only in perfection a few weeks, those only should be chosen which grow and bloom during the whole season, and which thus are always ornamental, either in foliage or flower.

Bulbs may be used most effectively. The foliage is good, and the flowers very showy : the only care necessary is to cut off dead flower-stalks and withered leaves, and to so plant that the flowers may seem to spring from a mass of green, as the foliage of most bulbs is erect and reedy, and never covers the ground. Some low-growing annual (such as mignonette) or bedding-plant (such as a low-creeping verbena) should be employed to cover the ground.

Where the bulbs are plants in large clumps, this may not be necessary. Tuberoses (*Polianthes tuberosa*) and tiger-flowers (*Tigridia*) make grand masses, and the foliage is good.

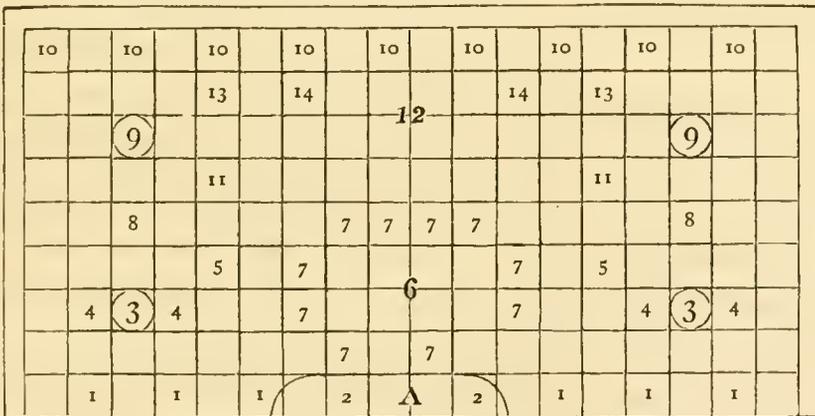
Trees should never be planted, for the simple reason that they grow too large ; and shrubs, if not wholly discarded for the same reason, should be those only which are ornamental in foliage as well as in flower. As a rule, fine foliage is to be preferred to fine flower : some few shrubs combine both, and are very ornamental. In planting annuals, it is better to buy young plants already started in a frame than to sow seeds, as thus spaces are more easily calculated, and crowding avoided.

Bedding-plants can always be obtained from florists in small pots. In planting, they should simply be turned out of the pots, the ball of earth crumbled away a very little, and the collar of the plant set a trifle deeper than when in the pot, the earth carefully pressed around the plant, and a gentle watering given at night from the fine rose of a water-pot.

Bulbs should be planted rather deep : lilies, three to four inches, according to the size of the bulb ; tiger-flowers, two inches ; tuberoses, two inches ; Jacobean lily (*Sprekelia*), two inches ; and gladiolus, three inches. These rules admit of exception, and larger bulbs require to be planted deeper than small bulbs of the same species. Lilies, contrary to the generally-received opinion, may be safely transplanted in spring, care being taken not to break the shoot or small roots. All planting should be finished by the 20th of May ; and, if the hot sun causes the ground to become parched, water should be given at night.

The following plans show proposed laying-out of city gardens :—

FIG. 1.
Squares represent 1 sq. ft.



Turf-border, 1 ft. wide round front and sides.

Outside dimensions, 10 × 20 ft.

Inside " 9 × 18 ft.

A. Trellis against house, and bed for climbing vine.

FOR A SOUTHERN EXPOSURE.

- | | |
|---|--|
| 1. <i>Salvia splendens</i> . | 8. Heliotrope. |
| 2. <i>Tropæolum minor</i> (some variety). | 9. China roses. |
| 3. <i>Tigridia pavonia</i> , or <i>conchiflora</i> , six bulbs. | 10. <i>Portulaca</i> . |
| 4. <i>Verbena</i> , scarlet. | 11. <i>Calocasia esculenta</i> . |
| 5. <i>Verbena</i> , white. | 12. <i>Tournefortia heliotropoides</i> . |
| 6. Tuberoses, six. | 13. Sweet alyssum. |
| 7. Mignonette. | 14. <i>Tagetes signata punila</i> . |

The plants used in the above plan are all easily obtained, and would give a profusion of flowers from June, until killed by the frost. The tuberoses and salvias would be especially effective in September. The bedding-plants should be set in single plants. The alyssum and mignonne may be sown, or plants set out, four inches apart; the portulaca should be sown in a ribbon, or broad band; the China roses should be set out in clumps of three, nine inches apart.

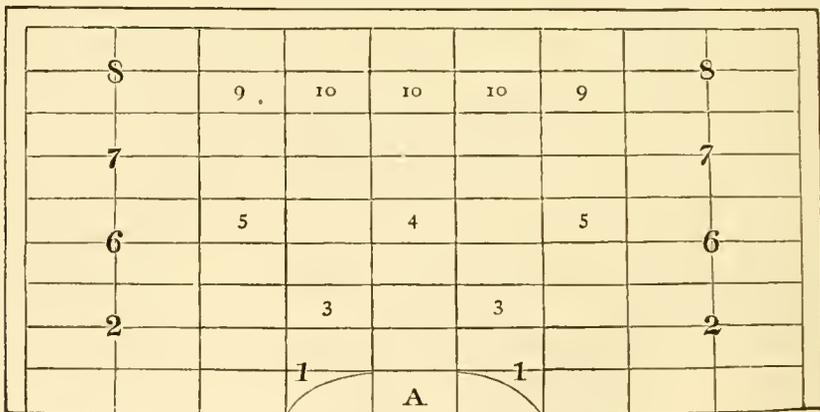
The bulbs of Tigridias should be planted. Tuberoses and Calocasia will do better if turned out, having been started in pots.

For a display of tropical plants for a warm, southern exposure, let us take a garden of the same interior dimensions, — nine by eighteen feet.

Here we must bear in mind that luxuriant foliage, and not flower, is the object; and that all the plants used, though small when planted, attain great dimensions in a few months: they should, therefore, not be crowded, but each allowed to develop symmetrically.

To cover the ground, a sowing of portulaca and sweet alyssum may be made broadcast all over the bed.

FIG. 2.
Squares represent 2 ft. \times 1 ft.



Turf, 1 ft. round front and sides.

Inside measure, 9 \times 18 ft.

Outside " 10 \times 20 ft.

A. Bed for climber for trellis against house.

- | | |
|---|---------------------------------------|
| 1. <i>Cobea scandens</i> . | 6. <i>Canna Nepalensis</i> . |
| 2. <i>Ricinus Bourboniensis arborea</i> . | 7. <i>Canna Muhlerii</i> . |
| 3. <i>Ricinus Tuniciensis</i> . | 8. <i>Ricinus macrocarpus nanus</i> . |
| 4. <i>Canna discolor</i> . | 9. Striped Japanese maize. |
| 5. <i>Canna Annæi</i> . | 10. <i>Colocasia esculenta</i> . |

Thus, from eighteen plants, we should obtain a magnificent mass of foliage. The cobeia is a rank-growing vine, with large, purple, bell-shaped flowers. The flowers of the cannas, or Indian shot, are showy, but fugitive; and both they and the Ricinus, or castor-oil bean, are ornamental in fruit.

We propose, in future articles, to show how the same garden may be made effective for spring flowers.

GLEN RIDGE, November, 1866.

Edward S. Rand, Jun.

(To be continued.)

THINGS NEW AND OLD.

THIS age is not reverent. It glories in recent accomplishments, and is dazzled with bright visions in the future. It looks upon past generations with a feeling akin to pity, as it recounts the many discoveries and improvements which belong distinctly to the present age. In making comparisons, it is natural and excusable that we indulge a complacent satisfaction as we note our advance.

Watching the swift revolutions of the steam printing-press, we recall the old lever-press with a compassionate smile. Is it possible that people once travelled in canal-boats and upon corduroy roads? In the mechanic arts, we do not for a moment tolerate a comparison between the past and present. Hand-work in spinning, weaving, sewing, knitting, in all directions, is giving way to mechanism. Even in the fine arts, the hand of genius finds a rival in some newly-constructed machine at every turn. And so in husbandry: the changes are equally significant, and comforting to our self-esteem. We like to put on exhibition the rude plough, the hand-rake, and sickle, by the side of modern seed-sowers, mowers, and reapers. At our State fairs, that ox is under weight that does not come up to two tons; that sheep is second-rate that is not worth a thousand dollars; that horse is slow that does not come to the stand at 2.40. Within a score of years, the language of the turf has changed from the "forties" to "low down in the twenties." And, in fruits, who can count the new varieties, or estimate the superior excellence, of these latter-day gifts of Pomona? By the refin-

ing process of hybridizing, may we not yet expect to produce an improved nectar for the gods? Thus we reason ourselves into the belief, that, with us, light has come into the world; that the sun rides high towards the zenith; and that the millennium of material things is close upon us. But we undervalue the past, our present boasting is vain, and we delude ourselves in respect to the future.

In taking a calm retrospect, we are inclined to agree with the utterance of the wise man nearly three thousand years ago, that "there *is* nothing new under the sun." This in a certain sense, of course; for do we not hear of *new* seedlings in fruits and flowers, without end of names and merit? But of this let us see.

Do the grapes at any of our country fairs exceed in weight the bunch borne from Eshcol, "between two, upon a staff"? Is there any evidence that our prize South Downs are superior to the first of the flock which Abraham offered for sacrifice? And the stalwart Devons—who shall say that they excel the fat and well-favored of Jacob's herd? I fancy, also, that Jehu's span would have made no mean figure upon the Fashion or Riverside course. Does any one imagine that the Tyrian purple would appear dull at the present day? Would not the splendor of Solomon's court be counted respectable, even in this fast age? And, in vainglorious boasting, does our modern Gotham excel the ancient Babel.

In considering these questions, we must come to the conclusion, in the main, that what is has been; that it is the same world now as in the Abrahamic period; that though progress is clearly seen, which seems to go on with accelerated speed, yet there is no probability of a culmination during the present age. Our little span of life may be all-important to us as individuals; but, with the Sovereign Ruler, "a thousand years are as one day," and he works out the great problems of the world's history by slow processes. We shall be wise to be patient, and to estimate the past ages of slow preparation according to their true value. There is, indeed, much reason to indulge in great expectations; but there is also an extreme to which this feeling may be carried. Like prudent men, we are to understand and magnify our work; while, at the same time, we guard against that boastful and hurtful habit of exaggerating our mission, which tends to render our lives a delusion and a vanity.

In the art of husbandry, we witness the slowest and most patient progress. We must go back to the earliest ages for the foundations of our knowledge. The slow steps of advance are wearisome, and are by no means flattering to the race. Yet we must bear in mind that the subject is one of difficulty, dealing with uncertain and ever-varying elements, and requiring almost endless experiments and observations in order to arrive at the best results. Soils, situations, variations in the seasons and in the weather, diseases, and other conditions, are so changing, that fixed rules cannot be laid down as in mechanics ; and the greater evil is, that, owing to these uncertain elements, random experiments are most unreliable data. Yet, from the huge mass of past experience, knowledge is gradually sifted. This knowledge is stated more clearly, is made available, and put into general use ; so that, with frequent and important improvements in mechanical implements, with many discoveries and developments of new varieties of products, and with some progress in the sciences, as applied to husbandry, we may safely say there is a steady advance. There are reverses, and in some instances there are failures. The wheat-crop is almost given up in New England ; the plum is a fruit scarcely to be found in our markets ; peaches are no spontaneous growth at the present ; the almost extinct St. Michael pear was unsurpassed a generation since by any new variety. Fifty years ago, the Sweetwater grape was a very reliable fruit ; and the Isabella was sure to ripen, and was excellent.

Our contest with insects, with an exhausted soil, and with diseases induced by climatic changes consequent upon the destruction of our forests, will require untiring energy and patience. It will not do to delude ourselves into the feeling that our garners are to overflow with the fruits of the earth. Yet we may take courage. We are yearly learning new facts in regard to insects, and acquiring dominion over them. Science is at work in the vast field of research for the specific food for plants. Practical experiments are developing varieties of plants adapted to the changes in climate. This is the field, and this the work. It is a struggle of which this generation saw not the beginning, neither is it to see the beginning of the end. We may be compelled to abandon one old, favorite, strongly-fortified post after another ; the pleuro-neumonia may destroy our herds ; we may fail to detect and control the potato-disease ; the plum, peach, and

cherry may prove but lingering reminders of former prodigality : still, for every position abandoned, we take a new and stronger one. The St. Michael, the Flemish Beauty, and the Glout Morceau pears, may perish ; but we put in such recruits as the Clapp, the Sheldon, the Beurre d'Anjou, and the ranks are stronger than ever before. Our cattle-fairs show improving grades of stock ; our farms indicate slow but gradually-improving culture ; our horticultural exhibitions plainly tell of more energy and skill, and in the quality, and especially the great increase of varieties, leave no room to doubt that the result is a decided advance. But we must gratefully acknowledge that which comes to us from the past ; we must be moderate in our expectations, and be patient in struggling with unending difficulties ; and we must be content to know that ours is not to be a finished work ; that we have no slight task *in struggling against a retrograde* ; and that it is a high and worthy ambition if we can transmit our blessings unimpaired, adding thereto according to the wisdom and skill which God has given us.

William C. Strong.

PEAR-CULTURE.

THE time was, and that within the recollection of many now living, when the varieties of pears were few in number. The St. Michael, St. Germain, Catherine, and Orange pears, were about all that were generally cultivated in the vicinity of Boston : now there are many collections that boast of hundreds of varieties. Formerly only a few trees were sold, each person buying one, two, or possibly half a dozen : now many a garden or orchard can boast of hundreds, or even thousands, of trees ; while our market-farmers, who heretofore have raised mostly vegetables, or, if fruits, the small ones, are now planting pear-trees in great numbers. Once the apple was the great and leading fruit-crop of Massachusetts, and some orchards gave a yield of a thousand barrels a year : now apples grown in this vicinity are a rarity. In old times, it was considered very difficult and unprofitable to attempt to raise pears, partly because it took so long to bring them into bearing, and partly because they required high cultivation : now these objections no longer obtain ; the dwarf-pear giving fruit at a very early age, and even the standard pear yielding a good crop in about the same number of years that was formerly required to bring an

apple-orchard well into bearing. Then our cultivators are more accustomed to high manuring, and are willing to do full justice in this respect to their pear-orchards. The story that was told of the father who objected to planting an orchard because it took so long to bring it into bearing, but who still lived to eat of the fruit grown by the son on an orchard of *his* planting, has been fully illustrated in many an instance in pear-culture. Time was, and that within a very few years, when the Bartlett and Seckel were almost the only varieties planted: so that, if a person should say to a nurseryman that he wanted three trees, you might be fully sure that one would be a Bartlett, one a Seckel; and then he would ask what else there was worth planting, and finally end by buying another Bartlett. Now almost every farmer you meet will talk to you of Beurré this, or Beurré that, and go through and discuss the merits of scores of varieties with all the freedom of a veteran pomologist. Once the St. Michael, and, later, the Bartlett, were considered the height of perfection; and it was regarded as downright heresy to dissent from this opinion: now many have become convinced that there are scores of better pears, so far as quality is concerned, than either of the varieties named.

A great change has been wrought: more pears are raised, more pears are consumed. If prices were high years ago, they are higher now. The supply has hardly kept pace with the demand; and as prices are thus high, and the supply short, many have been led to enter upon the cultivation of this fruit on a more extensive scale. Years ago, when Manning, Kenrick, and others were raising and importing pear-trees, the cry was, that the market would soon be glutted with this fruit (the same was said of strawberries, and yet the fruit has advanced in price every year): but we see no such result; for pears bring better prices now than at the time referred to. If we reason from analogy, we say that what is true of the past will be of the future. It is *possible* to plant too many pear-trees: but when we remember the extent of our country; the great increase of population; the facilities for transporting the surplus fruit to distant markets; the fact, that, in many parts of the country, pears cannot be successfully grown, — is it probable, that, for many years at least, the market will be overstocked with this valuable fruit? It has been our desire to see the time when the masses, the poor as well as the rich, could eat pears as well as other fruits; but they cannot do it when

they sell from five to seven dollars a bushel. Then, if apples are to continue to fail us, we must have the more pears, to make up, so far as possible, for the deficiency of that fruit. If, then, it be assumed that pears can be profitably grown, and that there is a constantly increasing demand for them, it becomes important to raise such as will best meet the wants of the public, both as to quality, and time of ripening. It is to be regretted that the public are not governed more by the intrinsic value of a fruit than by its showy appearance, choosing generally the bright golden pear, the brilliant red apple, or the rich-looking black grape, without much regard to quality; thus passing by the rich Belle Lucrative to accept the Buffum, Merriam, Beurré Clairgeau, or some such variety of inferior quality. By a more thorough education of the people through the medium of horticultural societies and horticultural magazines, this evil may in the future be remedied. An important inquiry is as to what varieties shall be planted, in the present state of the popular mind, to supply the market, and be profitable to the producer, if not the consumer. This will require quite a different answer than the question, as to what varieties shall be planted for home consumption; for we often speak of this or that variety being good to "sell, but not to eat." They must be varieties of good size; for though they be of most excellent quality, equal to the Johonnot, and, like that delicious variety, small and inferior-looking, the public will pass by, and refuse to buy them. The Seckel appears to be an exception to this rule; for it is a favorite wherever known. It would seem to be absolute heresy to mention the Bell or Windsor, a very inferior sort; and yet it is one of the most profitable varieties now grown for the market. The tree is very hardy, bears well, and requires little care: the fruit sells well, because it is early; its color catches the eye, and thus tempts the passer-by to purchase a pear that is really only suitable for cooking. The Brandywine is an excellent summer pear, that deserves a higher place than it has yet received. It is of more than medium size, and thus possesses an advantage over most of the summer pears. The Clapp's Favorite, one of the handsomest and best of its season, will fill a place just before the well-known Bartlett finds its way to market. This variety is a most excellent grower; and if the fruit is picked when hard and apparently green, but just when the defective specimens show signs of ripeness, it is good, and keeps well for a summer pear. The Buffum, though

rather below size, is very handsome, and of fair quality ; while the tree is a most excellent grower and bearer. One well-known pomologist declares it to be a very profitable market-variety. It does best in a light soil. Then comes the Bartlett, so universally known, attracting the attention of every one by its good size, and rich golden color ; even the windfalls and thin-nings ripening up so as at least to be salable, if not good. The tree is a good grower when young ; a great bearer ; the fruit of large size, and good quality ; and, taken all in all, probably the most popular variety grown in this country. The public show their good taste by adopting this pear as a favorite, though it is not of the very best quality. The Louise Bonne de Jersey is much in demand in the market ; and though it is in some localities less popular than formerly, yet it stands well as a salable variety. It does much better on quince, giving superior fruit. The Doyenné Boussock may safely be put down as an excellent market-pear ; large size, handsome, and quite eatable. It is a profitable sort, and worthy the attention of fruit-growers. The Andrews has been raised to considerable extent ; but as it comes in about the same time with the Bartlett, and is not as attractive in appearance, it will never become extensively popular. The Golden Beurré of Bilboa takes a fair rank among this class of pears : the fruit is generally fair and handsome, but comes too near the time of the Bartlett to be grown extensively. Soon after will follow the Merriam, a native fruit, and a prodigious bearer ; a variety that sells well on the fruit-stands at the corners of the streets. The Sterling, which comes a little earlier, is also regarded as a good fruit for the market, because of its beauty, size, and "fairish" quality.

And then, as we come down to the fruit of October, there is Swan's Orange, too acid for some, yet quite desirable on account of its fine size, productiveness, beauty of fruit, and vigor of tree. Then comes Beurré d'Anjou, good in every respect, — good bearer, good size, fair, and nearly first-rate in quality. It has been said by a well-known pear-grower, that, if he were to plant a thousand trees, they should *all* be of this deservedly popular sort. It rots just right ; for it gives you due notice by commencing on the outside, unlike many pears of fair exterior. It is true that it has the fault of blowing off badly, which is a serious drawback in exposed locations. It does equally well on quince or pear stock, and is destined

to become more and more popular as it is more widely known ; and it may be extensively and profitably planted. The Sheldon is another fine pear, of recent introduction, and of first quality. The tree is a good upright grower, and rather early bearer. The fruit does not keep as well as the Beurré d'Anjou, nor is it particularly attractive, but will be appreciated, when eaten, by all lovers of good pears ; and the public should buy it. The Lawrence is a late fall or early winter pear, of good quality ; and it grows fair, and colors up finely with very little care. Its beautiful lemon-color will sell it, and it has the merit of ripening with very little care. The Vicar of Winkfield is a pear of second-rate quality, but is, notwithstanding, a very profitable variety, especially for cooking-purposes, and sometimes for eating ; for it will, in some seasons and in some locations, give specimens that will prove nearly first-rate. If it is allowed to overbear, the fruit will be poor, green, and flavorless. The tree is very hardy, and the variety does equally well on quince and standard. Of all the varieties that can be most profitably grown as dwarfs, the Duchesse d'Angoulême stands, perhaps, at the head of the list. The size of the fruit, with its fair quality and good appearance, will sell it in any market at a good price. Many contend that this variety will do well as a standard ; but experience will show otherwise. The Beurré Clairgeau is a very handsome pear, and grows to great size. It seems to do better as a dwarf than a standard. The Urbaniste, coming along before the Duchesse, should not be left out of even a small collection, either for home-use or market. The variety is a long time coming into bearing ; but, when it has reached a mature age, it yields large and constant crops of fine, fair fruit, that will always command a good price from those who can appreciate a good fruit. Other varieties might be named ; for there are many more that many will claim can be profitably grown, and some will declare that they will prove superior to those enumerated. It is difficult to give a list that will suit all soils or locations. The man who plants pear-trees for the most profit will confine himself to five varieties, or, on no account, exceed ten ; and will be content to let the curious pomologist and amateur test the hundreds or thousands of varieties now on the list, with all the new ones that are yearly brought before the public. It may not be out of place here to add a brief list of pears, in a brief way, that may be satisfactorily raised for home-use. The number of

varieties for this purpose should be more extensive than the former list. One object in thus planting should be to have as wide a range of flavors as possible, as well as to embrace all the other good qualities that can possibly be obtained. One other thought should be kept constantly in mind in planting for home-use, — that of a succession of fruit from very early to very late. Among the very earliest comes the Madeleine; a rather poor pear, of which it might answer to have a single tree. Better, though very small, is the Doyenné d'Été: then the Supreme de Quimper, Rostiezer, Tyson, Bloodgood, Pinneo, St. Ghislain, Beurré Giffard, and Brandywine, are all good pears in their season, and should find a place in such a collection. The same may be said of Dearborn's Seedling, Clapp's Favorite, Bartlett, Belle Lucrative, Flemish Beauty (rather sparingly), Beurré Bosc, Abbott, Sheldon, Louise Bonne de Jersey, Duchesse d'Angoulême (on quince), Seckel, Marie Louise, Urbaniste, Mt. Vernon, Beurré Hardy, Lawrence, Beurré d'Anjou, Dana's Hovey, Beurré d'Aremberg (slow grower), Catillac (for cooking), Vicar of Winkfield, Winter Nelis, Beurré Diel, and Glout Morceau in some locations. There are many other good varieties, of course, that can be added to this list, including some of the newer pears of great promise; such as Rogers, Goodale, Edmonds, Ellis, Wellington, Caen de France, Émile d'Heyst, Gen. Todtleben, and others. The above list will not be suitable to every variety of soil and location, but is probably the very best for one's own use. In briefly presenting this list of pears, it is proper to say that those have mostly been selected that by experience have been found to give satisfactory results; and no one can go far astray in adopting it.

• *J. F. C. Hyde*

THE HORTICULTURAL VALUE OF THE CROW.

PERHAPS no branch of American rural economy has been so little investigated as the food of our native birds. In Europe, within a few years, the attention of scientific men has been turned to the subject: but the information they have been able to obtain, although valuable, cannot, of course, be applied, otherwise than by a series of analogies, to this country; and the economical value of most of our species is as yet almost

entirely unknown to us. This ignorance is owing, principally, to the difficulty attending such investigations, — the killing of great numbers of birds in all the seasons when they are found with us, which is absolutely necessary, but which is extremely distasteful to most persons ; and it has been aggravated somewhat by the contradictory statements of various persons in different localities regarding the food of some species that they have had the means of observing.

Of these birds, none have given rise to more controversy than the Corvidæ, in which are placed our crows and jays ; and I propose to discuss briefly here this interesting topic, and bring a few facts and arguments, founded on reason or actual observation, to show their actual value on the farm.

Until very recently, I have been the earnest advocate of these birds, and have believed that the benefits they render much more than balance the injuries they inflict ; but I must say, that, after careful consideration, my faith in their utility is sadly shaken.

At the outset, I will say that I have kept specimens in captivity ; and have, by actual observation, proved that at least eight ounces of such food as frogs, fish, &c., are eaten daily by our common crow. Of course, like other birds, it can live on a very limited allowance ; but I think that the above is a reasonable amount : however, to be absolutely within bounds, we will fix the food of the crow to be equal to five ounces of animal matter per diem. Beginning, then, with the new year, we will follow the life of this bird through all the seasons, and then compare the results arrived at together, good and bad.

During the months of January, February, and March, when the face of the country is covered with snow, the insects being dormant, and the small birds away to more southern districts, most of the crows migrate from New England ; and the few that remain depend upon a scanty subsistence of seeds of wild plants and weeds, acorns, apples that have been left on the trees in the orchard, and frozen ; and they occasionally capture a field-mouse that strays from its nest in the stubble-field or swamp. The life of the crow during these months is one continued starvation ; and the expression, “poor as a crow,” may be applied to it, as well describing its condition. It succeeds in finding a few cocoons of Lepidopterous insects ; meets occasionally with a caterpillar or beetle ; and, on the whole, its labors

during these months may be called beneficial ; although the good resulting from them is of so little amount, that we might safely regard them as neutral. But, to be beyond the chance of doing it an injustice, we will assume, that, during the three months above mentioned, the crow does as much good as during the whole month of April.

Let us adopt, in this discussion, a system of numerals to signify the relative values of this bird through the year ; taking the unit 1 to represent the labors of each day. The crow is therefore valuable, during January, February, and March, 30 units : and, in April, is unquestionably 30 units more ; for its food then consists almost entirely of noxious insects in their different forms. It is perfectly safe to say that it would destroy a thousand insects in making up the amount of food that I mentioned above ; and it is not improbable, that, during this month, it actually eats that number daily.

During the first half of May, its labors are undoubtedly beneficial ; for its food still consists almost entirely of insects : but after the middle of that month, when the small birds have begun to lay their eggs and hatch their young, the crow divides its diet pretty equally between them and the insects. Now, it is not apparent, at the first glance, how immensely injurious it becomes the moment it begins to destroy the eggs and young of our small birds ; but we may demonstrate it to an approximation. We will allow, that, during the latter part of May, half of its food consists of injurious insects and other vermin : it is therefore beneficial in the whole month about 23 units. But it is perfectly reasonable to say that it destroys at least the eggs or young of one pair of sparrows, four in number ; one pair of warblers, four in number ; and one pair of thrushes or starlings, four in number : for I have known one pair of Canada jays to kill and devour the half-grown young of four families of snow-birds (*Junco hyemalis*) — sixteen birds in all — in one forenoon ; and have seen a pair of crows, in two visits to an orchard, within a half-hour's time, destroy the young birds in two robins' nests.

Now let us see what the injury amounts to that it does in destroying the four eggs or young of the sparrows, warblers, and thrushes. It is a well-known fact, that the young of all our small birds, whether insectivorous or graminivorous in the adult stage, are fed entirely on insects. Bradley

says that a pair of sparrows will destroy 3,360 caterpillars for a week's family supplies. For four weeks, at the lowest estimate, the young of our sparrows are fed on this diet; and the family that the crow destroys would, in that time, eat at least 13,440 noxious insects; and as they feed more or less upon this same diet during their stay with us, killing certainly as many as fifty insects each, daily, the family would devour 200 per diem, or, before they leave us in September, as many as 20,000. The warblers are entirely insectivorous, and we can certainly allow them as great destructive capacity as the sparrows. The four that the crow destroys would have devoured, before they leave us in autumn, at least 30,000 caterpillars and other insects. A pair of thrushes has been actually seen to carry over a hundred insects, principally caterpillars, to their young in an hour's time: if we suppose that the family mentioned above be fed for only six hours in the day, they would eat six hundred per diem, at least, while they remain in the nest; which being three weeks, the amount would be 12,600; and before they leave us in the fall, allowing only fifty each per day,—a very small number,—they would, in the aggregate, kill 20,000 more.

Now, we find that the crow in one day destroys birds that would, together, eat 96,040 insects before they would leave us for their winter homes, or about ninety-six times as many as it would eat in a day if its food consisted entirely of them. It is therefore injurious, during the last half of May,—keeping our original calculation in view,—598 units.

During the whole month of June and the first half of July, while its family are in the nest, it is at least doubly destructive; for its young are possessed of voracious appetites, requiring an abundance of food to supply them. Allowing, then, that, of its and their diet, half consists of insects during this period, it is beneficial about 46 units; but, as at least one-half of the other half consists of young birds and eggs, it is injurious during the same period at least 96 units daily, or 4,320 units for June and the first half of July. The remaining quarter of its and their food during this time consists of berries and various small seeds, and reptiles; and this diet may be considered as of neutral importance, economically speaking.

During the last half of July, and through August and the first half of September, its diet consists of about half insects and mice; and the balance, of berries and small fruits. It is therefore, during this time, beneficial

about 30 units ; and is not injurious, otherwise than by eating garden fruits or grains, — items that I do not consider in the present discussion. From the middle of September until November, its food loses much of its fruit character, because of the failure of supply ; and it feeds at least two-thirds on insects and other noxious animals : it is therefore beneficial 30 units, and is not injurious ; and, during November and December, it is beneficial to about the same extent that it is in February and March, or about 40 units.

We have now but to condense the foregoing results, and we have, in the aggregate, the sum total of the crow's merits and demerits.

We find, that, during the whole year, it is beneficial to the amount of 229 units, and that it is injurious to the extent of 4,918 units. If, for the sake of the greatest indulgence, we take but one-fourth of this enormous disproportion as the actual fact, we still have an exhibit that proves at once that these birds are not only worthless, but are ruinously destructive.

In presenting this short article, I will say that I am not moved in the least by prejudice or ill feeling for a much-disliked bird, but that I state the facts as they are, and simply to throw a little light on a subject that has given rise to much discussion and controversy. In conclusion, I will say that the jays are equally injurious with the crows, and that they are not deserving of a moment's indulgence or protection at the hands of the ruralist.

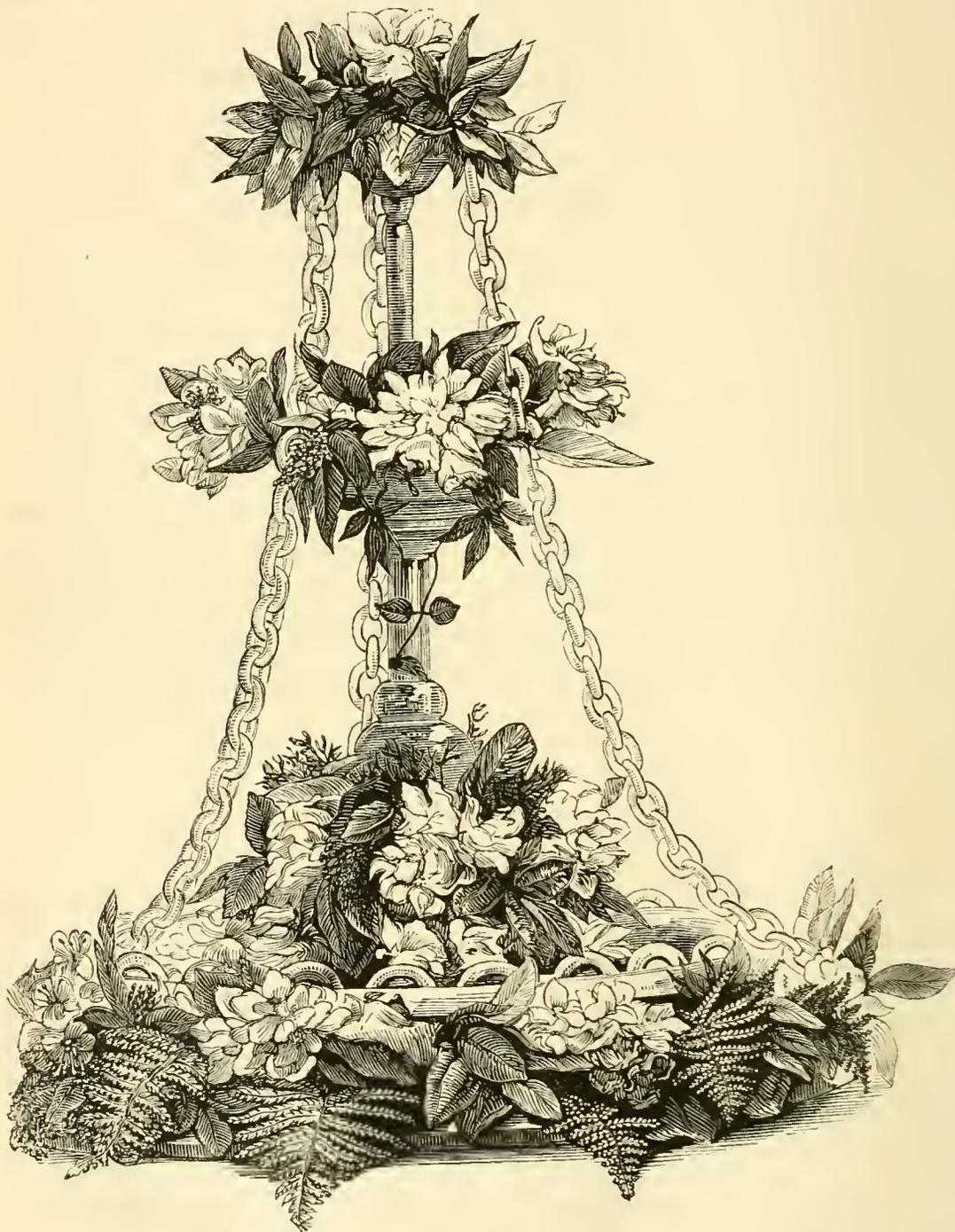
E. A. Samuels.

TABLE DECORATIONS.

DURING the last few years, much attention has been attracted in England to the decorations usually employed for the dinner-table ; and the result has been the general disuse of the old style of clumsy, awkward *épergnes*, composed of heavy-plated white-metal and glass, and the introduction of a neater, lighter, and more artistic form of ornament. These new styles depend mostly for effect on the flowers and foliage with which they are filled ; the material of the *épergne* filling, as is proper, a secondary place. At the International Horticultural Exhibition in London, in May last, liberal prizes were offered for the best designs for table-decoration ; and the result was the production of many, which, for simplicity, neatness, and elegance, can hardly be excelled.

In this country, much improvement is possible in this respect ; and we commend the subject to the notice of our horticultural societies.

The following description of some of the decorations which attracted most attention may prove interesting :—



The above figure represents one of the dinner-table decorations. Such ornaments for the dining-table are confessedly the most difficult arrange-

ments that taste has to achieve. If very dwarf, they are insignificant, except to the guests beside them ; if of medium height, and closely ornamented with flowers and foliage, they intercept all *vis-à-vis* communication, and destroy the effect which ought to be produced by the *tout ensemble* of the table ; if tall, so that a portion of the floral decoration is above the heads of the guests, and the remainder on the level of the table, the effect of those separated portions of decoration is extraordinarily weakened. This design, we think, avoids all these defects. Though of medium height, the upper part is of a form not to obstruct the eye of the guest in any direction ; yet the floral decoration is sufficiently raised to entirely rescue it from being considered insignificant, even by the guests most distant from it.

The figure may be thus briefly described : A glass stalk rises perpendicularly from the centre of a circular glass mirror ; and, from the outer edges of this mirror, glass chains connect it with the top of the central stalk. These glass chains are not by any means small and fragile, but sturdy-looking links, stouter than those of iron that are used by wagoners for yoking horses ; and they, not being tight, give a graceful and easy bend to what is, in reality, a brace. The outer rim of this mirror is very tastefully dressed with flowers and foliage ; and a little, but very little, of these is laid against the three chains, which form so important a part of the design ; the whole requiring very little of either flowers or foliage.

The flowers used are blue and white iris and double narcissus, foliage of the same, and a few ferns and variegated leaves in character. For the border, small plants of lily of the valley and of ferns, intermixed with ivy. *Side* devices, rather smaller than the centre, may have crimson and rose rhododendrons, with buds and foliage of the same ; a few variegated leaves ; Virginia-creeper leaves round the top border ; and some maiden-hair fern.

The frame of this device, or *épergne*, is of solid glass, and rests on a plateau of silvered glass, ornamented with glass chain-work ; and there are three corresponding chains of glass from the top to the base.

The specimens shown were intended for a large banquet or buffet. The proportions would require to be reduced for an ordinary dinner-table.

Another dinner-table decoration consisted of three circles of looking-glass, having an edging of ferns, lycopods, and a few flowers, interspersed ; with a few taller fronds, and pieces of the white-variegated *Cyperus*

alternifolius, standing above the rest, or hanging over the glass. The central glass, which was the largest, was arched over with white coral, partially concealed by fronds of adiantums and golden fern. Altogether, this was a tasteful and elegant arrangement.



The drawing-room decoration, of which we give a representation, has for its flowers lily of the valley only, — with the exception of a purple lælia, — with three blooms in the centre ; a few variegated stove-plant leaves, and

Japanese honeysuckle, twining up the stem. There is a glass rod in the centre, to which are attached three light glass chains ; and the glass dish supporting the rod is placed upon a silvered glass plateau, encircled with crystal beads.

The use of glass, in many graceful forms, produces effects far better than those produced by metal. If silver light is needed, the required effect may be given by employing silvered glass. Ferns and the larger lycopodia are very useful in table decoration ; and the maiden-hair fern (*adiantum*) is peculiarly adapted to this purpose.

We have seen a very effective table decoration in the form of a circular glass dish, about fifteen inches in diameter, from the centre of which springs a silvered glass rod about an inch thick and eighteen inches high, supporting another flat, round glass dish about half as large as the lower one. These glasses, filled with delicate flowers and ferns, with a graceful vine twined round the central stalk, make by far the prettiest table decorations we have seen.

Adapted from English "Journal of Horticulture."

CULTURE OF ROSES IN POTS, AND FORCING.

THE best roses for forcing are those which have been established a year in pots, particularly if required to bloom early, — say in January. I shall presume that the plants for early bloom have been obtained in May. They should be shifted from the small pots in which they are usually received into pots six inches in diameter, draining these to one-fourth their depth with broken pots, with a little of the rougher parts of the compost over the drainage. I have found no better compost for pot roses than that formed of turf from a pasture the soil of which is rather strong hazel or yellow loam. The turf — having been pared off two inches thick, and laid up in alternate layers with sheep-droppings, or, where the latter cannot be procured, with horse-droppings instead — should be allowed to lie six months, and then be turned, and, in three more, again turned. At the end of twelve months, an excellent compost will be the result. Previous to use, it should be chopped with a spade, and made somewhat

fine, but not sifted. When the turf is of a light nature, it is well to mix it with cow-dung in preference to horse-manure, and with neither till it is a year old at least ; using equal quantities of loam and thoroughly-rotted manure, of whatever kind. About one-sixth of sharp sand may be added to make the soil porous. To keep worms out of the pots, a little soot may be sprinkled over the pieces of turf placed on the drainage.

In potting, turn the plants out of the small pots ; pick away the drainage carefully ; press the balls gently, so as to loosen them ; and place the plant with its stem in the centre of the pot ; then fill in the compost (which should be in a medium condition as regards moisture) round the ball, and so that the roots may be covered about an inch. Press it well, give a good watering, and set the pots on slates or a concrete floor, in an open and sunny situation, filling the intervals between the pots with tan or sawdust up to the rims.

In this situation the plants are to remain through the summer, being well supplied with water, and frequently sprinkled overhead or syringed. The very weak shoots should be removed, and any showing for bloom are to have the buds pinched out. The very long shoots must be cut back to eight joints, if they make more than twelve : otherwise let them alone. Stopping the shoots should not be practised until the middle of August. The pots should be occasionally examined to see that the roots do not make their way through the holes at the bottom : the object of placing the pots on slates is to prevent this as much as possible.

Early in September, if all has gone well, the plants will be strong, and have filled their pots with roots. This being the case, shift them at once into eight-inch pots, in the same compost as before, adding, however, one-sixth charcoal, with the dust sifted out, in pieces from the size of a pea to that of a hazel-nut ; and this, with the sand, may form one-fourth of the compost. Drain the pots well, and press the soil gently round the ball, which should be loosened a little, so as to disentangle the roots. If loam from rotted turfs cannot be procured, then the compost may be formed of two-thirds loam, and one-third leaf-mould or well-rotted manure, adding about one-fourth of river or sharp sand, and pieces of charcoal. After potting, give a good watering, and place the pots on the slates ; filling in the spaces between them with sawdust or spent tan.

In a month after potting, the pots will have become full of roots: the plants having the strongest and best-matured wood should then be cut in to from four to six eyes, more or less, according to their strength. It should be borne in mind that the weak are to be cut in most; and the strongest shoots, the least. The weak shoots may be cut in to two or three eyes; those of medium strength, to four eyes; and the strong, to from four to six eyes. Now, if possible, protect the shoots from wet by placing them in an open shed, and keep them rather dry for a fortnight or three weeks. If pruned in the second week in October, they may be thus rested until the first week in November; then they will soon break well if the pots be plunged to the rim in a bed of tan or other fermenting material, with a heat of not more than 70° , in a house with a night-temperature of 45° . Here they should be sprinkled through a syringe with water, morning and evening.

When the eyes have broken, and the shoots are an inch or so in length, the night-temperature may be raised to 50° , and that is as high as it need be for forcing roses until the buds show color; then it may be increased to 55° . When in bloom, a temperature of 50° from fire-heat is sufficiently high. The plants should be kept near the glass; and the roof must not be shaded by creepers, or otherwise. Avoid a high temperature from fire-heat by night: in fact, it would be well to let the fire go out at night in mild weather, lighting it in the morning, and working on, so that the highest temperature may be attained by one or two o'clock in the afternoon. On the temperatures above named, allow a rise of 5° on dull days; of 10° on those days which are cloudy, with clear intervals; and of 15° in sunny days. The art of forcing roses is to afford them abundance of air and plenty of heat by day, and a comparatively low night-temperature; shutting up in good time after admitting air early, so as to let in, catch, and retain as much sun-heat and fresh air as possible. By day, the temperature from fire-heat should not exceed 70° . The sprinkling overhead may take place from nine to ten, A.M., and again at the time of shutting up the house; but in dull, foggy weather, only the morning syringing will be necessary.

Keep the plants as far from the heating-apparatus as possible; and, above all, avoid cold currents of air. Let the waterings be copious after growth has become active; but on the one hand do not over-water, and on the

other afford a supply as soon as the state of the soil shows that water is necessary : at the same time, the soil should never be allowed to become so dry as to affect the foliage. When the buds are formed, the pots should be gradually withdrawn from the hotbed, partly to prevent the roots striking into the fermenting materials, and partly to avoid a check when the bloom is nearer expansion. They may after this be set on a hard bottom, as flags, boards, or slates, and have liquid manure once or twice a week, but not strong. It may consist of one pound of guano dissolved in twenty gallons of soft water.

When the blooms are about half expanded, or hardly so much, the plants should be removed to a cooler house, from 45° to 50° by night. I have never observed any check result from doing this, and the color of the flowers is rendered deeper and brighter, and their perfume more powerful, whilst the blooming period is likewise prolonged. When the buds are far advanced towards expansion, syringing should be discontinued, and the paths sprinkled instead ; also afford the plants ample room, abundance of air when the weather permits, and all the light possible. After blooming, they should be gradually hardened off, and not placed out of doors until danger from frost is past.

To keep up a succession of bloom, a number of plants should be pruned a month later than the first lot, say the first in the first week in October, the second in November, and the third in December, introducing them into the forcing-house in November, December, and January respectively, and onwards up to March.

The most suitable classes for early forcing are the Provence, the hybrid perpetuals, and the teas.

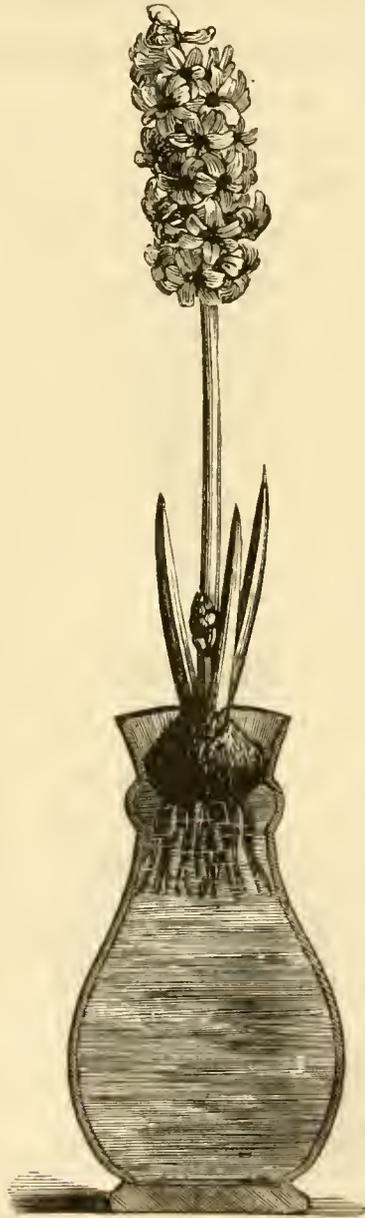
G. Abbey, in English "Journal of Horticulture."

IMPROVED CULTURE OF HYACINTHS IN WATER.

PROBABLY the greater number of our readers have upon their mantle-pieces, or in their windows, some of the pretty plain or ornamental glasses in which hyacinths are flowered in water.

During the chilly days of winter, these plants, by their fresh verdure, remind us of the summer that has gone, and also foretell the promise of the coming spring.

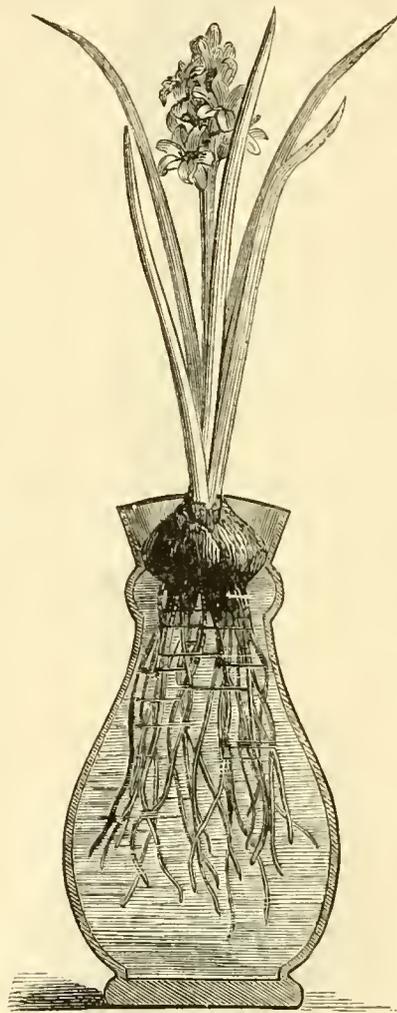
Last year (1864), there were exhibited by Monsieur Vavin, at a horticultural show in Paris, two hyacinths grown in water, in full growth early in November. The leaves and the roots, as is usual, grew before the flower-spike, which remained stationary. He then conceived the idea of cutting off the roots about an inch below the plate of the bulb, as we see in the following figure:—



In a few days, the flower-stem developed wonderfully ; while the plants with abundance of foliage bloomed badly. The fact seemed worthy of notice ; but the season was too far advanced to permit of experiments on

different varieties, and the experiment did not seem sufficient to warrant the adoption of a new rule of culture.

This year (1865), the experiment has been tried with many varieties, and the experience of last year is fully confirmed: in every case, the finest blooms have been developed from bulbs of which the roots have been cut off; they being grown side by side with bulbs of the same variety, with uncut roots. These latter have in many instances failed, as is usual, to develop a flower-spike; and in other cases have thrown a spike, of which the following figure is a fair example:—



Here, then, we have a new rule of culture introduced, which applies not only to hyacinths, but also to other bulbous plants.

The rules of culture are simply, then, to allow the flower-stalk to develop in a cool and perfectly clear vessel.

When the stalk is about three inches high, if it is well formed, expose the plants to a great heat.

If the leaves grow faster than the stalk, cut off the bunch of roots about an inch below the base of the bulb. This is the experience of Monsieur Vavin, the exhibiter. Let us see if the experience of others confirms it.

We have also to see if he is entitled to the credit of the discovery. In horticulture, as in other sciences, little things are often important; and we can show that this little experiment reveals important points in vegetable physiology.

No modern work which we have consulted mentions cutting off the roots of hyacinths, nor gives any new rules for their culture.

The Dutch have, for ages, excelled in the cultivation of hyacinths, and none can produce them more perfectly. Of the old works which treat of the culture of the hyacinth, we may especially notice the following:—

“The Florilegium” of Swertius, published at Arnheim in 1620, which speaks of about forty varieties of hyacinths, but does not mention a double one.

The work of Pierre Voorhelm, seventy years later, describes the first double variety, “Marie,” with white flowers, which sold for one thousand florins. “The New Treatise on the Culture of Flowers,” by the gardener Pierre Morin, was published in Paris in 1674.

This little book contained, among many valuable articles, a chapter on hyacinths. They are classed as single and double, early and late, hyacinths of Peru (probably *Scilla Peruviana*); and the varieties have strange names. The culture prescribed differs little from that of other earlier French works, and the plants do not attain the perfection indicated in the writings of Dutch authors.

The “Treatise on Flowering Bulbs,” of Nicolas van Kampen and Son, — published in 1760 in Haarlem, and now very rare, — contains chapters devoted to the choice and composition of soil for hyacinths, and upon the points to be required for a perfect flower. It does not, however, mention culture in water.

A “Treatise on the Culture of Different Flowers” — Saugrain, Paris; published anonymously — gives a more elaborate treatise on history and culture than any former writer; and seems to have given the idea of the famous work of St. Simon on the hyacinth (“La Jacinthe”), which

appeared in Amsterdam in 1768, and which contains many ideas which appear to spring from the same source. In the chapter on the culture of hyacinths in water, the work of Saugrain directs the use of either rain or spring water, — never hard water, or any containing mineral salts. Bulbs should begin to grow in October. Advocates a plentiful supply of water; the use of earthen pots, provided with a small cock, and made for the purpose; and, during cold weather, the plunging of the pots in hot dung. To have hyacinths all winter, bring the bulbs into growth every ten days; but do not force the same bulbs the following year.

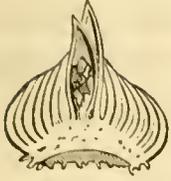
Miller's "Gardener's Dictionary" treats fully of hyacinths, and tries to rival Haarlem in this respect; but the Dutch rebel, and with reason. The rules of English botanists, at this time, give no new hints.

In all these works, we find nothing of the theory which we have broached: St. Simon alone seems to hint at it, when he advances the opinion — at that time strongly contested — that roots are absolutely useless for the growth of the hyacinth.

"I do not think," he writes, "that the roots of the hyacinth are the channels by which the sap is carried from the earth into the bulb; but, on the other hand, are conduits which serve to free the bulb from too much sap, which is introduced by the solid and spongy mass in the middle of the root, and which is called the eye of the root. It would not be difficult, I think, to make a bulb throw up its flowers without roots; as the maritime squill, the autumnal crocus, the cyclamen, &c. To prove the roots absorb nothing, I have placed them in infusions of blue, of verdigris, India ink, and oil. The verdigris and oil killed the plant; but the roots took up nothing more than in the other colors, and they were perfectly transparent. The roots cut or rotted off will not prevent the flower from pushing."

We see that St. Simon believed that the roots could be cut off without injury, without knowing that it aided the flowering. His theory, that the roots serve as conduits, does not deserve a refutation; but it will appear less ridiculous if we call to mind the formation of hyacinth-roots, composed of a simple channel, undivided, incapable of absorbing liquids when the spongiole at the end has been cut off. We may say that St. Simon approaches nearest the idea of Vavin.

The bulb of the hyacinth, before it pushes, contains in its centre the future flower, perfectly formed.



For its development, a little heat and moisture are sufficient ; and this development is independent of the organs of growth.

The leaves, on the contrary, take strength, and transmit it to the bulb, by a call upon the roots, under the influence of light and air. We can easily see that they absorb the greater part of the nourishment, and that they impoverish the flower.

Ed. André, in "Revue Horticole."

HYDRANGEA HORTENSIS FOR OUT-DOOR DECORATION.

PERHAPS no plant has been more generally cultivated than this variety of hydrangea since its introduction by Sir J. Banks. It is a very imposing plant when seen in its smallest form ; but when seen out of doors in autumn, seven feet high, in the form of a large shrub, with thousands of monstrous flowers resting on fine broad green leaves, it presents the grandest subject that can be seen in our climate in connection with the flower-garden, or decorating the margin of ornamental water, where it is most at home. The propagation of this plant is so simple, and its culture in pots so well understood, that I will not intrude with remarks on any thing save what relates to its out-door culture.

It is frequently asserted that the hydrangea will only succeed in favorable localities near the sea. In the west of England, and south of Ireland, it may be seen with large shrubs, flowering freely without any protection ; but it also may be seen thirty miles inland quite as fine by some attention to culture. The *Hydrangea hortensis* is a wonderful plant to suit situation : it may be seen in monstrous cymes on a wall facing south. On a north wall it will flower equally grand, although not so abundantly : under the branches of trees, on the edge of a pond, or planted on a rock, it will flower profusely. It must not be inferred from this that good culture is not necessary : there is no common plant on which high culture will tell more strikingly.

In commencing with young plants, the practice here is to grow them on a bed of loam and peat in a rough state. The plants are planted on the

surface, and mulched with rotted dung, and watered as frequently as circumstances will permit. The plants are removed and protected in winter until the wood assumes a shrubby character ; when they are permanently planted out, or kept in borders, and regularly transplanted to suit requirements.

In a climate where frost would destroy the annual shoots, the plants may be taken up and put into any sort of shed, with straw, or any other thatch, to keep out frost. In this sort of treatment, it is important to maintain the vigor of the plants ; and to this end it is necessary, when the plants are laid in, to pack firmly moist earth about the roots. No more trouble will be required until the latter end of May ; when the plants may be put into summer quarters, and the weak shoots should be freely thinned out, and the beds well watered. The hydrangea will flower but sparingly if planted deep. Surface-feeding will produce the best result in flower, and prevent the weakly shoots that are sure to come from deep planting. Our practice here is to top-dress heavily the large plants with rich pond-mud, about the end of May ; and this treatment has lengthened the continuation of bloom. Water is the great element of success in cultivating the hydrangea. In many places where flowers are cultivated, that element is scarce ; but, in special cases, deep pits may be dug, and filled up with peaty sods or other spongy materials : this has been done here with success. Some of the pits were dug out six feet deep, the hole filled in with rough sods, on top of which was put a layer of stiff clay, on which was put a layer of rotted dung, and hydrangeas planted over the surface-level. The object of the pits is to secure uniform moisture. The plants are a large size, and flower to admiration. I have tried with various earths the changing of the flowers from pink to blue. I have found the same result in pure clay, pure peat, and in the simple bodies : experience forbids me giving any decided opinion on this matter. Some of the American varieties of hydrangea are very beautiful hardy-flowering shrubs.

Charles M'Donald, in "Scottish Gardener."

[A mixture of iron filings or blacksmith-forge filings with the earth will cause the flowers to change from pink to blue. Watering with chalk-water will counteract this effect, and change the flowers to pink again. In some soils, the hydrangea naturally flowers blue. — ED.]

LITERARY NOTICES.

BULBS : A Treatise on Hardy and Tender Bulbs and Tubers, by EDWARD SPRAGUE RAND, Jun., author of "Flowers for the Parlor and Garden," &c., &c. Boston : J. E. Tilton & Co. Price \$3.00.

THE science of horticulture, as generally understood and practised in this country, comprehends primarily the culture of fruit ; subordinately, that of flowers. The tastes of the American people are practical : fruit is pecuniarily profitable ; flowers gratify only the æsthetic sentiment. But following the accumulation of wealth, and the multiplying opportunities for its indulgence, a love for the more delicate and finer gifts of Nature is being rapidly developed ; and notably is this true with respect to the love of flowers, and floriculture. In passing, it may be remarked, that the publication of such works as the one under notice has had a powerful influence in effecting this gratifying change. A beautiful garden is now an indispensable adjunct of a country-house ; and there are few city-homes which make any claims to refinement and intellectual culture that are not brightened and perfumed by a few fondly-tended house-plants.

There can be no better evidence of the progress of this revolution than the fact, that the state of popular feeling justifies the preparation of so careful and altogether satisfactory a scientific work as Mr. Rand's "Book of Bulbs." Its subject is strange to most, and novel to all. Only the most enthusiastic floriculturists, of whom there have been comparatively few in this country, have taken pains to inform themselves minutely as to this department of the science. Every one who knows any thing of flowers is aware that the tulips, the hyacinths, the crocuses, and the lilies, in his garden, belong to the bulb family ; but what are the distinguishing characteristics of bulbs, their habits, the best mode of their culture, the soils that favor them, their enemies in the insect world, with a thousand other particulars which make up the science itself, are questions which very few, even of our most ardent gardeners, have been competent to answer. It is for the enlightenment of these, and of the great mass to whom the exquisite dyes of the amaryllis and the gladiolus, and the creamy whiteness of the calla (*Richardia*), are but the common bounty of Providence, to be accepted without gratitude or curiosity, — it is for the enlightenment of such that this book was designed. We have no hesitation in saying that the work has been admirably done ; and, if it fails of its purpose, we shall be less sanguine as to the speedy popularization of floricultural knowledge. To the multitude, who love flowers as mere things of beauty, and to the ardent amateur, to whom they appeal as illustrating the most exquisite processes of Nature, these biographical sketches of some of the loveliest of the floral sisterhood are full of instruction and delight.

The fact that no authoritative work on bulbs, suited to the age and the advanced state of horticultural knowledge, is now extant, makes this publication especially timely. The works of Loudon and Herbert were admirable in their day, but are no more suited to this than would be the crude specula-

tions of Copernicus and Galileo to these post-Herschel times. Mr. Rand may safely claim for his work that it is the only treatise on bulbs which meets the wants of floriculturists of to-day.

But this general distinction is speedily lost sight of upon examination of its particular merits. These are, palpably, its clear and systematic arrangement, its affluence of learning, minuteness of information, and attractive style. The first of these is not the least important : it is worth much to be able to open a book, and, by a glance at the table of contents or the index, to turn without hesitation to the very topic of which you wish to read. Of the second and third, space will not allow us to cite evidences ; but a moment's inspection of the book will convince the reader that here may be found just what he wants to know about bulbs, set forth in simple and graceful language.

These general remarks have been so extended as to preclude any minute examination of the features of Mr. Rand's book ; and we can do no more than merely to indicate in it what seem to us to be characteristics of special excellence and value to the horticulturist.

The remarks on and rules for the practical cultivation of bulbs embrace all the instruction that is needed by any one possessing even the slightest knowledge of flowers, in order to the successful cultivation of bulbs. The most unpractical young lady may learn from these how she may, at small expense and pains, glorify her parlor with the beauty and fragrance of those flowers which are specially adapted for house-culture. This portion of the volume cannot be epitomized : every line of it contains a lesson, which must be read in order to be learned. The author's views on the preservation of varieties are confirmed by general testimony ; and his tests by which good bulb-plants may be distinguished from poor are simple and conclusive. The tulip, hyacinth, crocus, and one or two others, as being the best-known and most common bulb-plants, are properly treated in separate chapters, and more at length ; while rarer varieties, many of which are unknown in this country, receive briefer notice. It is to be hoped that Mr. Rand will supplement this popular treatise with another, which shall supply information of a more eclectic and recondite nature. To the New-England reader, the chapter on the lily, which, best of all bulbs, flourishes in our cold climate, will be specially interesting.

It is, perhaps, unnecessary to set forth the inducements to the cultivation of bulbs : but there may be some readers who are not aware, that, less perhaps than any other class of plants, they are liable to disease, or to the attacks of insects ; that they are easily cultivated in the garden and as house-plants ; and that, in beauty and fragrance, they vie successfully with the entire floral family. Their adaptedness for house-culture should specially recommend them to lady-amateurs ; few of whom, having read Mr. Rand's volume, — whose elegant dress, faultless typography, and exquisite illustrations, are fitting concomitants to the delightful subject he treats of, — but will clamor for a garden-spot if they are fortunately rural residents ; or for a conservatory, or at least a flower-stand, if they are " city people."



MARSHALL PINCKNEY WILDER.*

MARSHALL P. WILDER was born in Rindge, in the State of New Hampshire, on the 22d of September, 1798.

Our limits do not allow us to enter much into detail with regard to any portion of Mr. Wilder's life, much less that part which is not purely horticultural.

His paternal ancestors* were among the early settlers of the beautiful English-like town of Lancaster, Mass.; his grandmother being sister of Samuel Locke, a former President of Harvard University. His father bore the name of Samuel Locke, was of Puritan origin and Puritan principles, and connected a farm with his mercantile pursuits. Marshall P. was the eldest of nine children, and was tenderly loved by his mother, who was a gifted woman, pious like her husband, a great admirer of the beautiful in Nature, and a lover of rural pursuits and of country life.

Under the influence of such a home, young Wilder caught the love of Nature and of the pursuits of the farmer. It was here that he learned to revere every thing that was sacred, and to support the institutions of

* Livingston's Memoirs of Eminent Americans, p. 513.

religion. His ardent temperament, and precocity of mind, led his parents to desire their eldest-born to have a liberal education; and, having pursued most of the studies usually taught in common schools, he was sent to New-Ipswich Academy at the age of about twelve years, with a view of preparing him for college. But he found the inside of an academy, and the dead languages, rather too tame to satisfy his genius. He preferred the wild sports of country life, the healthful exercise of the farm, rather than scaling the heights of mathematics.

His good parents now gave him his choice,—to go to college and prepare for one of the learned professions, to enter the store of his father and become a merchant, or to learn the art of farming upon the old homestead. He preferred the latter; and was, ere long, a youthful farmer, familiar with the various processes of tillage, and with the use of agricultural tools.

But, the trade of his father increasing, the young farmer was needed in the store, which he was induced to enter; but how was his pride mortified that he was to be a mere apprentice!—that he must begin at the lowest round, and ascend the mercantile ladder! He soon found, however, that it was not good to rely upon his ancestry or parents for a name and success, but upon *himself*. He met and conquered the difficulties of his chosen profession, and finally became a partner with his father.

In the year 1825, Mr. Wilder sought and entered upon a wider field of mercantile enterprise in the city of Boston. He was then a husband and a father, and, until the decease of his first wife, resided in the city, near to his several places of business, but in 1832 purchased and removed to his present residence in Dorchester. For nearly the whole of his mercantile life in this city, he has been a member of the firm of Parker, Wilder, & Co.; a firm to which he is at present attached. It is a well-known commission-house for the sale of various woollen and other goods manufactured by several of the leading mills of this section of the country. The present warehouse is on Winthrop Square, and is one of the most imposing and best situated in the city. There is also a branch house in New York.

Mr. Wilder has been an honorable and successful merchant. He has been too generous and public-spirited to become immensely wealthy; but he has secured a comfortable fortune without resorting to wild speculation,

without ever having failed to meet his business obligations. He passed safely through the commercial storms of 1837, 1847, 1857, and 1861.

In connection with his business, he has been useful in several moneyed institutions. He has been a director in the Hamilton Bank and the National Insurance Company ever since their organization, or for more than thirty years. For twenty years, he has been a director of the New-England Life-insurance Company; and has also been chairman of the Advisory Board of the London and Liverpool Insurance Company.

Col. Wilder has held an intimate connection with military life, under a conviction that the existence of military power is the surest safeguard of civil authority. His last command was that of the Ancient and Honorable Artillery Company, at its 219th anniversary.

Col. Wilder was never specially fond of political life. Had he loved it as well as he does horticulture, he might have occupied one of the highest places in the gift of the nation.

After his removal to his adopted State, he uniformly declined political office until 1837, when he consented, at the solicitation of his neighbors, to represent them in the Legislature of Massachusetts for one year. Ten years from that date, he was again called to civil office, as a member of the Governor's council. The next year, he was chosen a State senator from the county of Norfolk; and, on the organization of the Senate, was elected president of the body,—a place that he filled with eminent ability.

The name of Col. Wilder was often mentioned, in 1852, as a suitable candidate for the chief magistracy of the State, by members of the party in power. His views in declining such a use of his name are expressed by him in the following lines: "During the remainder of my days, I wish to prosecute, without interruption, my commercial business; to enjoy, as far as possible, the comforts of rural life and of domestic tranquillity; and to devote such time as I may be able to command to agriculture, horticulture, and kindred arts. These are far more congenial to my taste; and in them I trust I may be able to do more for the welfare of my fellow-citizens, for the prosperity of my beloved country, and for the progress of society."*

For a long course of years, Mr. Wilder has occupied conspicuous places in societies that are devoted to the advancement of agriculture and horticulture.

* Communication in Boston Daily Journal, Sept. 7, 1852.

As early as 1849, when in the prime of life, he took an active part in the organization of the Norfolk-county Agricultural Society. At the primary meeting, his Excellency Charles Francis Adams, our distinguished minister at the court of St. James, presided, and gave a handsome donation towards founding the society. Mr. Wilder was elected the president of the association. He has been annually re-elected from that day to this. In the autumn of the same year, the first exhibition of the society was held at Dedham. It was a great agricultural day for that period, with its assembly of ten thousand people, with the fine cattle-show, and with the great array of talent that was collected at the dinner-table. The president was the orator of the day, and, for an hour and a quarter, discoursed eloquently upon the noble subject of agriculture, particularly agricultural education. At the festive board were assembled, by his invitation, Webster, Everett, Mann, Quincy, Briggs, and a galaxy of names such as are seldom recorded on similar occasions.* The novelty of the presence of ladies at the tables, at the instance of the president, made the hours pass all the more agreeably; and the custom was soon adopted at similar anniversaries throughout New England.

At this period, and during his whole life, Mr. Wilder received many invitations to deliver addresses before various agricultural societies. The Governor of this Commonwealth appointed him Chairman of the Massachusetts Commission for the World's Fair in London, in 1850. As another compliment for his agricultural and horticultural services, he was appointed a commissioner of the Exhibition of the Industry of all Nations, in the Crystal Palace in New-York City, in 1853, and was present on that occasion. He was also appointed, by the Royal Pomological Society of Belgium, — a government institution, — the commissioner for America.

In several addresses, Col. Wilder has advocated agricultural education; and, while President of the Senate, procured the passage in that body, by a unanimous vote, of a bill for the establishment of an Agricultural College, which failed in the House. In consequence of this failure, he submitted a bill, which passed into a resolve, authorizing the Executive to appoint a board of five commissioners, who were to examine the subject more

* *Agricultural Transactions of Norfolk County, 1849-51, pp. 121-145.*

thoroughly, and report to the next Legislature. He was made chairman of this commission, and in connection with Rev. President Hitchcock of Amherst College, another member, drew up a report on the subject of agricultural education; the materials of the report being made up of Dr. Hitchcock's observations in Europe in visiting a large number of agricultural schools and experimental farms. These united efforts were the seed which has chiefly given rise to the Agricultural College that is now established at Amherst, of which Mr. Wilder is the first trustee.

At this period, Mr. Wilder was the leading spirit in influencing the different agricultural societies of this State to act in harmony, and in the movement out of which grew the Massachusetts State Board of Agriculture, of which he was elected president in 1851, and for eleven years a member, by appointment of the Governor's council. In connection with the Board of Agriculture, he suggested a national convention of cultivators, which should endeavor to do for the agriculture of the whole country what the Board were attempting for that of Massachusetts. Similar suggestions came from gentlemen connected with agricultural societies in other States. As a result, the United-States Agricultural Society was organized at Washington, D.C., in 1852; and Col. Wilder was elected its first president, and held the office for six years, or until his resignation of the same.

During his presidency, Mr. Wilder addressed the society in Massachusetts, New York, Pennsylvania, Ohio, and Kentucky. The attendance of people was often from seventy to eighty thousand a day; and the cash receipts of a single exhibition sometimes amounted to nearly forty thousand dollars. Under his administration was instituted the "Great National Field-trial of Reapers and Mowers" at Syracuse, N.Y., — the first of the kind in the world, — when forty-two machines were entered for competition, and kept up the exciting contest for a week.

At the close of his official duties, the society presented him with its large gold medal of honor, inscribed to Mr. Wilder as "Founder, First President, and Constant Patron;" and with a tea-service of solid silver, with a complimentary inscription.

Col. Wilder, as a horticulturist and pomologist, has a world wide reputation. It is in this capacity that he is best known everywhere.

Soon after he removed to Boston, or in the year 1829, was organized

the Massachusetts Horticultural Society, under the leadership of Gen. Henry A. S. Dearborn, who was elected its first president. Col. Wilder was one of the noble band that founded this society. At its eleventh annual meeting, in 1840, he was elected the fourth president of the society, and was annually re-elected to the same office for eight years. During his presidency, much from his personal exertions, the property of the society increased from a small amount to nearly forty thousand dollars. Through his leadership, the old Horticultural Hall in School Street was erected, which was for so many years an ornament to the city. It was a brilliant period in the history of the society. Its several festivals in Faneuil Hall and elsewhere were attended by the talent and *élite* of the country, and constituted gala-days of each year.

It was chiefly through the exertions of Col. Wilder as one of the committee that separated the society from Mount-Auburn Cemetery, which it really had the honor of founding, that the committee agreed on the terms of separation. He was the pacificator, and the proposer of those favorable terms for the society which were finally accepted, and which have been its chief source of wealth, and which must greatly increase those riches in all time to come. As a memorial, Mr. Charles O. Whitmore has presented a fine marble bust of Mr. Wilder to the society, which now adorns the Library Hall, and will forever be a monument of his disinterested labors.* Col. Wilder is still an active member of the society; has been one of its Executive Committee for twenty-six years, and of the Finance Committee for eighteen.

But Mr. Wilder has been more widely known at home and abroad as the President of the American Pomological Society for the past eighteen years, — a position that he still occupies. He and such men as Andrew J. Downing, and men of like tastes, had long considered the formation of such a society as important to the interests of American pomology. Accordingly, in July, 1848, he drew up a circular, calling a meeting of fruit-growers and horticulturists in the city of New York, on the following October. This was signed by committees of several States, Mr. Wilder's name being first, as in the case of the call for the convention that formed the United-States Agricultural Society.

* *The Horticulturist* for 1863, pp. 163, 164.

Col. Wilder has delivered addresses before it in the cities of New York, Philadelphia, Boston, and Rochester; as well as a eulogy on his lamented friend, Mr. Andrew J. Downing. When it is considered that these addresses, and many others before various societies and on numerous festive occasions, were written and delivered by a person with little more than a common-school education; that they were prepared in intervals snatched from the grasp of his mercantile profession, in connection with the profession of a horticulturist, — the industry, tact, learning, and genius of the orator appear quite remarkable.

We have space for but two or three brief extracts from Col. Wilder's addresses. In an address before the American Pomological Society,* he said, —

“Our trees — from the opening bud to the golden harvest; from the laying-off of their gay autumnal livery, and during their rest in winter's shroud, waiting a resurrection to a new and superior life — are all eloquent preachers, proclaiming to our inmost soul,

‘The Hand that made us is divine.’

Taught by their counsels, who does not admire the wisdom, perfection, and beauty of this fair creation? — *the tiny bud*, incased in coats of mail so that the rude blasts may not visit it too roughly, rivalling in its mechanism the human eye, and destined to perpetuate its own species distinctive as the soul of man; *the enamelled blossom*, unfolding her virgin bosom to the warm embrace of vernal air, bespangling the orchard with starry spray, scarcely less beautiful than the glittering host of night, dancing in rainbow hues, and flinging on the breeze a fragrance richer than the spices of Ceylon's isles, — sweet harbinger of bountiful harvest; *the luscious fruits*, God's best gift to man, save woman, — the melting *pear*, rough or polished rind, with sweetest, honeyed flavor; the burnished *apple*, tempting human taste, from the mother of our race to her last fair daughter; the royal *grape*, clustering beneath its bower of green, making glad the heart of man; the brilliant *cherry*, suffused with loveliest tints of rose and white, or dyed in deepest incarnadine; the velvet *peach*, mantled with beauty's softest blush, and vying with the orieny of the morning; the delicious

* See Address for 1858, p. 24.

plum, veiled with silvery bloom, over robes of azure, purple, or cloth of vegetable gold." And more of equal beauty and eloquence.

In the course of his address before the same society at Boston, in 1862, Mr. Wilder uttered these characteristic words: "Oh! let me be remembered in some beautiful flower, some graceful tree, some luscious fruit. Oh, yes! far better than storied monument or sculptured urn, let me be remembered as one who labored to adorn and improve the earth, to promote the pleasure and welfare of those who are to follow me."

At the Exhibition of the United-States Agricultural Society in 1855, Ex.-Gov. King of New York remarked, in reference to Mr. Wilder, "I have served with the president of this society; and I am here to say, that I know no abler, more efficient officer for this distinguished post. At home and abroad, the same man, the same power, the same vigor, the same intellect, are brought to bear on the great cause we are here assembled to celebrate."

It is Col. Wilder's custom to rise early, to devote the morning to books, and to the superintendence of his garden and nursery; the middle of the day to mercantile business in Boston; and the evening to his family and study.

During his leisure hours, he has filled several large folio volumes with his own sketches, delineations, and descriptions of fruits proved under his personal inspection. This has been the work of a long life. He continues these investigations daily; and it is to be hoped that the public may have the benefit of these studies. He has made the pear a speciality. His collection of pears embraces every variety, foreign and native, of note; to which he adds the novelties of every year. Having a correspondence with the most distinguished pomologists of Europe and America, he receives annually all such as are worthy of notice. His collection embraces twenty-five hundred bearing-trees; and he has had, during his life, more than eight hundred varieties of the pear on his grounds. Among plants, the camellia has been his speciality. He has had many hundreds of varieties, thousands of plants, and more than a thousand seedlings, some of which bear the names of himself and family, which he secured by hybridization, of which he has given a published account.

Enough has been written to give the chief points in Col. Wilder's life. He has performed the work of several ordinary men during a long life,

and he has been eminent in all that he has undertaken. He has great ability as a presiding officer; and has often been called upon, not only to be the president of several societies, but to occupy the chair on special occasions; as at the first meeting of persons called to consult in reference to what has now become the Massachusetts Institute of Technology, of which he is a vice-president; at the celebration in Dorchester in 1855, it being the two hundred and twenty-fifth year from the landing of the first settlers, when Hon. Edward Everett delivered the oration; at the second festival of the Sons of New Hampshire, when he succeeded Mr. Webster as president of the association; and on occasions previously mentioned.

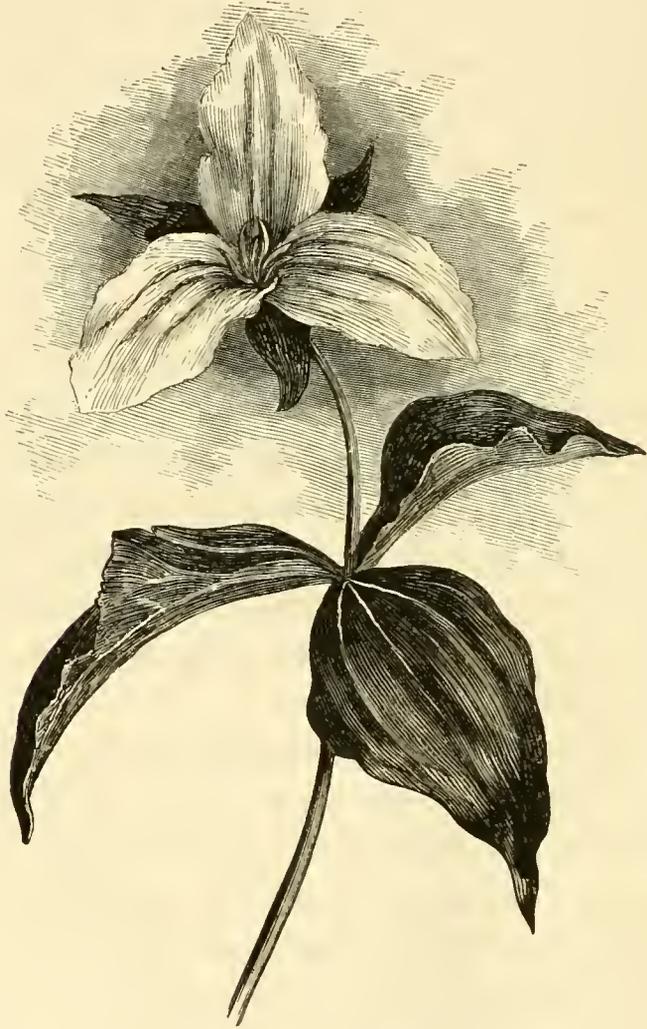
Had Mr. Wilder received a liberal education, and become devoted to either of the learned professions, he would have attained to eminence. Without the advantages of a public education, he has written more that will live, and has exerted more influence in the world, than the majority of those who have enjoyed the highest advantages in schools and universities; and he stands out as one of the best examples of a self-made man. His chief influence has been exerted as a merchant, as an agriculturist, and especially as a horticulturist; while as a gentleman of benevolence, of public spirit, of ardent patriotism, of unblemished morals, he has made his influence felt far and wide. His earnest and well-spoken addresses have been listened to by hundreds of thousands of his countrymen, and in print they have been read by millions. He has suffered recently from ill health, but is now convalescent, and, it is hoped, will live long in the enjoyment of health and happiness.

We cannot better conclude than in the words of Gov. Bullock at the late Exhibition in Dedham: "I meet here to-day the members of this useful and prosperous society of Norfolk, sitting and rejoicing under the presidency of one who has applied the results of well-earned commercial fortune to the development of the capacities of the earth, so largely and so liberally, that, in every household and at every fireside in America where the golden fruit of summer and autumn gladdens the side-board or the hearth-stone, his name, his generosity, and his labors, are known and honored." *

* The excellent likeness of Col. Wilder which we present is from a fine steel engraving, formerly executed in connection with his services while President both of the American Pomological and the United-States Agricultural Societies.

FLOWERS OF MAY.

IN the last number, we chronicled, in their due succession, the opening of the hardy flowers of April, — such of them as bloomed in our sight last spring. Now we continue the record with the flowers of May.



We begin with a native of our woods, reclaimed and domesticated. A bed about four feet in diameter, covered with the broad green foliage of *Trillium grandiflorum*, on which rest more than a hundred triangular

flowers, each three inches wide, and of the purest whiteness, is one of the most beautiful objects in the garden at any season. It is precisely such a bed as this which furnished the text of what we are writing.

The trilliums are, for the most part, an exceedingly shy family. They love moist, half-shaded woods, and thrive in the rich mould of decayed vegetation. There are many kinds; but most of them, when removed to the garden, pine and dwindle. We well remember, some years ago, admiring the profusion and beauty of the pink-and-white flowers of *Trillium pictum*, in a swamp at Island Pond, Vt., not half a mile behind the railway station. These, and the fine native shrub, *Viburnum lantanoides*, with its rich clusters of milk-white flowers, were queens of the solitude. Once or twice since then, we have planted *Trillium pictum* in the garden, given it all the rotten leaves it could desire, and otherwise encouraged it to the best of our skill; but it would not thrive; and we doubt if any of it is now living. The purple trillium is more manageable, and has lived here six or eight years, blooming a little every spring. Yet, as a garden flower, neither this nor any other of its race is to be compared with *Trillium grandiflorum*, which, in a well-prepared soil, — that is, a light soil enriched with leaf-mould, — will thrive to admiration, and bloom with increased beauty every year. The plants should not be often removed or divided, except for purposes of propagation. It is a tedious and difficult process to raise them from seed; and to divide the root is the best way to increase them for the amateur cultivator. We know no locality where they grow wild in this neighborhood. Ours were sent us from Canada, where they grew in a pasture on the slopes of the Mountain of Montreal. There were about twenty of the tuberous roots, which, being planted, bloomed rather feebly the next year, but improved every spring, till they formed a superb circle of bloom. Some of them have since been divided, and it will require one or more seasons to restore them to perfection. The buds open with the whiteness of a snow-drift; and they remain a long time in this state, at length assuming a rosy tint as they fade.

A bed of polyanthus, side by side with the trillium, forms a striking contrast with its virgin white; for it is gay with innumerable brilliant, not to say gaudy, hues, — red, brown, crimson, yellow, pink, purple, black, and

scarlet. The polyanthus, the primrose (not the evening primrose, a very different flower), and the cowslip (not our meadow cowslip, which is no cowslip at all, but a *Caltha* or marsh-marigold), — these three, we say, are plants very nearly akin, being all closely allied members of the genus *Primula*. The auricula is of the same race, and the most beautiful, but, in the latitude of Boston, not so easy of cultivation as a border-flower. It usually bears the winter; but the hot, dry summer withers it away. Indeed, moisture is the great need of all the family. A damp border, under a north wall, is a good place for them. Plant them in a light soil mixed with rotten leaves and very old manure, cover them thinly with dry leaves or coarse hay in winter, and in the spring they will give you abundant flowers, rising in bright trusses eight or ten inches from the soft green of the tufted foliage. After they have done their blooming, you may divide them; and thus, in a few years, you may multiply them indefinitely. Or you may choose the best, remove them while in bloom with a ball of earth about the roots, plant them apart from the inferior sorts, and save the seed, from which good varieties will be sure to spring.

The polyanthus and auricula are the pride of the family. The primrose and cowslip are in less esteem; though the yellow primrose is, to our thinking, very beautiful. The two first, though very desirable in the border, are pre-eminently “florist flowers;” and those who wish to practise their elaborate culture in pots will find good directions, in the books of Hogg and Glenny, on the treatment of this class of plants.

May 2. — *Polemonium reptans*. — This is a species of the plant commonly known as “Jacob’s-ladder.” It is of a dwarf growth and creeping habit. The flowers are bright blue, and it will grow anywhere. *Chelidonium diphyllo*. — A plant with succulent leaves and a yellow flower, not devoid of beauty. *Phlox subulata*. — This is the well-known moss-pink, whose innumerable flowers of pink, rose, and white, overspread the garden borders at this season with their rich masses of color. Nothing is easier of cultivation. It asks little but to be let alone. The white variety, with a pink spot in the centre, is, perhaps, the prettiest. *Phlox divaricata*. — This is of taller growth, with clusters of flowers of a porcelain-blue. It commonly blooms a little later than the other.

Spiræa alpina. — A graceful little shrub, not among the most conspicuous of its race : its best quality is its earliness.



May 3. — *Epimedium macranthum*. — This is a very curious hardy perennial, with clusters of whitish flowers of a singular shape and considerable beauty.

May 10. — *Spiræa prunifolia*. — Few shrubs are finer than this, or so fine, when it is in its perfection. Its long, slender shoots are thickly set with innumerable white flowers, like miniature roses. It rarely suffers from the winter : and its foliage in the autumn is scarcely less beautiful than its flowers in the spring ; for its small shining leaves are painted throughout

with a vivid red and purple. *Spiræa Niundertii* is much less known, but is not inferior, at least in its blooming season. Its pliant shoots, bending with the weight of their clustering white flowers, look as if bowed under a load of freshly-fallen snow. It is only in plants well established, and developed by several years' growth, that the beauty of this spiræa becomes fully apparent; for the individual flowers are smaller than those of several other varieties. *Spiræa ulmifolia* very soon follows,—a fine robust sort, of the hardiest constitution, and great vigor of growth. The flowers are in large white clusters, and very ornamental. *Caragana speciosa* is a shrub of a very different race, with drooping, pea-shaped flowers of a bright yellow. Its early bloom makes it desirable.



Uvularia grandiflora is a native perennial of no little beauty, with yellow, drooping flowers. The large native *Convallaria*, Solomon's-seal, with its pendent flowers of green and white, is also well worth a place at the back of the flower-bed, where, in a rich, moist soil, it becomes a much finer plant than in its wild state. The *Actæas*, also natives, are beginning to bloom; but they are most striking when in fruit, with their shining berries, white and coral-red.

May 11. — *Prunus sinensis*. — The double variety of this shrub is of rather recent introduction, and is of the greatest beauty. It is much like the double-flowering almond, which blooms at about the same time, except that the flowers, instead of being pink, are of the purest white. Like the double almond, it is of dwarf growth, and should be in every collection of shrubs. It proves hardy enough here. Occasionally some of its branches have been killed back; but it usually survives the winter uninjured. Its worst enemy is the borer, which now and then attacks it. The double Chinese cherry is a fine flowering tree, and its blossoms lose nothing by close examination. The double apples, red and white, when well pruned, are also beautiful trees at this season; and the Japanese double crab, covered with legions of pendent flowers, is one of the finest objects in its way that can be conceived. It is still rare.

May 13. — The Tartarian honeysuckles begin to open their flowers. Next to the weigelias, these old and well-known shrubs are, perhaps, held most in esteem. The red and the white varieties are familiar enough to most people; but there is a much rarer sort, which seems, however, to be but a seedling variety of the old species. This is variously known in catalogues as *Lonicera Tartarica grandiflora*, — the large-flowered Tartarian; or *Lonicera speciosa*, — the showy Tartarian. It is far handsomer than the others; for not only are the flowers much larger, but they are much more vivid in color. They are of a deep rosy-red, often striped and edged with white. No shrub is more beautiful when in full flower; and, as with the other Tartarians, its management is of the simplest.

Another admirable shrub, less known than it deserves to be, is the "wayfaring tree," — *Viburnum lantana*, — just now, May 16, coming into bloom. It has large leaves, deep green above, and whitish beneath; and at the end of every shoot opens a broad, circular head of flowers like those of its kindred, the laurustinus. Unlike that plant, however, it is perfectly hardy; and though it will grow in time to a small tree, if allowed to do so, it may easily be kept within any desired bounds by pruning it just after blooming.

As May advances, flowers open so thick and fast, that to record them all would be a work of space and time beyond our allotment; and one must pause to make a selection. There is one, at least, in bloom for the

last few days, which no one who sees it could think of omitting. It is a perennial,—a columbine called by botanists *Aquilegia glandulosa*. Its blooming season is far in advance of that of its kindred. It is of low and modest growth, its tufts of delicate leaves seldom rising more than a hand's-breadth from the earth ; and the flower-stalk which they send up is from a foot to a foot and a half high. At its top it bears one, two, three, or half



a dozen superb flowers, in shape like stars, from two to four inches in width, the centre white, and the points bright blue. There is not on the whole list of perennials a more delicate or beautiful flower. The strength

of its constitution is another matter. A large bed of them stood out last winter safely here, with a thin covering of leaves. If, however, this should eventually prove frail, there is another columbine, — *Aquilegia alpina*, — undoubtedly hardy, and almost as good. It differs from *glandulosa* chiefly in that the extremities of the flower-leaves are more pointed. The plant is, however, far more robust, and has borne the test of several winters unharmed. It is still rare ; though other columbines are often sold under its name.

Funkia Sieboldii variegata. — This fine plant takes its place here, not in right of its flowers, which do not appear till some time later, but for the sake of its beautiful foliage, just now in perfection. It is one of the day lilies. Its large tufts of broad leaves, of a soft and delicate green, richly veined and marbled with pure white, make it one of the most ornamental of hardy foliage plants.

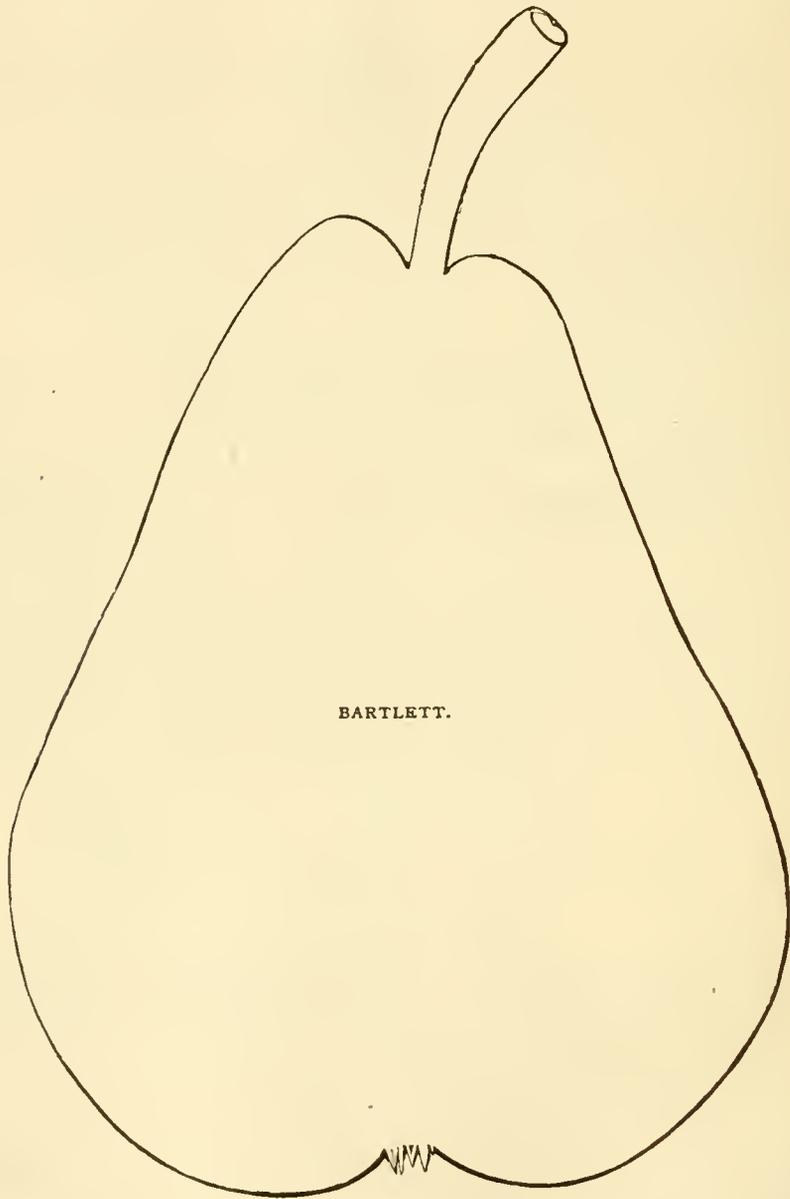
One more flowering shrub, and we close for the present, reserving the rest of this month of blossoms for our next. The shrub is an alpine daphne, — *Daphne Cneorum*, — very dwarf in its habit of growth, with small leaves set thickly along its pliant stems, which bear at every extremity clusters of bright-pink flowers, as fragrant as they are pretty. We have heard imputations cast on *Daphne Cneorum*. Its maligners have said that it is not quite hardy, and needs the protection of its native snow. We only know that it has stood here for years uninjured, and that it is one of eight or ten shrubs that are the last we would part with.

Francis Parkman.

POPULAR PEARS.

THERE are some varieties of pears to which few persons, however critical, can for any reason object. Some of these are old favorites, and others are newer, but equally good sorts. The pomologist and experienced fruit-grower may think it unnecessary to call by name, and describe, such kinds as have been so long before the public, and whose good qualities have become so widely known ; but it should be borne in mind that there is a large class to whom such information as this will prove acceptable. Since the apple-crop in the immediate vicinity of large cities, and along the sea-

coast of Massachusetts, has proved a failure, many persons have planted pear trees instead of apple, and almost to the entire exclusion of the latter. The majority of such persons are novices in pear-growing, and may not know the best varieties, such as can be planted with a reasonable certainty of success. It will be the object of this article to give such information to this large class to whom we have referred. We shall begin with that old favorite, —

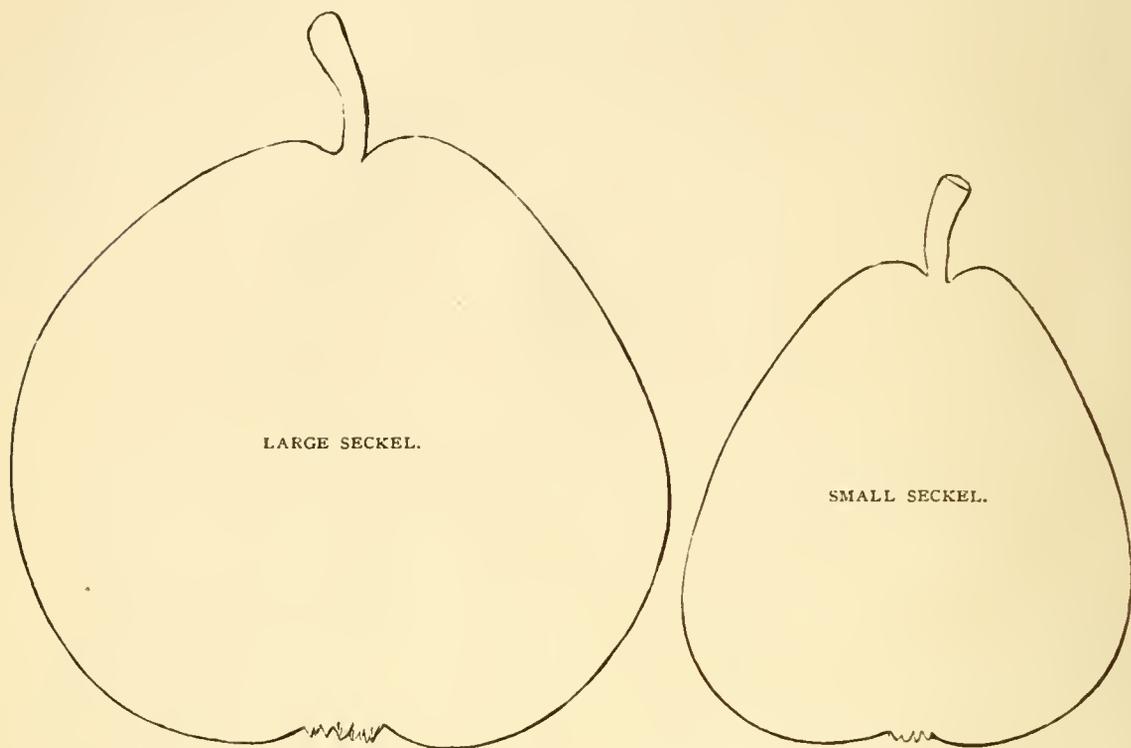


THE BARTLETT. — This variety has been regarded as of foreign origin, which opinion has never been questioned until quite recently ; and the facts

still seem to be greatly in favor of such a belief. Perhaps no pear in the country is so widely known, and so popular, as this noble fruit. It was cultivated extensively by Enoch Bartlett of Roxbury, whose name it bears; and was widely disseminated by him. Mr. Downing says, "It is an English variety, which originated about 1770 in Berkshire, and was afterwards propagated by a London grower by the name of Williams. It comes from Europe generally marked "Williams." No pear succeeds better in every variety of soil and location, and no variety gives better crops of good fruit; and, though it may be of foreign origin, it seems perfectly adapted to our climate. Its earliness is also very much in its favor; for it comes at a season of the year when a delicious pear is very acceptable. The tree is an upright and good grower when young, with yellowish-brown wood, with a rather narrow, medium-sized, glossy, folded leaf. The fruit is large, pyramidal, sometimes a little uneven and knobby; stalk stout, about an inch long, set in a rather shallow, uneven cavity; open calyx, in a shallow basin, sometimes plaited; skin yellow, smooth, and thin, often with a beautiful blush on the sunny side, and, in some locations, with considerable russet; flesh white, fine-grained, melting, with a peculiar perfumed, vinous flavor, not admired by all; somewhat variable in quality. Time of ripening, 1st to 20th of September. It is a great bearer, and the tendency of the tree on this account is to premature old age. It does pretty well on quince, but is much better as a standard; and the fact that it comes into bearing very early renders it less desirable to dwarf it. One of our best fruit-growers gives the average age of the Bartlett-tree, after it comes into bearing, as twenty-five years, — a much shorter period than is generally accorded to pear-trees.

SECKEL. — This is another well-known variety, and one that stands, in point of quality, before any other pear in the world. It is an American variety, the history of which is quite interesting, as given by Downing. It originated near Philadelphia, and seems to have been a chance seedling, as are many of our very best American pears. The tree is a slow grower, with short-jointed, dark-colored wood, and small, roundish leaves. It is quite compact and regular in form, healthy, and long-lived. The fruit is from small to medium size, quite regular in form, nearly obovate; color dull yellow, with russet, and generally with a bright-red cheek on exposed specimens; calyx small, nearly closed, in a shallow basin; stem short,

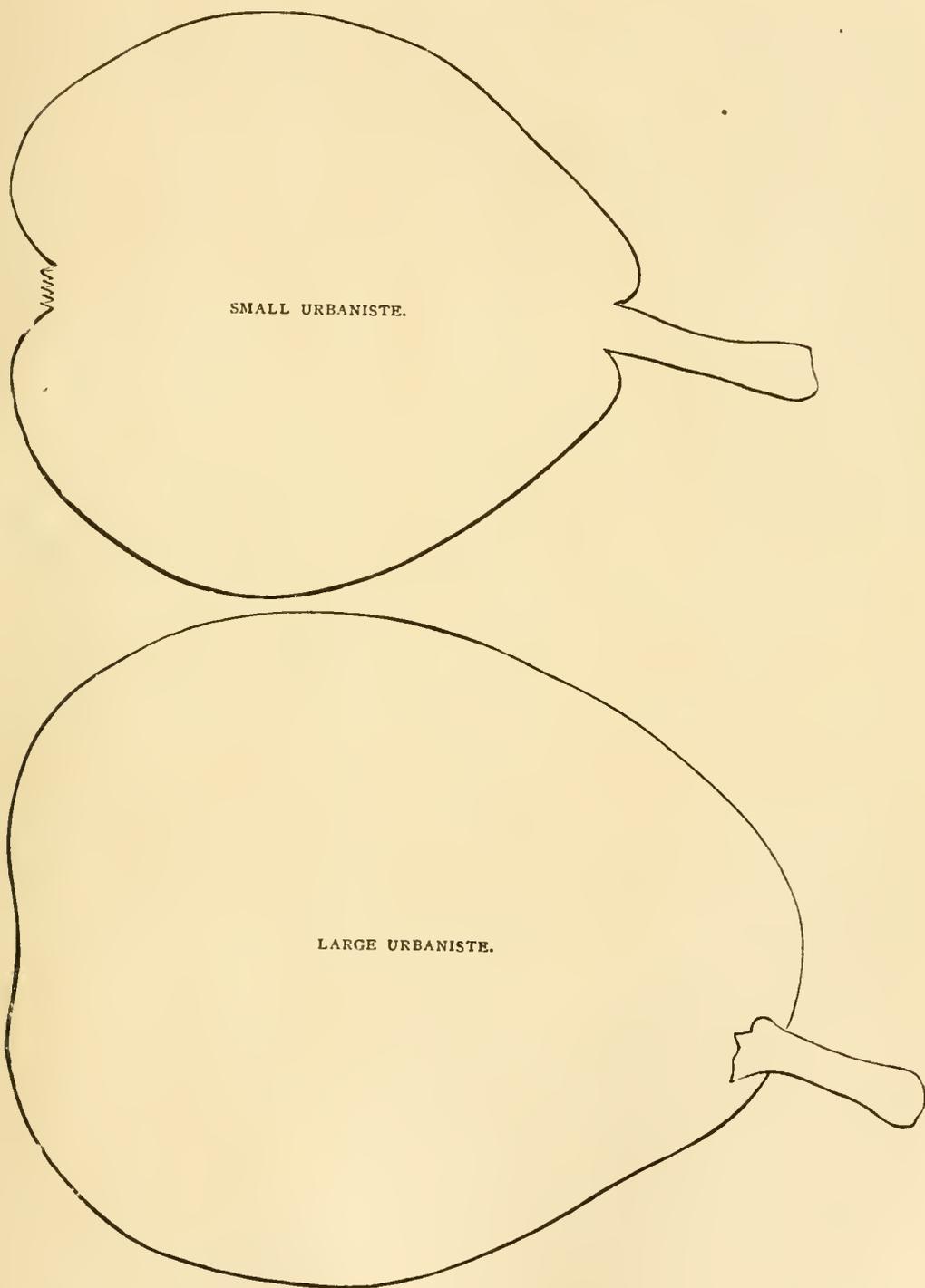
slightly curved, rather slender, set in a slight depression; the flesh yellowish-white, very juicy, with a rich peculiar flavor and aroma, unlike



any other pear. It is, if possible, too rich,—almost cloying. The time of ripening is last of September to last of October. The tree is a long time coming to maturity, but lives to good age, and yields its rich fruit in abundance, which always commands a high price. It is very doubtful if a pear of better quality can be produced. It seldom does well as a dwarf, and should not be planted as such.

URBANISTE.—This is a variety of foreign origin that deserves a higher place among pears than it has yet received. It is several years coming into bearing, even on quince. It is, in all respects, a first-rate pear. The tree is a fair grower, of regular shape, and compact, very hardy, with rather short-jointed, yellowish wood, with peculiar roundish and prominent leaf-buds. When the tree once comes into bearing, it yields large crops of fine, fair fruit, which command a ready sale at good prices. Fruit medium to large size, obovate, obtuse at stem-end; stalk an inch or more long, often having one or more leaf-buds upon it, rather stout, set in a slight depression; calyx small, nearly closed, in a narrow, well-defined cavity; skin thick, generally

smooth, pale yellow, occasionally russet, with spots of pale red on fully-exposed specimens ; flesh nearly white, very melting and juicy, with a very



peculiar and pleasant "rose-water" flavor. It keeps well. Ripe middle of October to middle of November. It does equally well as a dwarf or standard.

(To be continued.)

James F. C. Hyde.

THE SEASONS OF 1865 AND 1866.

THE horticulturists of Massachusetts have not only a changeable climate to contend with, but, in addition, hordes of insects of various species, which swarm in immense and increasing numbers every year, and threaten to blast the hopes and labors of the cultivator.

It will be remembered that the years of 1864 and '65 were remarkable for long-prevailing droughts, especially in the summer and autumn of 1865. The springs had not been so low before in the memory of the oldest person ; and, in many places, water was with difficulty obtained for family use. In some sections, young forest and ornamental shade trees actually died for want of moisture ; and in many places the ground was thoroughly dry to the depth of four or five feet, which had the effect of preventing the circulation of sap, and so weakening the trees, that the fruit and flower buds were imperfectly formed, or not formed at all, laying the foundation for the failure of many fruits and flowers during the past season.

It is well known that the strawberry-crop in this vicinity was very deficient ; in some localities, almost a total failure. It was so in my own limited plantation ; my beds not producing one box, where, on the same extent of ground in previous years, I had obtained twenty. My vines did not produce any runners in August, 1865, suffering severely from the drought ; and this was generally the case in the experience of many others of my acquaintance. With a slight covering, they did not winter very well, and looked poorly in May, and were in bloom the 14th of that month. On the morning of the 15th, we had a hard frost, the thermometer falling to 29° : that probably completed the destruction which the drought had commenced. All varieties shared the same fate, and the same disappointment was experienced by many others which I suffered myself. Consequently, good strawberries, fresh from the vines, were scarce and high ; and no others are fit to eat. Strawberries transported from New York, and other places south, lose their exquisite flavor, and must be unwholesome, as they are unpalatable to the consumer, in this their decaying state.

I need not say much about peaches ; for nobody in these days expects to get any, however luxuriously the trees may look in autumn. I believe this

great drought had much to do with the complete failure of this crop the last season ; although the extreme cold of Jan. 15, when the thermometer fell to 16° below zero in my garden, was sufficient to destroy the fruit-buds, even if they had not been weakened by the drought. This peach-business is the most discouraging of all others in the horticultural line. I have always had a dozen or more healthy peach-trees on my place for the last fifteen years, destroying those that had a tendency to the disease called "the yellows," setting out new trees in fresh soil almost every year to supply their places ; and I do not remember more than four or five seasons out of the fifteen when I obtained peaches enough for my family and friends, and for those I had to fight with the robins and catbirds to save any. The robins are sure to stick their bills into them as soon as they begin to color handsomely, and the catbirds and bees follow suit ; so that at least half the crop are punctured, and perish before maturing. My peach-trees did not show a single bloom last spring, but look hopeful now for the next season ; but probably I am doomed to disappointment as usual.

From the plum-tree we do not expect much ; for, between the black-wart and curculio, this fine fruit has almost disappeared from the vicinity of Boston. I had dug all mine up as a nuisance, but spared two trees which seemed to be more promising, and free from warts. This year they were heavily laden ; and, being large trees, I expected to obtain from them at least three bushels of plums. But, before they began to ripen, the bees commenced to puncture them ; and, to save any for preserving, I was obliged to gather them before ripe, and my expected crop had dwindled down to about one bushel of sound and unsound fruit, while the ground was completely covered under the trees with the fallen decaying fruit. Notwithstanding the freedom of the trees from warts in the spring, they are now a sight to look at ; for, during the summer, the black-wart has extended to every branch, and almost every twig. So much for plums.

Now for the canker-worms and apple-trees. What a sad subject this is to write upon ! Our beautiful orchards were the pride of our land until the canker-worms made their appearance ; but now what a desolation is witnessed when the rich green foliage of May and June is consumed by these voracious insects, and the trees appear as though fire had run over them !

The only complete remedy that I know of to prevent these ravages is the tedious process and patient continuance of the application of tar. I succeeded the last season in getting the mastery over them ; so that my trees retained their beauty, and I secured fruit enough for my own use, and should have had many barrels to sell but for the apple-worm, and, as I suppose, the effects of last year's drought, combined. I have from thirty to forty apple and cherry trees in my garden, which I was determined should not mar the beauty of my place. I had some faith in Ellis's protector, and had them applied to about twenty trees which he attached to my trees on the 23d of October. On the same day, we saw the first solitary female grub. I was not sure about the safety of the protectors : so I thought it prudent to tar the trees above, which I did after tacking a strip of tarred paper, six or eight inches wide, around the tree ; and commenced tarring. Mixing a little poor oil with the tar, I found it was not necessary to apply it every day. I watched very carefully day by day, and found the grubs were not numerous until the 8th of November. The thermometer had fallen that morning to 18° , and the ground froze. In the afternoon and evening of that day, the thermometer at 35° , the grubs began to go up in considerable numbers, but scarcely a male attending them : some few got over the protector, and were caught in the tar ; but large numbers were stopped, and remained below the protectors. They continued their movement upwards in small numbers ; when on the night of the 13th, thermometer 46° , cloudy, wind south-west, they swarmed in immense numbers ; and ten thousand were crushed by the hand on the bodies of the trees, below the protectors. I had whitewashed the trunks of the trees near the ground, that I might more plainly watch the operations of the insects, which I did every night by the light of a lantern. I had also covered the ground an inch thick about some of the trees with muriate of lime, which had no effect in checking or injuring the grubs. I also applied quicklime to other trees with the same result. After this grand rally of the 13th, they were seen in small numbers to the close of the month, or until the ground was frozen deep.

On the night of the 15th of March, and a few following nights, thermometer in the neighborhood of 70° , or on the first warm night after a severely cold spell, they swarmed again in such numbers, that I thought the earth

must have emptied itself of the pests ; but they continued their upward movement in small numbers until the 13th of April. The males this spring were much more abundant than in the autumn. I had followed up the tarring process till the middle of the month, but found none after the 13th.

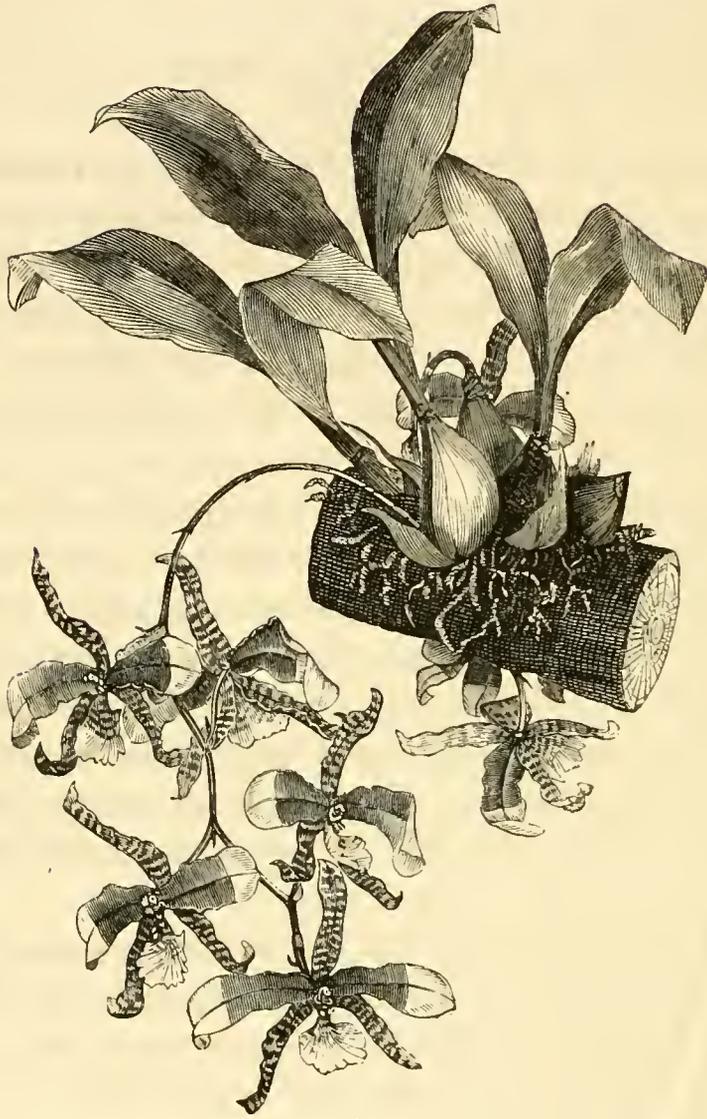
I first noticed the ravages of the canker-worm on the 10th of May, when the apple-trees began to show bloom, and the oriole, the enemy and destroyer of the canker-worm, appeared. On the 14th, the trees were in full bloom, excepting the Baldwins, which did not flower. I supposed the eggs deposited below the protectors would not avail any thing, even though they should hatch out, as I concluded the little things, no bigger than the point of a pin, would not know enough, nor have strength, to climb the tree. I did not notice them, nor take any means to destroy them : but a neighbor of mine who has better eyesight, who had used tar, saw the young plagues marching upwards, which I suppose was the reason a few were found upon my trees ; but they were not numerous enough to seriously affect the foliage, or the small crop of apples which rewarded my labors. On the 10th of June, the canker-worms began to descend in immense numbers as I walked under a neighbor's trees which bordered upon the road. He had done nothing to check them except to apply the muriate of lime, which, as we have seen, was no obstruction to them.

I found the fence covered and black with the worms, apparently perishing with famine ; for there was not a green leaf left in the whole orchard, and they did not appear to be fully developed, nor have strength to perform the operation of getting into the chrysalis state ; and I hope the race has become extinct from starvation.

I shall watch with interest the fate of that orchard. My few well-developed worms had all disappeared by the 15th of June. I saw a robin looking upon a worm on the ground one day, but believe he did not eat it ; but the oriole, bobolink, sparrow, and many other little birds, feed upon them, and for seven years prevented their increase on my trees.

In a future number, I propose to speak of the apple-worm, of grapes, pears, and flowers.

Joseph Breck.



ODONTOGLOSSUM GRANDE.

NATURE AND HABITS OF ORCHIDS.

THE primary division of orchids is into two general classes, — those growing upon trees, and those growing upon the ground ; in other words, epiphytal and terrestrial. In hot countries, the species are generally epiphytes ; in temperate regions, we find only the terrestrial classes. These rules are not, however, without some exceptions : epiphytes often grow upon

rocks or in earth (though, in both cases, the position is rather for support than one of nourishment), and terrestrial orchids abound in hot countries.

The peculiar characteristics of orchidaceous plants will be fully described in a future chapter. Suffice it at present to say, that there is no order of plants the structure of whose flowers is so anomalous as regards the relation borne to each other by the parts of reproduction, or so singular in respect to the form of the floral envelopes. Orchidaceous plants inhabit all parts of the world except those which are excessively dry or excessively cold, both of which extremes of temperature appear uncongenial to their nature. They abound chiefly in regions with a mild climate, moist and warm during the greater part of the year.

The flora of the temperate regions abounds in terrestrial orchids, which are, however, with some exceptions, distinguished by flowers more remarkable for peculiarity of form than for size, and brilliancy of color. It is, however, in the tropical forests that we meet with these plants in full luxuriance: here the species are mostly epiphytal. Establishing themselves upon the branches of the trees, they either vegetate amid masses of decaying vegetable matter, or cling by long succulent grasping roots to the naked branches of trees, from which and the moist atmosphere they derive their nourishment.

They are also found abundantly on the banks of streams near falls of water, where they are constantly bathed in the rising spray. Some few species, indeed, seem of a different nature, growing mostly on rocks exposed to a broiling sun, their roots alone absorbing the moisture of the dew.

In general, a certain degree of shade seems to be essential to orchids. In Brazil, they are found abundantly in damp woods and rich valleys, embowered among foliage of the most luxuriant description. In Nepaul, as stated by Dr. Wallich, the epiphytal species grow in company with ferns; and the thicker the forest, the more stately the trees, the richer and blacker the natural soil, the more profuse the orchidaceæ and ferns upon them. There they flourish by the sides of dripping springs, in deep, shady recesses, in inconceivable quantity, and with an astonishing degree of luxuriance.

We should, however, err, did we suppose that the principal haunts of orchids are the deep, shady woods. It is even probable that just the contrary is the fact, and that the cases just cited are extreme.

Orchids are chiefly found on the borders of the forests, or in the open glades or savannas : it is seldom they are met with in the primitive forests. They are very abundant in Brazil near Rio Janeiro, in Mexico, in Colombia, in Trinidad, especially in mountainous places and damp woods ; in the East Indies, in Java, Ceylon, Nepaul, and China, where they are principally found in the woods, on the borders of rivers and mountain-streams. The localities of orchids are very marked : of some species, only a single habitat is known ; many are exceedingly rare ; some only being known to botany by a single dried specimen in an herbarium ; and others once known in our hot-houses are now lost to cultivation. Some species now in cultivation have sprung from a single imported plant. The orchids of the Eastern and Western Hemispheres are entirely different, there being no affinity between them. Orchids are also most capricious in their locations : sometimes a river may be ascended for miles, and not an orchid be seen ; when, on a sudden turn of the stream, every tree becomes covered with them. The part of the tree on which they live is also uncertain : some are found close to the ground, others a few feet high, others in the forks of the trunk and branches ; some only on the trunk, others only on the branches ; and many only on the topmost branches of the loftiest trees, so high that they are only discoverable by their delicious perfume.

Some varieties will only thrive when grown on the lower side of a block, their native growth being on the under side of a branch : of these the fine yellow cattleya (*C. citrina*) is our most familiar example.

Where they find a congenial home, they grow to immense size ; increasing by the pseudo-bulbs in every direction, and often covering a whole tree. In many cases, a large tree becomes a large bouquet of orchids ; or many species, with various-colored, curiously-shaped flowers, are often found on the same tree.

While all the East-Indian orchids require a hot, moist temperature, many of the South-American and Mexican species will endure much cold without injury : they are sometimes found where the mercury at night descends

below the freezing-point, and where the leaves are covered with hoar-frost. Thus the different species demand far different treatment; and from ignorance of these requirements and peculiarities have arisen many of the failures which have hitherto attended their culture.

A high, mean temperature throughout the year, and a climate either constantly humid or at least periodically so, are atmospheric elements eminently favorable to the production of these plants. All those species which simply exist by clinging by their roots to the branches of growing trees, and probably other species, must derive necessarily their nourishment in a great measure, if not entirely, from the moisture in a very elastic state that surrounds them. And although Nature seems, in general, to have provided for the scantiness of their food by the construction of them with a cuticle capable only of parting by slow degrees with the fluid they receive by their roots, yet it is obviously requisite that they should be so situated as to be within reach of an abundant supply, not only at the time when they are growing, but, to a certain extent, at other periods. Thus we find that the hottest countries if dry, and the dampest if cold, are destitute of them; while there is no instance of a country both hot and damp where they are not plentiful. It may, however, be remarked, that the terrestrial orchids will bear a far greater degree of cold and drought than the epiphytal species; their range is therefore much greater: and the general remarks about orchids must be taken with a great degree of allowance in respect to this class.

Notwithstanding the high temperature of Africa, they are unknown in the sandy deserts and parched atmosphere; yet they abound in Sierra Leone, where the climate is damp, and are not unfrequent in the jungles at the Cape of Good Hope.

In the West-India Islands they exist in great quantities, particularly in Jamaica and Trinidad; not, however, so much on the coast as on the lower ranges of hills.

At Rio Janeiro, the mean temperature is $74^{\circ} 3'$, and much higher inland; the woods are so damp, it is impossible to dry plants; and, in such situations, multitudes of orchidaceous plants occur. In the immediate vicinity of Buenos Ayres, however, where the mean temperature is $67^{\circ} 6'$, and the air

dry, epiphytes are unknown. No country, however, exhibits in a more striking manner than the East Indies the necessity of a hot and damp climate for the production of epiphytes. In the Malayan Archipelago, the mean temperature of which is estimated at between 77° and 78° , where the atmosphere is always very damp, they are found in profusion. In Nepaul, they occur upon the sides of the lower mountains, where they grow amongst clouds and constant showers; while on the continent of India they are almost wholly unknown, except in the mountain-valleys.

In Mexico and Central America, the provinces most prolific in orchids are Oaxaca, Honduras, and Guatimala: they are also plenty upon the Isthmus.

The conditions of orchid-growth can thus be easily stated. In their native countries they are exposed to a dry season, during which they rest; and to a rainy season, when the heat is higher, and the air moist nearly to saturation. To grow orchids in any perfection, their native climate must, to a certain extent, be imitated: that is, they must have a period of rest in a dry and comparatively cool atmosphere; and, during their growth and flowering, they should be exposed to a high, moist temperature. As orchids principally grow on the trunks and branches of trees, it is important that they should be exposed to a free current of air, and also to the light. The plants should not, however, be exposed directly to the sun's rays, which are apt to scorch the leaves and wither the flowers; and some species require constant shade.

The great heat and moisture are only necessary while the plants are in vigorous growth; and this period should be during spring and summer, the best period of rest being from November till March. It should be understood that it is this long season of rest which predisposes the plant to blossom. Of course, these rules of growth and rest can be stated only in general terms. There are certain kinds which grow uninterruptedly throughout the year; and again, even of those which go to rest periodically on the completion of their growth, it does not always happen that their time of rest corresponds with that of the largest number. As we come in course to mention the different species, their proper time of rest, if peculiar, will be indicated.

It is not alone in the form of the flowers that the orchidaceous plants differ from other members of the floral world: the whole structure of the plant is peculiar. The roots are of four kinds: First, Annual fibres, simple or branched, of a succulent nature, incapable of extension, and burrowing under ground, as in the genus *Orchis*. Secondly, Annual fleshy tubercles, round or oblong, simple or divided, as in the various species of the same genus: they are always combined with the first, and appear to be intended as receptacles for matter fit for the nourishment of the plant. Thirdly, Fleshy, simple, or branched perennial bodies, much entangled, tortuous, or irregular in form, as in *Corallorhiza*, &c.; or nearly simple, and resembling tubers. Fourthly, Perennial round shoots, simple, or a little branched, capable of extension, protruded from the stem into the air, adapted to adhering to other bodies, and formed of a woody or vascular axis, covered with cellular tissue, of which the subcutaneous layer is often green, and composed of large reticulated cells: the stem is often (as in some terrestrial species) merely a growing point surrounded by scales, and constituting a leaf-bud when at rest, but eventually growing into a secondary stem or branch, on which the leaves and flowers are developed. In other cases the growing point becomes perennial, thickens, is scarred with the remains of leaves which once grew upon it, and assumes the state of a short round or ovate perennial stem or pseudo-bulb.

Or, again, the rhizoma, instead of having pseudo-bulbs, forms short stems, which are terminated by one or more leaves. The leaves are very uncertain in their appearance: usually they are sheathing at the base, and membranous; but in some species they are hard-stalked, articulated with the stem, and have no trace of a sheath. Frequently they are leathery and veinless; as frequently they are membranous and strongly ribbed; and both these conditions may occur in the same genus, as in *Cypripedium*.

The peculiarities of the floral leaves and organs will more properly be noticed in treating of the classification of orchids. Suffice it to say, that the flowers are constructed irregularly upon the ternary type, and consist of three exterior and three interior pieces, of which the exterior are usually nearly equal, and less brightly colored than the interior.

On account of the peculiarities of growth and structure, so unlike other

plants, it was many years before any of these plants were successfully cultivated in England. A few were barely kept alive, but never flowered satisfactorily; and their successful culture was considered impossible. Within the last forty years, however, their true nature has been understood, until at the present day they are cultivated with success, and bloom with a luxuriance equal to that of their native haunts.

Edward C. Herbert.



DENDROBIUM MACROPHYLLUM.

NEW VEGETABLES.

THE following brief descriptions of some of the more recent kinds of culinary vegetables may be of interest, and perhaps will prove of service, to the readers of the Journal. A few of these descriptions have been prepared from the experience of a single season ; but, in most instances, they have been drawn from a careful trial of their merits during two or more years.

Of the SQUASH, three varieties were tested as follows :—

Bolton. — Distinct and well-defined. The fruit is of an ash-green color, nearly cylindrical, twelve or fourteen inches long, and four or five inches in diameter. The flesh is very thick, the cavity small, and the weight remarkable. The seeds are white. It keeps through the winter, and is of good quality, but inferior to the Hubbard or autumnal marrow. The name is evidently local, and its origin unknown.

Moore's Vegetable Cream. — An English variety, resembling the vegetable marrow, which is also of foreign origin. The fruit is small, oblong, cream-yellow, and the stem furrowed and woody. Flesh moderately thick, pale-yellow, and similar in quality to the vegetable marrow and custard ; to which class it evidently belongs, and with which it would probably readily intermix or hybridize.

In England and the Provinces, these varieties are highly esteemed, and are often catalogued and described simply as “vegetable marrow,” or “vegetable cream ;” the general term “squash” being omitted. In some forms of cookery, they may be desirable ; but, as a whole, they are greatly inferior to the autumnal marrow, Hubbard, or true Canada crookneck. Hardiness, adaptedness to cool, humid climates, productiveness, and good keeping properties, are their principal recommendations. The terms “custard,” “vegetable marrow,” and “vegetable cream,” by which these varieties are known, are calculated to convey wrong impressions of their real character ; and I regret the disappointment of those, who, having been accustomed to the genuine luxury of the Hubbard, autumnal marrow, or Canada crookneck, have been induced to cultivate “vegetable cream” as a substitute.

Melon Squash. — Of the origin of this variety, I know nothing. The plant is bushy, and the leaves are more deeply lobed or divided than those of any other variety that has as yet come to my knowledge. The fruit is round; of a cream-yellow color; small, measuring in the average only about five inches in diameter; and as deeply and almost as regularly ribbed as a green citron melon; whence, probably, the name. The flesh is pale-yellow, quite thick, cooks dry, and, though not sugary, possesses some delicacy of flavor.

The variety appears to be allied to the egg, orange, and other kindred sorts sometimes grown for ornament; and would unquestionably mix with them if grown in their vicinity. The yield is great, the crop is generally fully perfected, and the fruit keeps through the winter.

. BEANS. — Of the numerous new kinds, the following appear to be the most important: —

California. — A running bean, ripening the last of August, or beginning of September. The pods are rather short, peculiarly broad and thick, quite tough and fibrous, and consequently of less value for stringing than many other sorts. For shelling green, it is one of the best, and deserves cultivation. It is rich and marrowy, and nearly or quite equals the Lima. The ripe seeds are broad, kidney-shaped, and of an ochre-yellow color.

The name is evidently local. On the western coast of America, the variety is quite generally cultivated; and from this source it unquestionably has been derived.

Dwarf Indian Chief. — This variety promises to be quite an acquisition. The plants grow from fifteen to eighteen inches high, and are of stocky habit. The pods are sickle-shaped, four or five inches long, round, thick, and fleshy, and of the delicate waxen-white color of those of the running Indian chief. It is early, prolific, and, as a string-bean, worthy of cultivation. The seeds are of a deep indigo blue.

Giant Wax-podded. — Samples of seeds of this new bean were received from Mr. Henry A. Dreer, seedsman of Philadelphia, by whom the variety was introduced to public notice. The plants are vigorous growers, attain a height of seven or eight feet, and attach themselves readily to the poles. The pods are eight inches long, quite broad, succulent and tender, and remarkable for the fine waxen-white color assumed as soon as they become of suitable size for stringing. They are quite light colored after being

cooked, and exceeding mild and delicate. As a shelled bean, green or ripe, it has no particular merit.

There are, however, few if any varieties of running beans, now in the catalogues of our seedsmen, superior to this for stringing; and there are probably few more productive. As a market-bean, it promises to be one of the best, and will soon come into general cultivation; but it must not be classed as an early variety, and, in the Northern States, should have the advantage of the whole season. The ripe seeds are red, and of medium size.

TILDEN TOMATO. — Seeds of this variety were received from Mr. Henry Tilden of Davenport, Io., with whom it originated. The plants grew vigorously, and yielded abundantly. The fruit, which varied in form from round to oval, was of good size, smooth, and handsome, and contained but few seeds. The only deficiency appeared to be its lack of solidity; which I attribute either to the influence of the season, or to the cool and somewhat wet soil in which the plants were grown. When compared with other varieties, the marks of distinction in foliage, and habit of growth, were less prominent than I had supposed.

Many varieties of the tomato exist only in name; but, however distinct, constant care is requisite to preserve them in a pure condition. So liable are they to change and intermix, that it would be safe to predict, that of the list now in cultivation, including more than twenty described sorts, not one fourth will appear in the catalogues of our seedsmen ten years to come.

Fruit that is ribbed and irregular, however large, is not only less attractive, but really less economical, than that of an opposite character. The properties of a good tomato are medium size, perfect smoothness, a clear bright color (pink or red preferred), solidity, and the absence of many seeds in the pulp; and these qualities will be found in a greater or less degree in the Tilden, the cook's favorite, the improved apple-shaped, and the round or smooth red. Many of the kinds described as being "early" or "extra early" have all the smoothness and solidity of the foregoing; but they are deficient in size, and generally less productive.

POTATOES. — The history of this vegetable shows, that, up to the present time, there have been catalogued and described nearly seven hundred va-

rieties : and this list, great as it seems to be, is being rapidly increased ; for the number of new sorts yearly introduced is certainly remarkable. So rapidly, however, do varieties degenerate, that, of all the kinds now on record, nearly three-fourths appear to have become utterly extinct ; and, of the remainder, a large proportion are cultivated to a very limited extent, and will soon give place to those more recent and better.

A trial of some of the kinds now prominently before the public gave results as follows :—

Early Handsworth.—An English variety, claimed to be one of the earliest now in cultivation. The plants were low, rather slender, and ripened early ; but the product was not great. For home-gardens, as a first early, it may be desirable ; but it is not sufficiently productive for the market.

Early Wendell.—Plant healthy and vigorous. The tubers are white, of large size, roundish-oblong, and cook dry and floury. The percentage of unmarketable potatoes was small, and few if any of the varieties tested proved more productive. It is a promising new sort, and is recommended for cultivation. Season intermediate.

White Peach-blow.—The plants were stocky and vigorous, and continued green and flourishing until destroyed by frost. The tubers are of medium size, or rather large, roundish, nearly white, with a shade of pink about the eyes. The great yield which the large and strong plants seemed to promise was not realized ; and the tubers, when cooked, had not the light and dry character now essential for a table-potato. The variety appears to require a warm climate, a warm, rich soil, and will probably succeed well in the Middle and Western States.

Early Sovereign.—Plant small, and of slender habit, decaying early. The tubers were white, round, smooth, of medium size, and good quality. It is a good table-potato, and is early ; but the yield was not satisfactory.

Early Stevens.—Originated in the State of Vermont. The plants were healthy, gave a fair product, and the tubers were early fit for use. It is greatly preferable to the Early Handsworth, whether intended for the home-garden or market.

Delmahey.—Introduced. The plants were low, of feeble habit, and decayed early. The yield was small. It is inferior to many of the more recent sorts of American origin, and will hardly come into general cultivation.

Calico. — An American variety produced from one of the numerous seedlings originated by the late Rev. Chauncey Goodrich. The tubers are of medium size, roundish, somewhat flattened, smooth, white, or nearly white, with scattered, large, irregular patches of bright pink or red. In bulk, the variety is showy and attractive; but it lacks quality, and is not sufficiently productive. The plants have no peculiarities, and are generally destroyed by frost.

Goodrich's Early. — This variety must be considered an acquisition. It is not only early and productive, but the plants have been uniformly healthy. The tubers are oblong, of good size, rarely hollow-hearted, and cook dry and floury. Some of the later sorts may give a greater yield; but, of all the varieties claimed as being early, no one was more productive, or possessed more of the qualities essential in a good potato, than the Early Goodrich.

Cuzco. — One of the varieties known as Goodrich's seedlings. The tubers are very large, roundish or oblong, white, and of fair quality. The plants are strong growers, and ripen with the season. It is an excellent field-potato, healthy, yields abundantly, and appears to be worthy of cultivation.

Sebec. — This variety, also known as the "Boston-market" potato, originated in Maine. The tubers, in bulk, resemble the Jackson white, which is sometimes sold as a substitute. The skin of the Sebec, particularly after having been harvested for some length of time, exhibits slight spots or shades of purple, which are never seen in the Jackson white. The plants, also, are quite distinct.

From a trial of three seasons, the Sebec appears to be a desirable potato for the market or garden, and is recommended as being one of the earliest, most productive, and best of the varieties introduced since the Jackson white.

These brief particulars respecting some of the newer culinary vegetables are given as the results of individual experience. Different conditions will of course, in many instances, produce different results. The influence of soil and climate is great; and varieties that may yield abundantly, and be of superior quality, in one locality, often prove unproductive and almost worthless in another. The best course to be pursued is to give the most

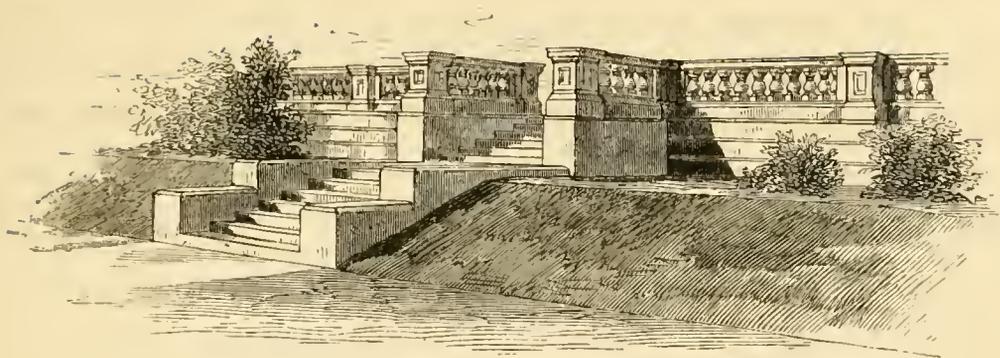
prominent a fair trial. There will be occasional disappointment ; but the cost of the experiment will be trifling, and we shall be doing something towards encouraging the improvement of vegetables, which, it must be confessed, hardly keeps pace with the progress made in floriculture and pomology.

Fearing Burr, Jun.

ALOYSIA CITRIODORA.

THIS popular plant, usually known as lemon-scented verbena, receives far less attention than its merits demand. It is of the easiest growth, and propagation is easily effected when the wood of the current year is from three to six inches in length. Short stubby shoots, with their bases a little hardened, are the best. July is a good time to put in the cuttings, which may be side-shoots about three or four inches long slipped off the plant. The lower end having been made smooth below a joint with a sharp knife, and the leaves removed for half the length of the cutting, the latter should be inserted pretty closely round the sides of a six-inch pot, drained to two-thirds its depth with broken pots or crocks, and filled to within an inch of the rim with a compost of sandy peat, loam, and sand, in equal parts ; the remaining space being filled up with silver sand. Insert the cuttings pretty closely around the sides, and up to the lowest leaves, or half their length ; then give a good watering, and cover with a bell-glass. Perhaps the best mode of doing this is to place the cutting-pot in one of larger size, and fill the interval between the pots with crocks, placing sand on the top : the rims should be level. Only water when necessary, and then give no more than is sufficient to keep the soil moist, as it must always be. Place the pot in the sunniest window, and shade for an hour or two during the hottest part of the day. In six weeks the cuttings will have struck, and the bell-glass may then be entirely removed ; but for three weeks previously it should be tilted a little by day, and put close down at night, wiping the glass in the morning if moisture is found to be deposited on it. The cuttings will strike, but more tardily and with less certainty, without the glass : they strike best in a gentle hotbed.

“Cottage Gardener.”

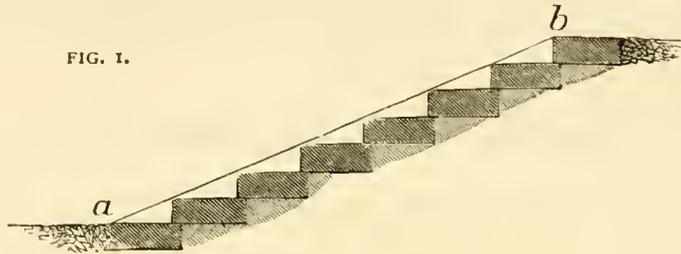


ON GARDEN ARCHITECTURE. — No. 2.

OF all the works included under the head of "Garden Architecture," terraces, with their accompaniments, occupy the first place. They date from the earliest antiquity, and have obtained the most universal recognition as a means of architectural effect. The celebrated "hanging gardens" of Babylon were nothing more than a series of terraces, covered with plants and flowers, rising one above the other. The great palace-temples of Babylon, Nineveh, Persepolis, &c., were built upon immense terraces. The Asiatic Greeks placed most of their great temples upon them, rising from platform to platform by immense flights of steps superbly decorated. The Tagh-Mihal, or Mausoleum, built by Shah Jehan to his queen, like many other of the great works of those superb builders, the Mahometans of India, is elevated on a high terrace. With the middle-age Italians, terraces were revived with the *renaissance* of classic architecture: and the magnificent villas of the princes and nobles of the great art-period of Italy present splendid examples of their use; as at the Villa d'Este, Villas Albani, Borghesi, Pamfili, and many others in the neighborhood of Rome. From Italy they passed to France, where the *Grand Monarque*, Louis XIV., made most profuse use of them in decorating and dignifying the gardens of Versailles and other palaces; and at about the same period they were introduced into general use in England, where, at the present time, they have become an indispensable feature of garden architecture, never absent, but varied in an infinitude of forms and magnitudes to harmonize with the size and style of the gardens in which they are built.

The earth-slope, or primitive terrace, presents but few opportunities for

architectural decoration; the steps being the principal one. These do not admit the use of a balustrade, as in the more perfect architectural terrace, but may be decorated with vases, either solid, or to hold flowers; and, where the flight is on a large scale even figure sculpture is not inappropriate. These latter cases are, however, so rare, that they need not enter into present consideration. The first question is, how to design a flight of steps for a slope.



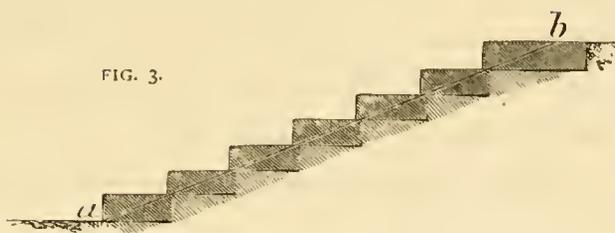
Suppose the lines ab , ab , respectively, to represent the grass-slope, and the problem to be to make a flight of steps to correspond to the slope. By Fig. 1, the front angle of the top step is placed at the superior angle of the slope, and the other steps are brought out to the line: the consequence is, that, at the foot of the flight, the slope overruns the steps by the width of a step; and it becomes necessary, in order to complete the steps out to the lower angle of the slope, to set in a stone at the level of the lower walk. This is the English method; but it is obviously open to several objections. The coping at the sides, without which no flight of steps to a terrace should be laid, will run too near the ground on the outside if it is parallel with the slope, and not too high on the inside; and it inevitably gives the steps the appearance of being sunk into the earth, which indeed they are. Then the supplemental step at the bottom will always be dirty; and, if the walk is properly graded to shed water, there will be a disagreeable exposure of the face of the stone on either side the centre, giving it the look of being badly set; thus:—

FIG. 2.

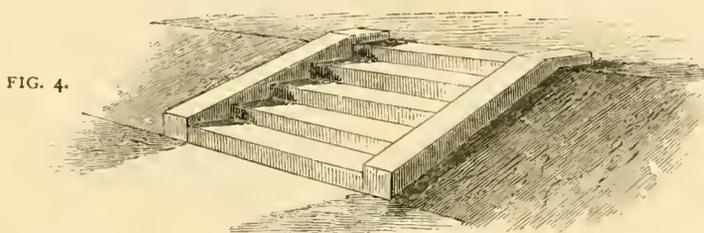


The true way is to set the bottom step on the lower angle of the slope, which will throw the upper step forward; and then increase the width of this as a platform-step to suit the design, which may be adopted for the

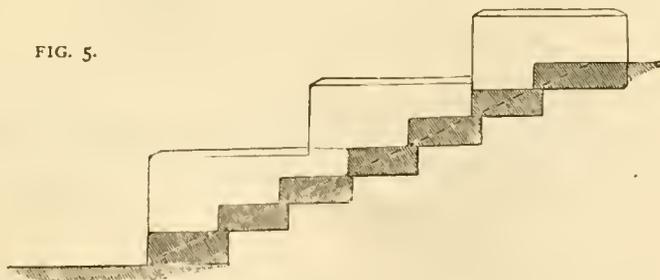
copings and their finish. This method is shown in the accompanying cut :—



The simplest method of stopping or buttressing a flight of steps is by a continuous plinth, with the top line running parallel with the slope, as in Fig. 4. This is, however, liable to two objections. In the first place,



it does not, unless each buttress is made of a single stone, have a proper constructive look; for it gives the idea that it is set on a slope, and this suggests a slippery and unstable foundation. Again: the slope and the buttress, by this method, are on the same angle of inclination; and this repetition is to the last degree tame and monotonous to the sight, there being no contrasting forms whatever,—the slight breaks of the steps not being sufficient to counteract the effect of their general inclination. The Greek method, and the one followed by all the great builders, is to buttress the steps with blocks laid in horizontal courses, and broken down to conform to the steps, as in the following figure. The buttress at the top of



the steps should be set up above the ground, so as to mark the point where the steps commence to a person approaching them from the upper walk.

Some modification of this method (and the variations can be quite numerous) is far preferable to the sloping buttress for a simple flight of steps without any decorative features, as it gives an effective contrast to the line of the slope, and has, besides, a substantial and constructive appearance. Figs. 6 and 7 show two designs, in one of which the contrast desirable between the slope and the buttresses is obtained by horizontal buttresses

FIG. 6.

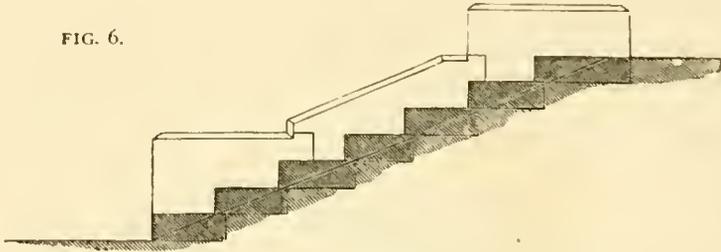
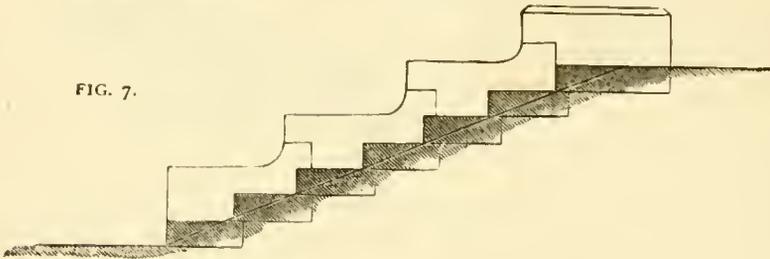


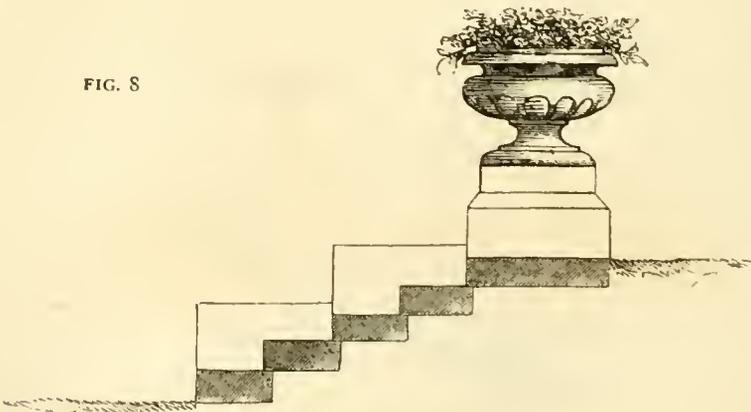
FIG. 7.



with a slope between, while the other is a modification of the simple horizontal method. Either is in good taste, and may be used with or without decoration.

Should it be desired to ornament such a flight of steps, the vases or

FIG. 8.



sculpture should be placed at the top of the flight, unless in extremely exceptional cases. They will thus be seen from the walk above as well as

from below, and will serve to give distance to the objects behind them ; whereas, if they are placed at the bottom, they will either come against the bank in a diagonal view, or will cut against the upper line of the slope, half relieved against the bank, and half against the objects beyond the upper walk, and thus lose their full effect from either point of view.

The diagram, Fig. 8, gives the simplest way of decorating such a flight of steps, shown in profile. The upper step should be widened sufficiently to correspond to the plinth under the vase ; and this latter should be set low, so as to harmonize, and not contrast violently (as in Fig. 9) with the

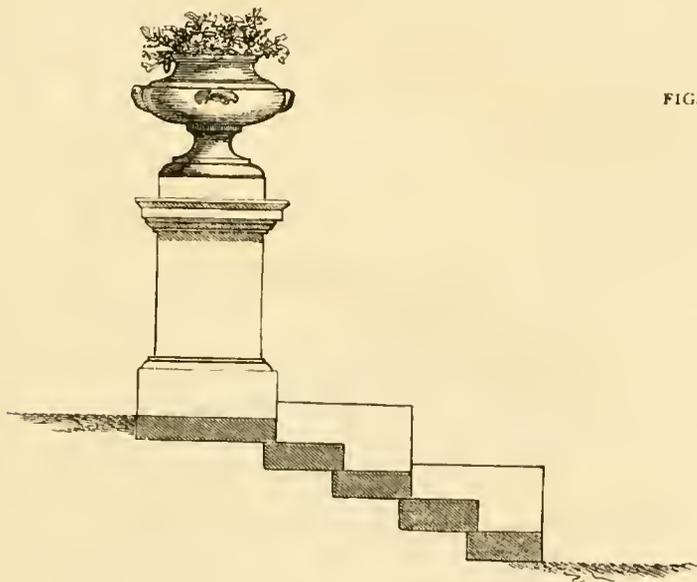
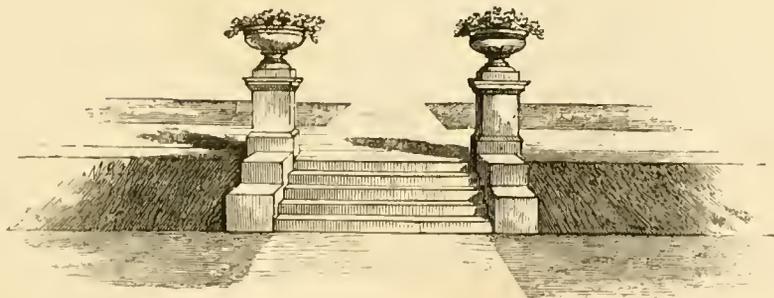


FIG. 9.

steps and bank. The effect of this latter from below is shown in the following cut : —



If the house and all its adjuncts are rich and elegant, there is no objection to decorating even a simple flight of steps with sculpture, if the flight is of sufficient magnitude so that the objects on either side will

not look crowded together. The difficulty of doing so satisfactorily is entirely one of judgment of position and harmonious combination. Statues in such a situation should not be placed on high pedestals; and great care should be taken to give them a proper point of view and a simple and harmonious background. It should be borne in mind that they will almost invariably be best seen from the lower level. A very long flight of steps, to correspond to very rich surroundings, may be decorated both at the top and the bottom; but in this case the upper portion should be the principal one, in accordance with the reasons already given.

It has already been remarked, that there are two kinds of terraces: the architectural decoration of the first, or earth-slope, we have just been considering; the other is entirely an architectural creation. This has no slope whatever. The edge of the terrace is bounded and sustained by a wall; and, this making a perpendicular descent, a guard of some kind becomes indispensable to prevent persons from inadvertently stepping off. This necessity, so simple, and easily provided for, has been made the foundation of some of the most superb works of mere decorative architecture, exercising all the invention and skill of the architect in their design and execution; for, if it is necessary to have a parapet, why not an elegant one? If steps and approaches are required, why not make them on a grand scale? With the earth-slope, no parapet or balustrade is required. There is no danger of walking off it; and, as there is no more danger of this on the steps than at the upper edge of the slope, no balustrade is required at the steps; and it would be quite out of harmony to place one here, and omit it at the upper edge of the slope. There are other reasons why the earth-slope should not have a parapet or balustrade. If built, it must rest upon a wall. This wall must be solid, and be set deep enough in the ground to avoid the effect of frost. But why, if you have a wall, have also a slope? Again: the sods are always dropping away from a wall, where they are laid up to it on a slope; and the line of junction becomes ragged, uneven, and disagreeable.

Hammatt Billings.

FIELD-MICE.

No group of our indigenous quadrupeds possesses greater interest, in an economical point of view, than that great subdivision of the rodentia, the muridæ, in which are comprehended the sub-families dipodinæ, or jumping-mice; murinæ, rats and mice proper; and arvicolinæ, or field-mice: and a short article here on their general habits will not be out of place, particularly as this is the season in which they are especially destructive in the orchard and nursery, the field and garden.

Of the dipodinæ, the genus *Faculus* is the only representative in this country. Its most prominent characteristics are a long, slender body, sharp nose, very long tail, and greatly lengthened posterior limbs, adapted to leaping.



THE JUMPING-MOUSE (*Faculus hudsonius*) is the most familiar of these little animals, and it seems to be generally distributed throughout the country. It is known in different sections by the names "kangaroo-mouse,"

“buck-mouse,” “long-tailed deer-mouse,” and other appellations suggestive of leaping. In its general habits, it is probably the least destructive of all the mice; for, besides being less numerous than the others, its food consists almost entirely of the seeds of wild plants and weeds.

Though my limits are brief, I will present a little account of its characteristics. In escaping from pursuit, the jumping-mouse usually progresses rapidly by a series of long jumps, often clearing four or five feet at a leap: these leaps are made so rapidly, and in such uncertain directions (usually zigzag, like the flight of a snipe), that it is very difficult to catch it. It walks on all-fours, like a common mouse, when not alarmed; and often will, in escaping, double on its tracks, and steal away through the grass, crouching close to the ground. This species, when in the woods, digs its burrow usually beneath a stump or log: this burrow is not very deep or complicated, usually having but one passage. In the fields it builds a nest, sometimes in a tussock of grass, or beneath a stone, or perhaps in a pile of rubbish. It sometimes lays up a winter-store of seeds and grains; but it usually hibernates, although not in an entirely torpid state, it being almost always active on being discovered.

I once, in the winter-season, while cutting up a partially-decayed stump, found a nest with a pair of these little animals: the nest was made of grass and leaves; but there was no store of seeds or grain. Whether or not the shock of the axe splitting the wood awoke them, they were lively, and soon escaped by their long leaps. The jumping-mouse is not very prolific, bringing forth but three or four at a birth but once or twice a year. I have given this rather full description of the habits of this animal, because there is a great confusion in the accounts of some other writers; many describing it as being torpid through the winter; others contradicting them, saying it is active through the year.

In the sub-family murinæ are included the genus *Mus*, comprehending the common brown or Norway rat, and the brown mouse or house mouse, whose habits are so well known, that they need no description here; and the genus *Hesperomys* and *Neotoma*, the former of which is the most interesting to the rural economist. The prominent characteristics of this genus are a moderate-sized head, pointed to the muzzle; large eyes: large, rounded, and nearly naked ears; and a long, cylindrical tail.

The species are abundantly distributed throughout the continent, and are known by the name white-footed and hamster-mice in the Northern, red and long-tailed mice in the Middle, cotton and rice field mice in the Southern, and prairie-mice in the Western States. They are all eminently injurious, and in some sections are a great nuisance.

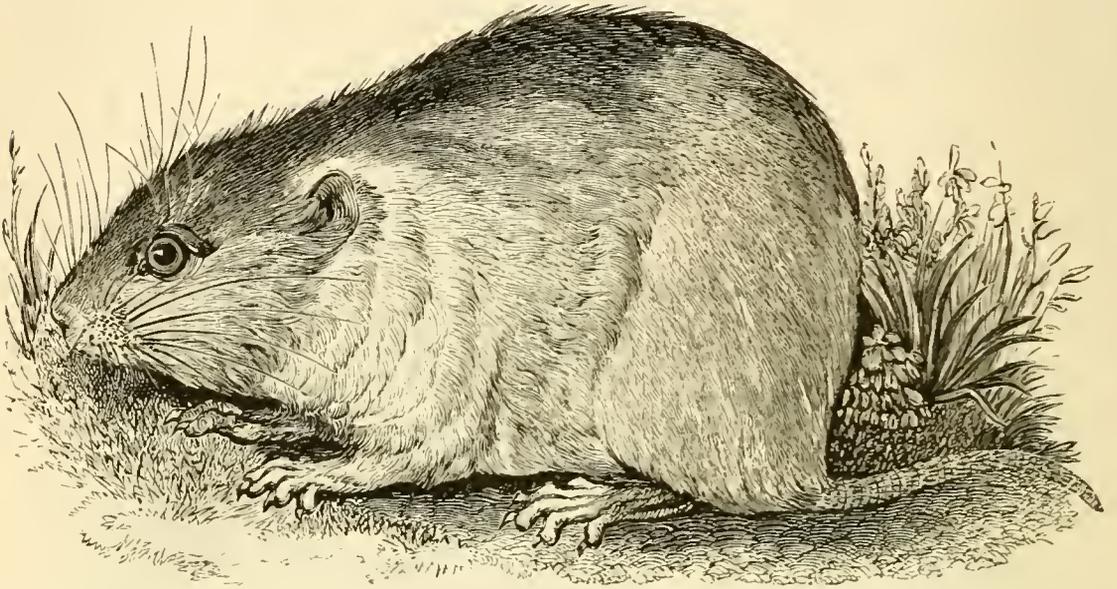


THE WHITE-FOOTED MOUSE (*Hesperomys leucopus*) is very generally known in New England and the North. It often takes up a residence in dwelling-houses, where it has all the habits of the common brown mouse. It does considerable mischief in nurseries of young trees by gnawing off the tender bark, and eating the young buds; but as it lives more generally in fields and meadows, in long grass and weeds, than in cultivated grounds, it is less troublesome than the arvicolinæ.

The white-footed mouse builds a large nest, usually in the branches or hollow trunk of a tree. It often occupies a deserted bird's nest, which it enlarges to meet the wants of its family. It is more prolific than the preceding, having two or three litters of six or eight young in the year.

The most important group of the mice is the arvicolinæ, in which are included all our short-tailed meadow or field mice, — *Arvicola*. These are distinguished by their short, thick body; short tail, usually less than half

the length of the body; and short, strong limbs. All the species of this group, which are distributed throughout the whole continent, burrow in

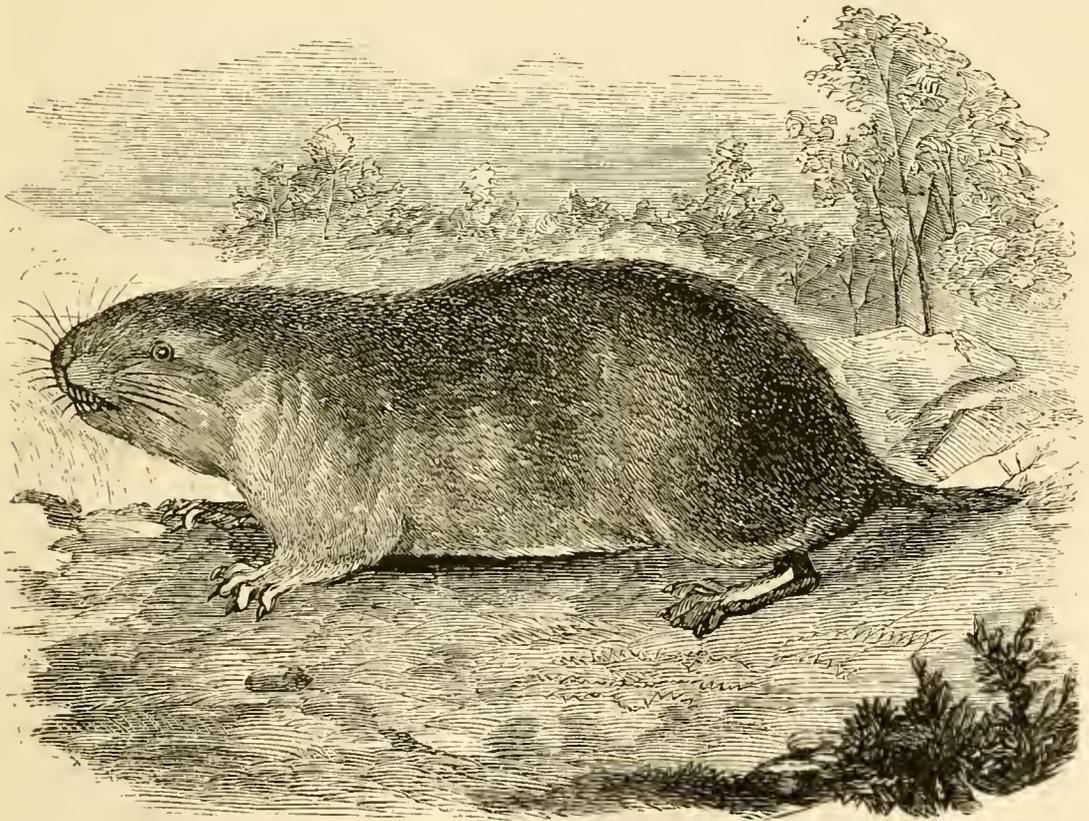


THE MEADOW-MOUSE (*Arvicola riparia*).

the earth or beneath the roots of a shrub or tussock of grass. They all feed upon grasses, bulbous-roots, seeds, and grains. They do not hibernate, but are active through the winter, seeking their food through the deepest snows. Robert Kennicott, who wrote a valuable paper on these vermin in the Patent-office Report for 1856, says, —

“The greatest mischief done by meadow-mice is the gnawing of bark from fruit-trees. The complaints are constant and grievous, throughout the Northern States, of the destruction of orchard and nursery trees by the various species of arvicolæ. The entire damage done by them in this way may be estimated, perhaps, at millions of dollars. If any think this too large an estimate, let them inquire, even in a small neighborhood where much attention is paid to fruit-growing, and it will be found, that, wherever they abound, the injuries committed by these pests are frequently among the most serious difficulties encountered by the pomologist. This is especially the case at the West, where no care is taken to protect the trees against them; careless orchardists allowing grass to grow about the roots of their fruit-trees, and thus kindly furnishing the arvicolæ with excellent nesting-places in winter, and rendering the trees doubly liable to be girdled.

In the nurseries in Northern Illinois, I have seen whole rows of young apple-trees stripped of their bark for a foot or two above the ground. Thousands of fruit-trees, as well as evergreens and other ornamental trees and shrubs, are at times thus killed in a nursery in one winter. The mice are most mischievous in winters of deep snow. It is usually thought that they only gnaw bark when no other food is to be obtained ; but it is more probable that this is palatable to them at all times. Confined specimens, while abundantly supplied with food of all kinds, ate the bark from twigs placed in their cage. One reason why fruit-trees are most girdled in times of deep snow is, that the meadow-mice can then best move about at a distance from their burrows, being protected by the snow, under which they construct numerous pathways, and are thus enabled to travel comfortably in search of food, always to be obtained in abundance where there is any kind of perennial grass or the seeds of annual plants. Aided by the snow,



THE WOOD-MOUSE (*A. pinetorum*).

too, they climb up the sides of the trees to gnaw the bark at a considerable height from the ground. Rabbits are often accused of gnawing the

bark from trees, when the mischief has really been done by meadow-mice."

In concluding this short paper, it will be proper to mention some of the methods that have been adopted for the destruction of these pests. Dig in the earth, at the beginning of cold weather, short trenches, four feet wide at the bottom, and three feet wide at the top, and about four feet deep; the ends inclined at the same angle as the sides. The earth-walls of these trenches, after becoming frozen, are impassable to mice that have fallen in, as they will in great numbers. I am informed by a Scotch gardener, that he has killed upwards of *nine thousand* in one winter in this manner. Various poisonous preparations have been used, some very effectively. A few of the best are as follows: Mix one ounce of finely-powdered arsenic and one ounce of lard into a stiff dough with meal or flour; make into pills, and scatter them about the haunts of the rats and mice. Mix one ounce of flour, two ounces of lard, and half a drachm of phosphorus, made also into pills; or one ounce of flour, two ounces of powdered cheese-crumbs, and half a drachm of phosphorus. An effective poison is made of the following: Two ounces of finely-powdered arsenic, two ounces of lard, ten drops of oil of rhodium, mixed with flour or meal into thick dough, and pills of it scattered about the orchards and nurseries.

As "prevention is better than cure," so it is better to avoid the chance of having mice in gardens and nurseries than to kill them after they have got there. Before the snow falls then, all rubbish, such as brushwood, straw, weeds, and other litter, should be raked up and burned; for these furnish comfortable homes for these pests. Have no piles of strawy manure about; and, above all, take off all piles of stones that may have accumulated. It is better to have them scattered over the surface of the ground than to have them offering a safe asylum for hordes of vermin. In the summer, spare all harmless snakes and owls, for their chief food is of mice and insects; and a few of these benefactors will keep clean a large tract of land.

E. A. Samuels.

THE JERUSALEM ARTICHOKE.

(*Helianthus tuberosus*.)

THIS plant, interesting in many respects, especially considered economically and agriculturally, was cultivated extensively at the end of the last and beginning of the present century, and has probably been in Europe for three hundred years. Now it is completely neglected ; a few specimens only are sometimes to be seen in botanical gardens : and yet, as an ornamental plant, its tall stalks (each plant producing two or three, five or six feet in height), surmounted by numerous flowers, which remind one slightly of the sunflower (*Helianthus annuus*), make it most desirable. As an alimentary plant, the tubers are prepared in various ways ; and the pulp has the taste of artichokes (hence its vulgar name, Jerusalem artichoke). Largely cultivated, it yields abundant and healthy food for cattle and sheep.

As an article of food, it is highly prized by some, and little valued or wholly neglected by others. The opinion of the best agriculturists is, that the tubers of this plant, well prepared, make a palatable and wholesome dish. Cooked with a little salt, or even raw, cows and sheep eat them readily in winter, if they are fed occasionally, or mixed with hay and rowen.

Although indigenous to Brazil, and probably also to Chili, the tubers of this plant withstand the most severe frosts. They vary in size, are very abundant, and are similar in form to the potato (*Solanum tuberosum*). Every kind of soil is adapted to them. They flourish everywhere, and furnish abundant crops, which should be gathered in November ; or the tubers may be dug even in winter, if the ground is not frozen. Is it not singular that of late years, when, all over Europe and elsewhere, the potato-rot has appeared, has lasted so long, and caused almost a famine, while, through a spirit of rivalry, a multitude of tubers have been mentioned erroneously as edible, and good substitutes for the potato, no one has called to mind the tubers of *Helianthus tuberosus* ?

C. Bailly Merlieux, in the "Maison Rustique du XIX. Siècle," vol. i. p. 451, has devoted to these plants an exhaustive article, in which he quotes

and examines all the opinions which have been given on this subject. We regret not to be able, on account of its length, to reprint it here ; but we refer those of our readers who may be interested in this subject to this interesting notice.

He states, from indisputable authorities, the following facts : "These plants resist the severest droughts, even in soil naturally arid, and multiply in the poorest land ; they endure the most intense cold without injury ; they need be gathered only as they are needed ; they supply man with healthy food, either boiled or baked, although used chiefly for animals ; and their leaves furnish fodder much sought for by all cattle."

M. V. de Tracy, a celebrated French agriculturist, cites a remarkable example ("Le Cultivateur," March, 1835) : "On his farm of Paray-le-Fresil, near Moulins (dep. l'Allier), in the summer of 1834, the fields were dry, and clover grew only a few inches from the ground. Under these circumstances, he had recourse to the Jerusalem artichoke, the medium height of which was at that time from five to six feet, presenting an abundant foliage of the finest green. From that time (the middle of August) he mowed these stalks, and for two months a cart-load of about fifteen hundred pounds was brought to the farm each day. This green fodder was constantly and readily eaten by the cattle. It is worthy of remark, that the harvest of tubers was not sensibly diminished in the plants where the stalks had been cut. The leaves of the Jerusalem artichoke may be dried, and stored for winter-fodder. In a scarcity of fuel, the stalks of this plant, which are strong and hard, furnish good fuel : they burn very well when dry ; are useful for heating ovens and for kindling ; they may also be used for pea-sticks, and for light supports or plant-stakes."

The author concludes his article thus : "The quantity yielded by the Jerusalem artichoke varies greatly, according to the soil, and care bestowed on its cultivation. V. Yvart, a celebrated agriculturist, after testing it with the large white common potato, states, that, all circumstances being equal, the advantage has always been in favor of the artichoke, the yield of which is three or four times greater. M. V. de Tracy estimates the harvest to be eight or nine times the seed in the clayey-silicious soil of his farm ; that is to say, from three hundred and twenty to three hundred and eighty-five bushels to the acre. He thinks the produce of green fodder is

from sixteen to twenty cart-loads, of about fifteen hundred pounds each, to the acre."

We might lengthen this article by enumerating all the merits of the artichoke, and the modes of cultivating it extensively: but we have said enough, we believe, to call attention to the cultivation of this almost-forgotten plant, and to suggest its culture in the kitchen-garden as well as in the field; for the table as well as for the stable; and even in gardens, where a clump placed here and there, by its erect stalks, its beautiful and abundant foliage, and numerous flower-heads, produces a good effect. We have eaten with much relish these tubers prepared in many ways, but especially when fried in batter like artichokes.

The roots of this plant contain a great abundance of dahline, identical with inuline. The tubers, subjected to fermentation, give a great deal of vinous liquor similar to beer; and, in this respect, the plant might become important.

L'Illustration Horticole.

[This plant is perfectly hardy with us; produces tubers and an abundance of foliage under the most unfavorable circumstances; and its cultivation might be profitably pursued. — ED.]

CULTURE OF GREEN-HOUSE GRAPES UNDER HORIZONTAL GLASS SCREENS.

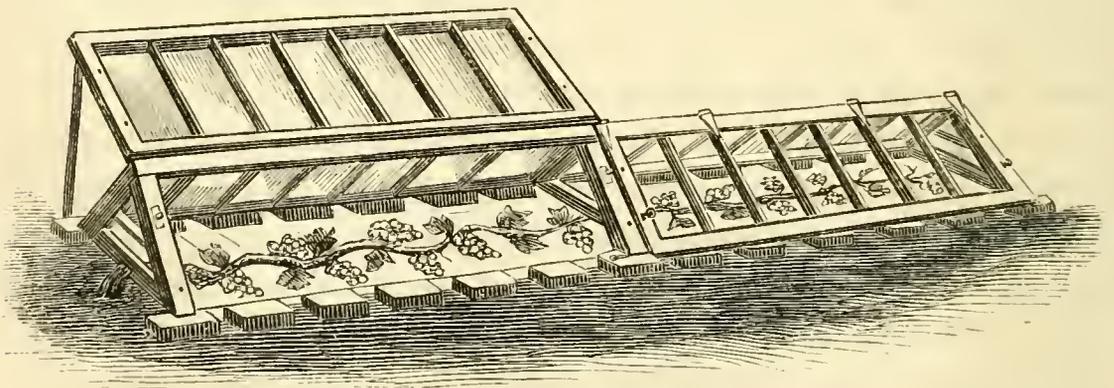
It is now a universal opinion, that the culture of those varieties of the vine known as "green-house grapes" in the open air cannot succeed in our climate. In fact, except in some favored spots, even the earliest varieties, if not sheltered, yield small and uncertain results.

Every day we hear it said, "Grapes used to ripen perfectly here." That may be true; but those times are long past. What are the causes of such a remarkable change? Various circumstances must, evidently, have exercised an influence upon the late ripening which we now observe in this fruit. We believe that the degeneracy of the old early varieties, caused by long cultivation, as well as the gradual depression of the average temperature of our climate in consequence of the cutting-down of timber, has occasioned this in a great measure.

It must, however, be noticed, that, during a considerable number of years, little change has taken place in the average time of the ripening of grapes, and that we are not sustained by any recent experience when we complain that they ripen later than formerly. We may have become more exacting; and, having brought fruit-trees to such perfection, find ourselves unable to be satisfied with the ordinary sour grapes of vines cultivated out of doors. It is with the vine as with every thing else: we always imagine that what we used to have was better; and so we very often erroneously invoke "those good old times," which have, however, remained the same, while we ourselves have changed.

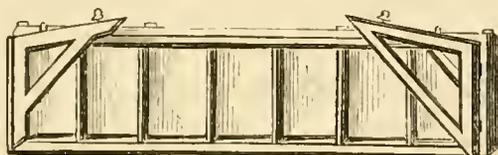
Certainly, after the satisfactory results of our first attempts at cultivation under glass, by which superb, well-ripened grapes of the magnificent late varieties have been obtained, grapes produced in the ordinary way must seem more insignificant and sour than ever.

Indeed, we cannot help becoming thoroughly disgusted with the system of cultivating green-house grapes in the open air, since they are far from paying for either the pains or the valuable space we are obliged to devote to them. In short, as we said at the beginning of these remarks, the necessity of a glass shelter for tender grape-vines has long been felt. Thus, ornamental hot-houses lined with grape-vines — hot-houses reserved especially for this purpose — are now frequently met with here. What still remains to be accomplished is to reduce this method to its most simple form, an inexpensive grapery, so as to render this culture everywhere *easy*, *pleasant*, and *lucrative*. The mode of culture I am about to describe does



this fully. The little hot-house or forcing-frame, a design of which we give above, is composed of little sashes, adjusted by means of screws, and

resting upon bricks laid on the ground. It will be seen that the space enclosed in this little hot-house, and the easy system of ventilation, allow the temperature to be elevated or depressed at will. Moreover, by its position near the soil, the vine must profit greatly by the radiation from the ground. Vines cultivated in an open garden-bed, or, better still, at the foot of a well-exposed wall, and conducted in a unilateral horizontal position, would be best suited to this kind of shelter.



A branch of vine detached from the wall, and bent down towards the soil, could also be forced in this way.

Vines cultivated with long canes, and introduced under this simple forcing-frame, would produce an abundance of fine fruit. Lastly, the intelligent gardener would be able, in many other ways, to make use of this simple construction to obtain the finest and most savory of all fruits.

Flore des Serres.

[This method is in general use in England, and might be advantageously used in this country. It may be a question, however, as to the effect of our hot summer's sun on these ground-vineries. — ED.]

CULTURE OF FERNS FROM THE SPORE.

At the beginning of March, select a warm corner of the side stage of the greenhouse ; place in a board two feet square ; then break small a quantity of crocks, and cover the board to the depth of half an inch ; chop up very fine a little sphagnum-moss, and cover the crocks ; next sift through a fine sieve a quantity of sandy peat, with a small proportion of fresh loam ; then mix up with a quantity of silver sand equal to both ; press the moss level, and lay this compost on an inch deep ; and, when done, slightly smooth and press lightly over the surface ; then give a slight watering out of a fine rose, and, when the water has subsided, sprinkle on the spores pretty

thick, and finish by putting a hand-glass over all, first painting or white-washing the glass to cast off the sun's rays ; keep the glass close, excepting on days of strong sunshine, when the glass ought to be raised a little at one side up to the moment the plants make their appearance, giving a sprinkling of water when the surface shows signs of getting dry : thus continue to keep the soil damp ; but stagnant water must be avoided.

The plants, in the first stages of formation, will be recognized in the minute cups that make their appearance on the beds, and which will soon start up fronds. As soon as they can be handled, remove the board off the stage, and place another in its stead ; which cover as recommended for the others, only making the bed of earth double the thickness. Take the plants out singly with a pointed stick, and prick into narrow rows on the new bed ; give a slight watering out of a fine rose, and return the glass as before ; keep shaded for a few days, until the plants have begun root-action, when air can be admitted by degrees. In a few weeks the plants will be fit for pots, when all danger is past.

A. Kerr, in "Scottish Gardener."

NEW PLANTS.

Tacsonia Van Volxemii. — This is undoubtedly one of the finest conservatory climbers ever introduced, second only to the justly and universally admired *Lapageria rosea*. The healthiness, vigor, and rapidity of its growth combine to make it highly desirable for producing immediate effect in conservatory decoration. The flowers, which are of a rich, rosy crimson-color (fully five inches in diameter), are freely produced from the axil of each leaf, and are gracefully suspended on long, slender foot-stalks a foot in length, so peculiarly slender and thread-like, that the flowers hang, as it were, clear and detached from the foliage, and have the appearance of brilliantly-colored parachutes suspended in the air.

The foliage is also remarkably good, and free from that coarseness which detracts much from other tacsonias.

“Our plant is growing in a mixture of rough peat, loam, and coarse sand, with abundance of drainage, and plenty of pieces of broken brick-

bats, crocks, sandstone, and old lime rubble, mixed in with the soil. As a proof of its comparative hardiness, a plant of it grew in England luxuriantly on an eastern wall, out of doors, during the summer and autumn of 1865."

This charming creeper is a native of New Grenada, where it is cultivated in gardens under the name of COUROUBA. It found its way into Europe a few years since through M. Van Volxem, a Belgian traveller, after whom it has been named. — *Florist*.

Clematis rubella and *Lanuginosa candida*. — The former was raised by Messrs. Jackman of Woking, to whom we also owe those fine varieties, *Jackmanni* and *rubro-violacea*, figured in a former volume, and which were the forerunners of a new race of clematises. *Rubella*, one of the finest of these, has been several times exhibited, and has received first-class certificates both from the Royal Horticultural and Botanic Societies. Its flowers are of a rich, velvety, reddish-violet, and are stated to be more constant in having five or six petals than any of the other varieties. *Lanuginosa candida* is white, slightly tinged with purple towards the edges of the petals, and will prove useful for mixing with the richer-colored varieties. It is believed to be of Continental origin. The mode of cultivation pursued by Messrs. Jackman in the case of these and other varieties is thus stated by Mr. George Jackman, jun.: "When we put our specimen clematises out, we plant them permanently out of pots in the open ground. In pots they will flower freely, but will not produce flowers in equal number or of so fine a quality, because the clematis, having a fleshy root, cannot take up sufficient moisture to develop its flowers so finely as in the open ground. The soil they luxuriate mostly in is one composed of rich manured loam, and, when possible, fine calcareous sand. They should be pruned back in the spring, about February, leaving a quantity of good breaking-buds: but there is this difference, — some kinds will only flower on the old, well-ripened wood of last year's growth; therefore discretion must be used. *C. Standishii*, *Fortunei*, and all the varieties of *azurea grandiflora*, are of this character; while others, such as the hybrid seedlings of which *C. Jackmanni* is the type, — *rubro-violacea*, *rubella*, *Prince of Wales*, and all the *viticellas*, — will grow and flower quite as well and as vigorously on the spring's growth as the other varieties do on the older wood. After pruning, the

surface should be stirred up, and some good rotten manure forked in round the roots. By giving attention to these simple rules, any person may have exuberant growth, large flowers, and brilliant colors." — *Floral Magazine*.

ILLINOIS STATE HORTICULTURAL SOCIETY.

CHAMPAIGN, ILL., Dec. 14, 1866.

THIS society held its eleventh annual meeting, commencing the 11th instant, and closing to-day.

The attendance was unusually large; all parts of the State being represented.

The day preceding the meeting, the weather turned cold with that suddenness characteristic of the West, sending the mercury to zero: hence the show of fruit was small; the largest collection coming from the south part of the State, and numbering fifty varieties.

Of new fruits, or those not generally cultivated, were the Stanard, — a comparatively new apple of great promise, nearly as large and showy as the King of Tompkins County. Tree hardy, and remarkably productive of nearly first-rate quality. A large basket of the fruit was presented to the meeting, the members of which became a tasting committee of the whole.

Ben Davis and Rome Beauty also attracted a large share of attention. Among the older apples of high merit were Winesop and Brandywine, or better known as Minkler. These four are rapidly becoming great favorites in this State. A basket each of the two latter took the same direction as the Stanard.

Your Eastern readers will observe that the prairie orchards have a list of their own, which it might be well for them to make trial of.

The Stanard is said to be a seedling from Erie County, N.Y. It has been drawn in colors by Dewey of Rochester, from a Western specimen.

The Ben Davis is supposed to be a seedling of Kentucky or Tennessee; the Rome Beauty, of Ohio; and the Minkler, of Ohio or Pennsylvania. The Winesop is an old fruit, that is very popular at the West.

No change was made in the apple list; but the attention of the society was called to the great value of these four varieties.

PEARS. — The pear list was not disturbed. Cultivators are falling into the practice of our Eastern pear-cultivators, by planting close, providing abundant shelter, and shading from the direct rays of the sun. The pear-blight is the great drawback in the culture of this fruit. Sulphur, iron, and scoria have been tried with unsatisfactory results.

PEACHES. — But little time was spent over this fruit. Its three enemies — curculio, peach-grub, and frost — were disposed of; the first by the use of Dr. Hall's inverted umbrella with daily jarrings, the second by the use of the knife, the third by annual planting and shelter-belts in all that part of the State south of lat. 41°.

PLUMS have been so nearly abandoned, that nothing was said in regard to them.

CHERRIES. — This fruit was freely discussed, and the list corrected. The fruit known as Early May, May Cherry, and Early Richmond, was decided to be an American seedling, originating near Richmond, Va., and there known as the Early May, and its name fixed accordingly. This is the great market-cherry of the prairie country. Near this city is one orchard, of six hundred trees, that commenced shipping fruit to Chicago the past summer. Another orchard, of the same number, began to bear this season. Besides these, the trees are ready to set one orchard of two thousand trees, and four others of one thousand each. This shows the great popularity of this fruit. Added to this are several lots of fifty to one hundred trees. Many suppose that this is only a cooking cherry; but, though not the most delicious, it is a very good eating cherry, as is attested by the fruit-stands of Cincinnati, St. Louis, and Chicago, where large amounts are consumed daily.

The large English Morello, which is fully a month later, is the only other cherry put on the list for market. At the request of a few, the May Duke and Black Tartarian were added for family use.

Along the Mississippi, for a long distance, is a narrow strip of bluff-land known by geologists as *Loess*, on which nearly all the sweet cherries appear to do very well, but where the fruit is nearly all destroyed by the birds.

It was also decided that the Morello suckers, or seedlings, were much the best, if not the only stock suitable on which to graft the two market-cherries named.

For the past five or six years, the cherry question has been tending to this result; and it may be considered settled for some time to come in this State. While the mazzard and mahaleb may be suitable stocks in many sections, it is certain, that, for the whole prairie region, they are of little value.

GRAPES. — The new grapes have, with few exceptions, failed to give satisfaction; and several grape-growers contended that the Clinton (for wine), Hartford Prolific, and Concord were the only ones of value to us. It is certain that Delaware, Adirondack, Iona, and others, have made almost a total failure. Frost and rot are the difficulties in the way. It is probable, that, as protection increases, grapes will do better. Along the Mississippi, vineyards are rapidly multiplying, mostly of Clinton, Catawba, and Concord.

OFFICERS ELECT. — *President*, Elmor Baldwin of Farm Ridge, LaSalle County; *Secretary*, W. C. Flagg, of Alton; *Treasurer*, I. Huggins, Woodburn; with a list of fourteen Vice-Presidents, — one from each Congressional district.

The next meeting is to be held at South Pass about the 1st of October.

The society resolved to make a show of fruit at the meeting of the American Pomological Society to be held at St. Louis, Mo., commencing Sept. 10.

The transactions are to be published at once, for members only. Any person can become a member on the payment of two dollars.

M. L. D.

OHIO POMOLOGICAL SOCIETY.

THIS society was organized in September, 1847; and is the oldest State society of the kind in the Union. Its meetings were held annually till after the organization of the American Pomological Society; then changed to biennially, alternating with the meetings of that society: but, in 1863, the rule was again adopted of meeting annually. Since that time, the legislature has granted the society a small annual appropriation, sufficient to pay its expenses of printing reports, &c.; and its transactions are also published in the annual volume of Transactions of the State Board of Agriculture; so that the society is, in fact, doing the work of a State Horticultural Society. Besides its annual meetings, the society has a *committee ad interim*, consisting of the officers and four members, whose duty it is to hold meetings during the summer and fall, and examine and report on such fruits as cannot well come before the annual meeting. A. H. Ernst, Esq., of Cincinnati, was president of the society from its organization till his decease in 1860; since which time the place has been filled by Dr. J. A. Warder, of that city. M. B. Bateham, of Painesville, has long been its secretary and treasurer.

The fourteenth annual meeting of the society was held at Zanesville, Dec. 4 and 6, 1866. This Muskingum Valley is among the oldest settled portions of Ohio, and was long famous for the production of fine apples, of which great quantities were shipped down the Ohio and Mississippi to New Orleans and other Southern cities; but of late years this trade has greatly diminished. The display of apples at the meeting was fine, embracing not less than four hundred plates, and one hundred and fifty distinct varieties. Delegates were present from Pennsylvania, New York, and Indiana. Discussion was had on apples, pears, grapes, blackberries, and strawberries; also on blight in fruit-trees, mildew and rot in grapes, &c. The place selected for the next annual meeting is Sandusky. The following are the officers elected for 1867:—

President. — Dr. J. A. WARDER, Cincinnati. *Vice-President.* — G. W. CAMPBELL, Delaware. *Secretary and Treasurer.* — M. B. BATEHAM, Painesville. *Committee.* — William Heaver, Cincinnati; J. Austin Scott, Toledo; A. B. Buttles, Columbus; N. L. Wood, Smithfield.

NEW HORTICULTURAL HALL.

THE new Horticultural Hall now being built in Philadelphia by the Pennsylvania Horticultural Society is the largest horticultural hall in this country, and among the largest of its public halls of any description. The entire building is seventy-five feet front by two hundred feet deep and sixty feet high, with a cut-stone front composed of a pearl-gray stone with brown stone-dressings. The ceiling of the main hall is fifty feet high; and it comprises a stage, an auditorium, committee-rooms, a "Foyer," and a balcony. The ground-floor comprises two large rooms, lumber-rooms, and a large banqueting-hall. A narrow gallery will

extend around the sides of the main hall, which will enable visitors to look down on the entire display of fruits, flowers, &c. The hall will be lighted with a triple row of brackets, having three to five gas jets on each, and extending around the sides of the hall. This will leave a clear space, in the middle of the hall, of seventy feet wide, fifty feet high, and nearly two hundred feet long. This will include the "Foyer,"—a beautiful room of seventy by thirty feet, with thirty feet ceiling (opening into the main hall), in which the monthly meetings of the society will be held, and in which its valuable library will be placed. The annual displays of the society will be held in the main hall. It is not yet decided when the formal opening of the hall will take place, but probably in the spring of 1867. The ladies of the society intend to hold a grand bazaar, for the sale of horticultural, floricultural, and fancy articles, on the 29th of May next; at which time the society will hold its spring, rose, and strawberry show and competition together, forming a fine horticultural display. The proceeds of this enterprise will be devoted to frescoing and otherwise decorating the hall.

LITERARY NOTICE.

THE BOOK OF ROSES. By FRANCIS PARKMAN. Boston: J. E. Tilton & Co. 1866. Pp. 225. A new edition.

As there are certain books that no gentleman's library should be without, so there are certain flowers that his garden cannot dispense with; and chief of these, by common consent, is the rose.

Happily the office of a critic is here very simple indeed. We have only to name the book, and point out a few of its excellences, and then leave our readers to find the rest for themselves,—as they are sure to do.

Mr. Parkman divides his book into two parts,—the first devoted to the laws, methods, and operations of rose-culture proper; the second to a classification of roses, a list of the best varieties, and the novelties of 1866,—a most judicious and sensible arrangement, and one which makes a pleasing contrast to the condition of some horticultural books it has been our fate to read.

The first chapter treats of planting, pruning, preparation of the soil, novel methods of growing fine plants, and of the enemies of the rose; and all these topics are discussed at length, and with much clearness and precision.

The second chapter is devoted to pot-culture, and to the somewhat neglected art of raising specimen plants. The third chapter gives instruction in propagation in all known ways; while various miscellaneous matters, including the production of new varieties, hybridizing, and the improvement of climbing roses, find space for ample consideration in chapter four.

"Raising seedling roses is a recreation of so much interest," says Mr. Parkman, "that few who once enter upon it ever abandon their pleasing task." We who plant our grape and strawberry seeds every fall, and watch the seedlings with undiminished interest from summer to summer, are very ready to believe him, and trust that his explicit directions will enlist a host of experimenters.

He who plants a seed of a grape or a rose, a verbena or a pear, buys a ticket in a lottery where single prizes are set off against myriads of blanks. Yet this very uncertainty, added to the extreme brilliancy of the prizes, lures on one amateur after another, until raising seedlings of some fruit or flower becomes, as at present, the fashionable mania in the horticultural world. One gentleman in this country is said to have thirty thousand seedling grape-vines under trial; and Mr. Parkman assures us that M. Laffay, an eminent French rose-cultivator, raised in one year *ten times* that number of rose-seedlings. If twenty or thirty good new roses resulted from this immense number of plants, the year's experiment must have been considered very successful.

The new roses of 1866, named and described in the Appendix, are *fifty-six*, if we have counted right; and must represent the product of nearly half a million seedling plants. Although there are countless distinct and splendid roses, there is yet room for more; and the amateur who produces a good climbing moss-rose will win for himself a most honorable name. Let every rose-grower raise a few seedlings, and keep in mind the words of the veteran Rivers: "These light gardening operations are not labor: they are a delightful amusement to a refined mind, and lead it to reflect on the wonderful infinities of Nature."

The second part of the book — that devoted to an elaborate classification of roses — sheds a flood of light upon what was once incomprehensible.

The author himself recognizes the formidable difficulties that stand in the way of a strictly scientific classification; but, in spite of these obstacles, — arising from the interminable series of hybrids that have been artificially produced, — he has given his readers a classification as far as possible removed from what he calls the equivocal and shadowy character of many of the nominal distinctions.

He explains the habits, mode of growth, and general character, of the varieties in each subdivision; and is careful to specify what kinds will, in our climate, repay the cultivator for his pains and care.

The remontant roses receive at the author's hands the attention they so well deserve: and we are glad of this; for we know many a garden that is never made bright by a show of autumnal roses, although it has the old-fashioned kinds in abundance.

The best of these ever-blooming kinds, however, are getting more common every year; and in a little while these brilliant *parvenus*, as the author calls some of them, will be known everywhere, and meet with the recognition they merit.

It is not our purpose, nor indeed have we space, to go through Mr. Parkman's book *seriatim*, taking up and discussing each chapter by itself. We are obliged to speak of it in large and general terms. No foreign treatise, however excellent at home, can be of much use here; and the present work may be safely said to be the only book on this subject that fully meets our wants. It bears marks, of course, of elegant and refined scholarship, and is characterized throughout by such thoroughness, accuracy, precision, and command of the subject treated of, as fill us with renewed admiration of the varied accomplishments of its learned author. Nobody should buy roses next spring, or plant those he has bought this fall, without first making sure he is right by consulting Mr. Parkman.

In regard to the external appearance of the book, all we can say is, that the publishers have done their very best to make the outside worthy of the contents.

Very few books intended for holiday gifts surpass this in luxuriousness of paper and type, or in the dainty fitness of the illustrations. The publishers may well regard it with pride; and while all amateurs will, of course, buy and read it, people who do not know a cabbage-rose from a cabbage can cheaply acquire a floricultural reputation among their friends by embellishing their parlor-tables with a copy of "The Book of Roses."

If such books as this are called for, they will be produced by some one or another; and the increasing demand for horticultural works is one of the pleasantest signs of the times.

The fact that somebody has time, in this busy land, to gratify his æsthetic sentiment by the cultivation of flowers, shows that we are not all absorbed in money-getting; and no happier answer to the common charge, that all Yankees are slaves of the almighty dollar, can be devised, than simply to hand to the calumniator this book, or one of Mr. Rand's.

EDITOR'S TABLE.

QUESTIONS AND ANSWERS.

IN "Chronicles of a Town Garden," published last year in "The Florist and Pomologist," I read an account of Roman hyacinths as being very early spring-blooming bulbs, which forced finely, and produced elegant fragrant flowers.

Seeing the name in a Dutch catalogue, I procured some through a friend; but the bulb sent bore no resemblance to a common hyacinth. I have planted them, and am giving the usual treatment of hyacinths in earth.

Can you tell me what they are, the botanical name, and whether I am growing mine properly?

A new Subscriber.

We sent your letter to Mr. Rand; who replies, The botanical name of the bulb commonly called Roman hyacinth is *Bellevalia Romana*, or *operculata*: it is also sometimes called *Scilla Romana* and *Hyacinthus Romanus*. The plants are distinguished from *Muscari*, some species of which they much resemble, by having their perianth divided half-way down into six folded lobes, expanding to form a prismatic bell. They differ from the true hyacinths by the perianth having an angular and not a circular section.

The bulbs are about the size of an English walnut, roundish-oblong, smooth, somewhat resembling those of the musk hyacinth: the flowers are blue, white, or pink tinged with green. They are natives of Southern Europe and Western Asia. *B. Syriaca* has orange and blue flowers. They would not prove hardy in New England, and require pot-culture like tender scillas, which they much resemble in flower. While pretty, they are not very ornamental; and I much doubt their being very early flowering. The blue is the most common, and is figured in Curtis's "Botanical Magazine," tab. 939. Your treatment is right; but they will scarcely bloom before March.

S. R. S. — The leaf sent is a clear case of red spider, which is one of the worst of insect-pests. Moisture is sure death to them. Flour of sulphur dusted over the leaves tends to prevent their increase. In the March number of the Magazine, a long article will be devoted to this insect, and the best modes of destroying it.

I. W. B. — Four best hardy rhododendrons, — red, *Atrosanguineum*; pink, *Delicatissimum*; white, *Catawbiense album*; purplish, *Everestianum*.

Lawn Grass. — We propose to begin in a future number a series of articles on lawn grasses, illustrated by figures drawn from Nature, and accompanied by descriptions, together with directions for sowing, proper soil, and culture.

Mrs. R. B. E., E. Bridgewater. — Carnations and picotees are hardy if a little care be taken. They should not be wintered in a wet place, or where they will be exposed to alternate freezing and thawing. As soon as the ground freezes, cover them loosely with dry leaves, and lay an evergreen bough upon them to prevent the leaves from blowing away. With this protection, they will generally survive. The best way, however, is to layer them in July; and in November to take up the layers, which will then be well rooted. Plant them in a frame made of common boards, about an inch apart. As soon as freezing weather comes, fill the frame with leaves, and put on a sash, covering it with a board. Let them thus remain until the first of April, when the board, sash, and leaves may be removed. The plants will be fresh and bright, will at once begin to grow, and may be transplanted to beds or the border about the middle of May. Care must be taken that mice do not make their winter-quarters in the frame.

Can standard pears budded last fall be transplanted the coming spring for the purpose of thinning rows of nursery-trees? Yes: though it will check their growth somewhat. The land should be well prepared and highly manured, and the trees transplanted early and with care, and they will do well. Should very much prefer to leave them where they are, at least one year, unless *very* near together.

Please answer which are the best twelve varieties of standard pears for cultivation in Massachusetts, for market, early and late.

Windsor, or Bell; August; poor in quality; sells well; bears moderately young; tree hardy. Clapp's favorite; September; large; handsome; bears young. Bartlett; September; bears young. Merriam; great bearer; bears young. Doyenné Boussock; great bearer; large and fair fruit. Louise Bonne de Jersey; bears young. Swan's Orange; bears young; fruit large; acid. Seckel; requires considerable age before bearing. Sheldon; fine quality; bears rather young. Urbaniste; tree long time coming to maturity; first-rate. Buerré d'Anjou: there is no better variety, all things considered; bears young; October and November. Lawrence; winter; bears young; good.

We have received many questions, to which we have not space to reply in this number.



WHAT IS DIRT?

I HAVE lately made an address before an agricultural society, with the above title. As it proved quite interesting to a large concourse of ladies and gentlemen, I have thought that a little talk upon a similar subject would interest the readers of your new magazine; particularly the younger portion, who have not yet mastered the scientific fact, that dirt is — dirt. What else it is, or appears to be, let us consider.

Here comes one of Flora's sweetest nymphs, holding in her hand one of those "regulation bouquets," which more resembles a carved and painted block than it does a collection of growing flowers.

But we will not stop to dispute the artist's taste, who prefers such an unnatural thing to a much more artistic, because more natural, bunch of flowers. Our present talk is upon another theme.

With what delight our little goddess Nymphalia exhibits to me her prize! "So sweet, so pure, so beautiful!" she says. Yes, it is; and thus should flowers always excite admiration. They do in all cultivated minds. So, also, they should excite inquiry of whence they come.

"Flowers?" I replied to the little lady's admiration, as she laid them

down before me, — “flowers? ’Tis nothing but a bunch of dirt. How can you see in such stuff a ray of beauty?”

“O grandpa! how can you say this of my beautiful flowers? Dirt, indeed! There was no dirt even where they grew. The conservatory was as neat as this parlor. And this clean white and gilded paper — this you would call dirt too, I suppose?”

“Certainly: nothing else.”

“Then I do wish that you would tell me what is dirt! It was only yesterday that you said of ma’s nice white wheat-bread, ‘Nothing but dirt.’ I never know when to think you in earnest, except when you read one of those long lectures.”

“I will give you a practical demonstration some day.” And thus we parted, — she to carry her treasure where it would be admired, and not called dirt; and I to writing my lecture of “What is Dirt?”

In that, I asked some other young ladies, as well as their mothers, to look at a sample of fine white flour which I had upon the table before me.

Here it is: flour to-day; it was dirt yesterday, — at least last year, — black, rank, foul, odorous dirt, such as you complained of just now as having been brought into the house, from the cow-yard, upon the boots of the “dirty men.”

Yet that which was then offensive contains nearly all the elements of this. What, then, is this white flour, or this fine loaf, but dirt? If we should grind this crystal goblet to an impalpable powder, and wet it with this pure spring-water, and mix it with the flour, in that compound we could grow wheat; for then it would be dirt: now it is flour, water, and crystal glass.

And what is glass? — sand and a little potash. Disintegrated quartz, — the hardest flint-rock, — glass in its unmanufactured condition. It is the substance that stiffens the wheat-straw with its coating of silex, — a silicate of potash.

Our supply of potash comes from the ashes of plants: they obtained theirs from its natural source, — in the rocks, worn down, dissolved, absorbed, and stored up in all woody growth. When that decays, it is dirt, — dirt that is convertible into food. It made this flour, this bread: it can be reconverted from food to dirt, and food again, in one eternal round.

Therefore let nothing be lost. Cast no crumb of bread into the gutter, to be washed into the sea. That is not such casting of bread upon the water as will return after many days. The days are too many; more than you will ever live to see.

But let us return to Nymphalia and her flowers, and see what a lesson they may teach.

In three days they were faded, — already on the road to prove my words, that they were nothing but dirt. I took them, with Nymphalia's consent, and in her presence jammed them into the bottom of an earthen vase, poured in a little water, covered the vase with a plate, and put it aside in a warm room. I looked after and kept it moist for a few weeks; when my compost of clean white paper, with its golden border, and all it held of straw, stems, leaves, petals, anthers, stamens, in many colors, and sweet odors (sweet as the rose), were now a plastic mass, — all but a little woody fibre: that I burned, and added the ashes; and then, a few days after, I carried the vase and its contents into our sitting-room, and placed it where the bouquet had stood at first, upon 'Phalia's work-table.

My library opens out of this room. The door is thin, and I can overhear conversation. Sometimes, when sitting as I am now, very still, quietly writing at my desk, I overhear words not intended for my ears. I did that day. Here are some of them. The queen who presides over this realm has entered, and is looking about to see if any stray flies, or specks of dust, are here, unbidden and unwelcome guests.

Strange how all neat housewives war with house-flies! Do they know where they come from, where they go, how they are propagated, how long they live, how the seed is kept over until next year? But, more than that, do they know they cannot do without them; that they are Nature's scavengers? When the summer is hot, if there were no flies, there would be sickness.

“Flies make dirt.”

Yes, I know it. It is only dirt in the wrong place. So you must shut the flies out with wire screens to windows and doors. That is the way I do. The few that get in are driven out with paper fly-brushes, or killed. But, after all, it is as well that we should know that the power of the fly

army to convert dirt — effete, malarious, fever-breeding matter — into living organism is great beyond all conception.

The mistress, in making war upon the flies, smelt something unlike the odor of flowers.

“That which we call a rose,
By any other name would smell as sweet.”

Would it? Here is a vase of them. Do they smell sweet? Nay; or else why these words? — “I do wonder what that girl has got in this vase that smells so! Rank as manure. Why, ’tis manure, I do believe! What in the world has she brought it into this room for? ’Phalia, come here.”

Enter Nymphalia; takes a sniff, and turns up her pretty nose, and pouts a rosy lip.

“My dear, what does it mean? What experiment in horticulture are you trying now? What did you bring the dirty mess in here for?”

“Oh! it was not I. It must be one of grandpa’s jokes. Is he in the library? Let us call him and see. Yes: here he is. Now, what have you brought in this dirt for?”

“Dirt? You surprise me. That is a most beautiful bouquet. Here in the centre is a white camellia. It is surrounded by a circle of the most lovely small roses. Here is a circle made up of a great variety of colors, — crimson, pink, blue, yellow, red, purple, white. Outside is another circle of roses. They and their odor predominate. This is the clean white paper with a gilt border.”

“O grandpa! is that my bouquet? And has it come to this? — a mass of fetid black dirt, which would soil every thing that it touched. Oh, what a lesson I have learned! I shall never forget it, I am sure.”

“It is not yet finished. Plant in this dirt a hyacinth-bulb, and, before spring, you will reconvert it into other flowers.”

“But that would grow and bloom in nothing but water. The bulb contains the nutriment.”

“True, except what it gains from air and water. Well, then, plant in this dirt — in this bunch of flowers — a little carrot-seed (the tops are really pretty winter ornaments), and you will convert this odorous dirt into wholesome food. Or you may plant some grains of buckwheat, and they will grow, and give you white blossoms that will attract the bees the first

warm day in spring. A portion of this dirt will then become honey. There is no end to the change, — no end to one of Nature's circles. Dirt is food, and food is dirt. How true it is that all flesh is grass, even your own fair face, — grass that perisheth, and becomes again dirt!"

Then what is dirt? What but all you see, — even the most beautiful flowers, the cleanest white paper, the gold that formed the yellow band, the finest wheat-flour, the sweetest bread, the most luscious meat, fruit, sugar, honey? And thou — do not forget that "of dust thou art, and unto dust thou shalt return."

"Waste not, want not," is one of the truest of the homely old proverbs of every-day use. Yet look abroad upon every hand at the waste, — waste of dirt. We turn rivers into our cities, and through our houses, to wash the dirt into the sea.

Surely we do not consider the command, "Gather up the fragments, that nothing be lost."

We are continually losing, continually throwing away. We do not consider that every rose a rose would bloom again; that every crumb of bread that we cast so far out upon the waters of the great deep that it cannot return to us in our day and generation is a grain of wheat wasted. In the aggregate, the waste is fearful. It is no palliation of the wickedness of waste to say, "It is nothing but dirt." What is dirt? It is this rose, this leaf, this apple; yonder growing wheat, now so green and beautiful; and it will be the waving, golden grain, flour, bread, flesh, human beings, and homes for "the spirits of just men made perfect" in the knowledge of "what is dirt."

Now let us walk out along this granite ledge, hard almost as adamant, and "eternal as the hills." Yet it is not everlasting: for here the cryptogam eats into this hard substance, and turns it into dirt; and that will produce — you have seen what.

Look at these patches of pale green, gray, and brown, looking as though they had been party-colored paints spread upon the face of the rock. Every one of these moss-plants is tearing away little infinitesimal particles of this granite, and converting it into dirt, such as came of the decay of your lovely flowers; only they were more advanced along the great highway of progress from flinty rocks to flowers and food.

These cryptogamic plants are the great "quartz-crushers" of God's providence to man, grinding the rocks into dust for him to amalgamate in Nature's laboratory, and out of it gather fine gold.

No matter what we call the rocks in their primitive form, — whether granite, gneiss, trap, hornblende, quartz, felspar, argillaceous or calcareous, — God's quartz-crushers will grind them down; and out of the dirt will spring up trees, vines, shrubs, plants, flowers, grains, animals, and my lovely little *Nymphalia*, who, with all her beauty and sweetness, never was arrayed like one of these; yet out of them she grew, and back to earth must go again. Let us reflect, then, "What is dirt?"

It is the rose that blooms so sweet ;
It is the grass in emerald green ;
It is the fruit, the bread, the meat,
And e'en this paper white and clean.

The sweetest bunch of lovely flowers
That ever fragrance gave to air
Has been, in some preceding hours,
The dust of earth, which mortals share ;

To which they must again return,
And therefore dirt should not despise,
But what it is should try to learn,
And how from dirt the flowers arise.

Remember, then, that flesh is grass ;
And wisdom should make us alert
To search the cause that brings to pass
That flowers and food are made of dirt.

Solon Robinson.

SHADING CALADIAS AND FINE-FOLIAGED PLANTS. — Caladias, and all plants, whether requiring shade or not, are best grown near the glass, but not nearer than from nine inches to one foot. On very bright days, they require partial shade from nine, A.M., to four, P.M., as their beauty is thus much prolonged ; but the more light a plant has, the more bright will be the color of the foliage, of whatever shade that may be : and to some plants it is absolutely necessary to bring out the color of the leaves ; as, for instance, in the case of crotons, dracænas, pandanas, and yuccas. Exposure to the full sun is injurious in the case of other plants ; for instance, variegated-leaved begonias and ferns. — "*Country Gentleman.*"

COMMENCEMENT AND PROGRESS OF ORCHID CULTURE.

It had long been known from travellers that orchidaceous plants, especially the epiphytal species, were remarkable for brilliancy of color, extraordinary form, and exquisite fragrance ; but for many years they were known only to the horticultural world from dried specimens in herbaria, where, of course, both color and perfume were lost, and often the flower



ONCIDIUM INSLEAYII.

itself pressed out of shape. In time, however, a few living plants found their way to England : these were mostly of the hardier and more common species, and, not receiving proper culture, soon perished. Plants imported in good condition were with difficulty kept alive, and never flourished. As they came from a hot climate, they were constantly forced in heat: no

season for rest and the formation of flower-buds was given. Such treatment may be likened to keeping an animal perpetually awake, or keeping our forced grapes or fruit-trees in perpetual growth: in either case, death by exhaustion would be the result.

It may, however, be said, that, in their native countries, these plants enjoy perpetual summer. This, as far as a high temperature is concerned, is often the case; but rest is afforded by a decrease of atmospheric moisture during certain seasons of the year, and thus the force of the argument is more apparent than real.

In fact, at the end of the last century, there were only about a dozen poorly-grown plants of this family in the greenhouses at Kew. From 1800 to 1815, about ten more species were added to this little collection; and, from 1815 to 1830, fifty-three new species and varieties formed, with those we have mentioned, all the living plants of this numerous family which we either possessed or had knowledge of. Since 1830, constant additions have been made, till to-day the number of orchids introduced to cultivation is so great, that we may safely say there is no family of plants so rich in species and varieties.

What, then, have been the reasons which have operated so unfavorably for the introduction and cultivation of orchids?

The first and most natural was, that they could not be made to live in the climate of Europe. If any were imported in good condition, they were doubtless cultivated like greenhouse plants. There being entire ignorance of their requirements and habits, they received only the care ordinarily given to plants under glass; that is, they were potted and watered in the ordinary way; and the consequence was, that few survived the experiment. Cultivators knew nothing of the moist-heat which is indispensable, or of the care necessary to be taken for the preservation of the roots and pseudo-bulbs: in a word, the plants perished from a total want of all the requisites for successful cultivation, and none cared to repeat the experiment of their culture.

About the year 1820, Mr. Cattley, to whom is dedicated the magnificent genus *Cattleya*, by a series of experiments arrived at the mode of successful culture. His success was soon known; and many amateurs, following his example, sought to stock their hot-houses with these beautiful plants.

Many collectors were sent at great cost to the East and West Indies to procure them, and the number of rare and valuable orchids received from these sources was very large.

The cultivation of orchids was soon attempted on the Continent. In Belgium, Switzerland, Germany, and Russia, large houses, devoted exclusively to the cultivation of these plants, were erected, and soon boasted rich collections. France alone manifested little interest in their culture; the only large collection being in the Museum of Natural History in Paris. This fact is the more remarkable, as the French have ever maintained the highest place in all branches of horticulture.

About 1840, many species hitherto unknown were imported by French amateurs, and their cultivation was attended with marked success. This led to further importations, until, at the present time, the collections are as rich as those of any country. From the year 1820, whence we must date the progress of orchid culture, there has been a constant improvement. Difficulties which seemed insurmountable have been gradually overcome, till, at the present day, there is no bar to perfect success; though, even now, there are many disputed questions and differences among the most successful growers as to the best methods of growing some species. As the same species seem to grow equally well under opposite modes of treatment, we can only conclude that the plants very easily adapt themselves to culture, and are by no means as capricious as has been supposed. In fact, in the orchid-houses, these plants have acquired a beauty, and grow with a luxuriance, wholly unknown to them in their native haunts.

Species which in the wild state yield only two or three curious blossoms, have, in cultivation, been brought to produce from twenty to thirty; and, in fact, many plants of the order submit to domestication as readily as our more common garden-flowers.

There seems to be no reason why orchid culture should not be far more popular than at present. Already the number of species and varieties has increased from the thirty known in 1820 to many hundred, and the future opens a vast field for progress. The Island of Java alone produces over three hundred species and varieties, from which it may be seen what immense additions may yet be made to collections. This is the more proba-

ble, as the orchid-growing countries have as yet been imperfectly explored ; and, when in this connection we consider the peculiar local habits of most orchids, we may reasonably look for large and rich additions to our orchid flora.

It must not be supposed that all of these many species are equally beautiful. While we have many, which for singularity of form, richness of color, and exquisite fragrance, excel all productions of the floral kingdom, there are hundreds which are attractive only to the botanist, and of which the flowers are insignificant ; but all are curious and interesting.

We have said, that, in the general distribution of orchidaceous plants, those of North America (excepting always Mexico and the Isthmus) are wholly terrestrial. There is, however, one epiphyte met with in the extreme Southern States, where a variety of *Epidendrum* (*E. conopseum*) is found upon the *Magnolia glauca*.

There is one cause which does much to retard orchid culture : the cost of the plants is so great, and the expense of culture in our climate so considerable, that it must always be confined to the rich. Indeed, at the present time, there are very few choice collections in the United States. We trust, however, to be able to show that the cost of culture may be much reduced ; and every year the plants are becoming more plentiful, and consequently cheaper.

Among those who have done much for orchid culture may be mentioned Pescatore, whose hot-houses at St. Cloud contain one of the richest collections in Europe, and whose magnificent plants have been illustrated by the work on orchids (bearing his name), by Linden, which enriches some of our horticultural and private libraries.

In England, the sale collections of Messrs. Low of Clapton, of Messrs. Veitch of Exeter, and Rollinson of Tooting, are most extensive.

The orchids of Mexico, the Isthmus, of Colombia, and Brazil, have been chiefly brought into cultivation by the French ; while we owe most of the choice productions of the East Indies to the enterprise of English collectors.

The horticultural world owes a debt of gratitude to the enterprise of M. Pinel of Rio Janeiro, and of M. Porte of Bahia, through whom many

of the finest Brazilian species have been brought into cultivation ; and to M. Linden of Brussels, whose importations of Mexican orchids have greatly enriched our hot-houses.



GALEANDRA (EULOPHIA) DEVONIANA.

CLASSIFICATION.

The family of orchids owes its chief peculiarities to the following circumstances :—

Firstly, The consolidation of all the sexual organs into one common mass, called the column.

Secondly, The suppression of all the anthers, except one, in the mass of the order, or two in the tribe *Cypripedeæ*.

Thirdly, The peculiar condition of the pollen, and the anther which contains it.

Fourthly, The very general development of one of the inner leaves of the perianth, or petals, in an excessive degree, or in an unusual form.

Many botanists have devoted special attention to this family ; of whom we may mention Bateman, Brown, Hooker, and Paxton, in England ; Brongniart and Richard, in France ; and Linden, in Belgium : but Dr. Lindley has paid more attention to their nomenclature and arrangement ; and his classification, which we follow, has been generally adopted.

These peculiarities of the order are in most cases very striking, and are strongly manifested in the same flower. We also find the true nature of each part indicated by special cases of structure occurring in different parts of the order.

Thus, in *Cypripedium*, not only are two lateral stamens furnished with anthers, while the central stamen is antherless, but the stigma and style separate from the filaments nearly to the base ; and the triple nature of the former is distinctly shown, together with the relation of its lobes to the other parts of the flower.

The pollen, which has so anomalous an appearance in its waxy or sectile state, presents the usual appearance of that substance in *Goodyera* and many *Neottææ* ; and the irregularity of the labellum disappears in such genera as *Paxtonia*, *Thelymitra*, and some others, whose flowers are almost as regular as those of a *Sisyrinchium*.

In the classification of orchids, the most important characters seem to reside in the pollen, which in many is consolidated into firm, waxy masses, of a definite number in each species, and in others is either in its usual loose, powdery condition, or is collected in granules or small wedges, the number of which is far too great to be counted. Of those with waxy, pollen masses, some (*Malaxææ*) are destitute of any visible organs or means by which the masses are brought into contact with the stigma ; others (*Epidendrææ*) have strap-shaped caudiculæ, which are either bent down upon the masses themselves, or serve to hold them together, without, however, forming any organized union with the stigma ; while the remainder (*Vandææ*) have a caudicula which adheres firmly to a gland found in the upper margin of the stigma, and separating freely from that organ.

The last form is much more distinct from the two first than they are from each other; and it may be requisite to combine *Malaxææ* with *Epidendrææ*, or to exclude from the former not only *Acanthophippium*, *Cælogyne* and *Pholidota*, but several other genera at present referred to them.

The genera with powdery, granular, or sectile pollen, cannot be classified so conveniently by modifications of that part, but are readily divided into three natural tribes by peculiarities in the anther.

In some (*Ophrææ*) the anther is erect, not hinged to the column, but continuous with it, and stands above the stigma, the pollen masses having their points directed to the base of the lobes of the anther.

In others (*Arthuseæ*) the anther is hinged to the column, upon the end of which it is placed transversely like a lid.

And, finally, in others (*Neottææ*) it is also hinged to the column, but is placed at its back so as to be nearly parallel with the stigmatic surface.

If to these three we add the *Cypripedeæ*, which has two anthers, while all the others have one only, we find the order divided into seven tribes, of which the following is a tabular view:—

A TABULAR VIEW OF THE TRIBES OF ORCHIDACEÆ.

I. Anther, one only.

A. Pollen masses waxy.

a. No caudicula or separable stigmatic gland.

TRIBE I. — MALAXEÆ, OR MALAXIDEÆ.

b. A distinct caudicula, but no separable stigmatic gland.

TRIBE II. — EPIDENDREÆ.

c. A distinct caudicula, united to a deciduous stigmatic gland.

TRIBE III. — VANDEÆ.

B. Pollen powdery, granular, or sectile.

a. Anther terminal, erect.

TRIBE IV. — OPHREÆ, OR OPHRYDEÆ.

b. Anther terminal, opercular.

TRIBE V. — ARETHUSEÆ.

c. Anther dorsal.

TRIBE VI. — NEOTTEÆ.

II. Anthers two.

TRIBE VII. — CYPRIPEDEÆ.

From this general view of the classification of Dr. Lindley, any cultivator can easily ascertain to which of the tribes any orchid which may bloom in his collection belongs.

Each of these tribes subdivides itself into a greater or less number of species, the determination of each of which demands a special study of individual peculiarities.

The geographical distribution of these different tribes is interesting as illustrating the remarks in former chapters.



HUNTLEYA VIOLACEA.

By reference to the following table, we shall see that the greater proportion of the tribes *Vandææ* and *Epidendrææ* are found in the Indian Archi-

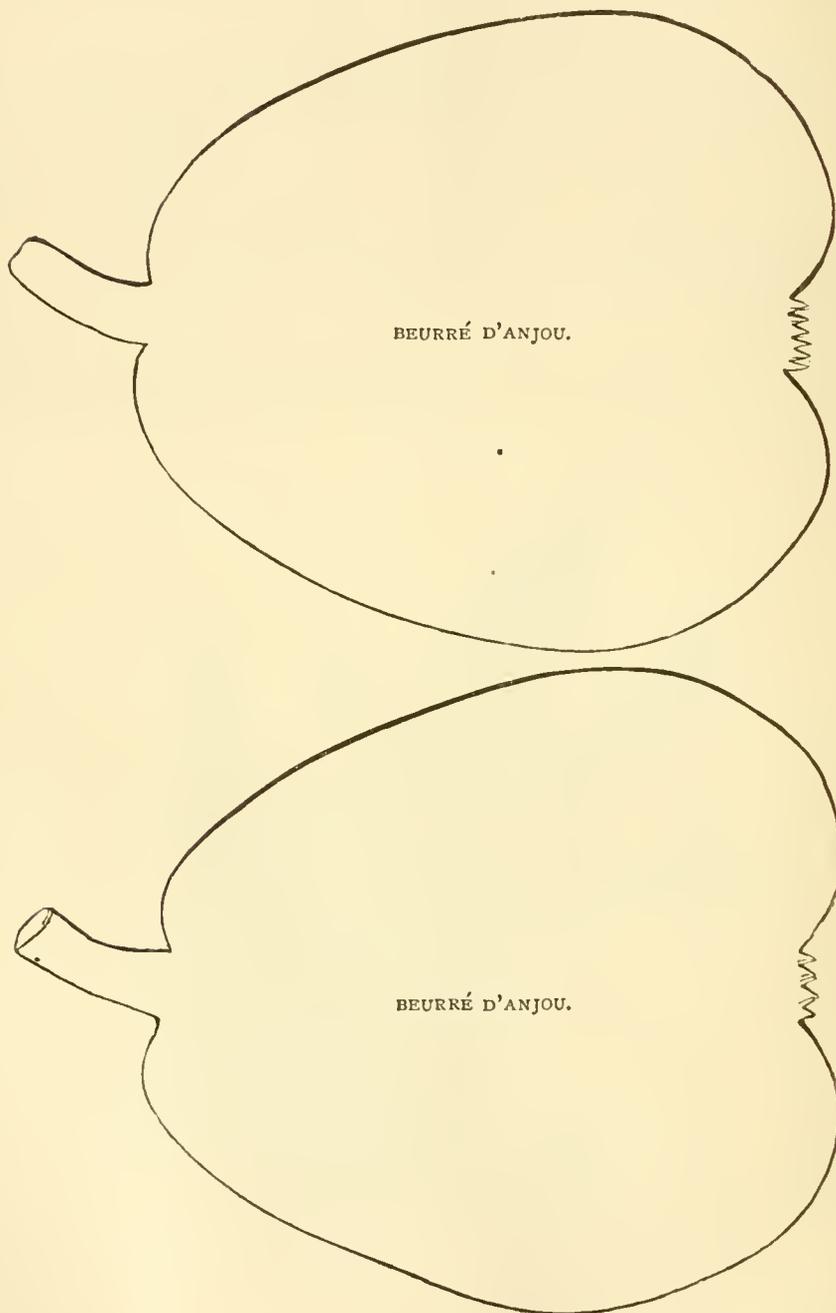
pelago and in Tropical America. It is in these two tribes, we must remember, that the epiphytal orchids mostly range themselves; the European and North-American species being confined to three in the former tribe, and to two in the latter. On the other hand, the terrestrial species which are mostly found in the tribes *Ophreæ*, *Arethuseæ*, and *Neotteæ* are sparsely represented in the Indian Archipelago and Tropical America (except *Neotteæ*, which is plentifully distributed through both), and are abundant in Europe, North America, and even have twenty-eight representatives from *Ophreæ* in Siberia; which class also gives one hundred and thirty-five species to South Africa. The tribe *Arethuseæ* is very largely represented in New Holland, there being no less than one hundred and fifteen species.

It must, however, be stated, that this tabular view of Dr. Lindley is by no means complete. The number of species has largely increased, especially in the three tribes *Malaxeæ*, *Epidendreæ*, and *Vandeeæ*. We give it as the best that has yet been presented:—

NAMES OF TRIBES.	Number of species described.																							
		Europe.	Siberia and Northern Asia.			North America.	Northern India and Nepal.		Continent of India.		Ceylon.	Indian Archipelago.		China.	Japan.	New Holland.	South-sea Islands.	America within the tropics.	South America beyond the tropics.	South Africa.	Mauritius, &c.	Africa within the tropics.	North Africa.	
Malaxeæ,	380	3	2	4	56	44	24	152	10	4	10	10	46	..	..	26	9	..						
Epidendreæ,	153	..	..	2	8	5	4	16	4	1	..	..	112	..	..	2	..	..				
Vandeeæ,	487	1	1	2	58	41	24	109	11	3	5	2	198	..	14	34	9	..						
Ophreæ,	449	85	28	42	48	17	9	7	3	2	2	..	33	6	135	31	6	23						
Arethuseæ,	218	5	1	8	5	3	..	9	..	3	115	..	26	31	..	1	..	..				
Neotteæ,	270	11	6	19	11	16	10	28	3	..	77	1	90	7	..	2	..	2						
Cypripedeæ,	23	2	4	9	3	..	..	1	..	2	..	..	6	..	..	..	..	..	
Total,	1980	107	42	86	189	126	71	322	31	15	209	13	511	44	149	96	24	25						

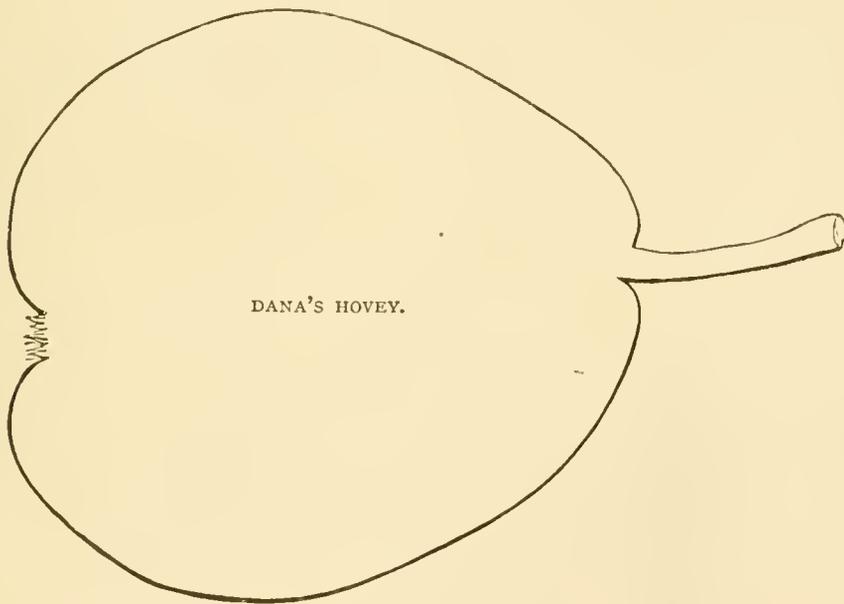
POPULAR PEARS.

BEURRÉ D'ANJOU is another most admirable variety, and one that prom-



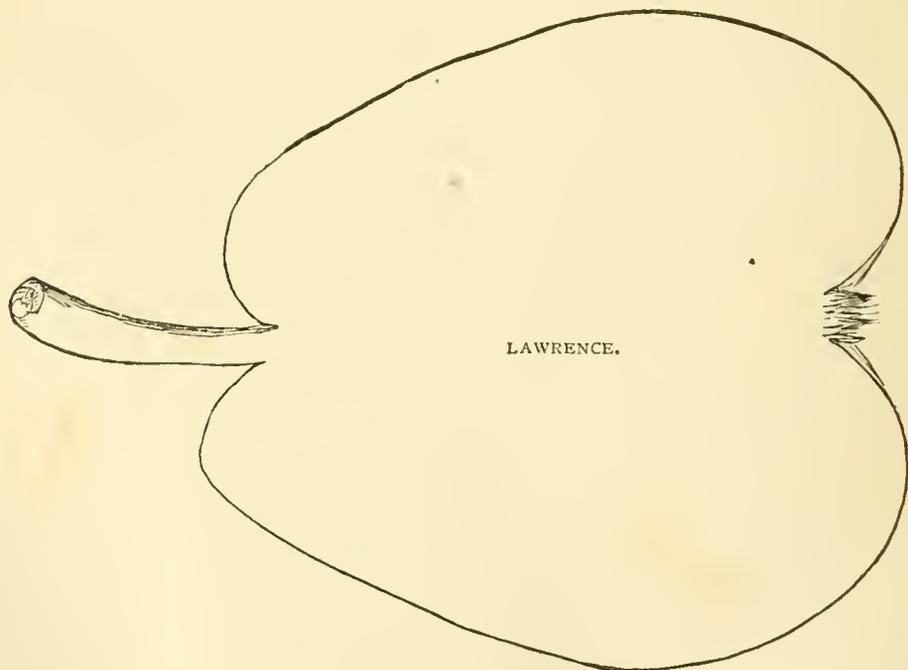
ises to become exceedingly popular, — as much so, perhaps, as the Bartlett. Its large size, its productiveness, long-keeping, and other good qualities

will all tend to place it high in the estimation of pear-growers and pear-consumers, when it shall have become better known. Col. Wilder did much towards introducing this variety; he having imported it some time previous to 1847. Though so long here, it has not attracted the attention of fruit-growers to any considerable extent until within a very few years. The fruit is from medium to large size, of regular outline, obovate; stalk quite stout, generally nearly straight, set in a slight depression; calyx small, open, in a smooth basin; skin rather thick; color pale greenish-yellow, slightly russet at stem-end, with an occasional red cheek on exposed specimens; flesh yellowish-white, buttery, fine-grained, with rich, pleasant sub-acid flavor; tree a good grower, with light-olive-colored, stout wood; foliage light green, rolled up, not abundant. The fruit keeps well; never rotting at the core, but decaying from the outside: does well on pear or quince stock. It is perfectly safe for any one to plant this variety either for home-use or market.



DANA'S HOVEY. — This comparatively new pear was raised by Francis Dana of Roxbury, and named by him "The Hovey," in honor of Charles M. Hovey, Esq., the well-known pomologist, who purchased the stock of this and several other of Mr. Dana's new pears: and his name, as it well deserves, will go down to posterity in connection with this most admirable pear; for it is destined to become very popular as an early winter-pear as

it becomes better known. It is one of the richest of pears, equal if not superior in quality to any other except the Seckel. The tree resembles the Seckel in its growth, making stout, short wood. The leaves are large, and beautifully glossy and camellia-like; resisting blight, and remaining on the tree better than in many other varieties. It is hardy, and free from disease. It is also quite productive, often yielding large crops. The fruit keeps remarkably well, never showing a tendency to rot at the core. Size rather below medium, of a regular obovate form; stem nearly an inch long, rather slender, and set in a very slight depression; calyx moderately large, open, with reflex segments, in a shallow basin; skin thin, smooth, dark yellow, and nearly covered with russet; the flesh is yellowish-white, very fine, melting, rich, sweet, and juicy, with a delicious aroma; ripe first of November, but will keep into December. Among all the pears of its season, none can be found to equal it; and it is truly astonishing how Mr. Dana could have produced this, and many other fine varieties, as he has, without any special effort, beyond the sowing of the seeds of the best varieties. We do not know from what seed the Dana's Hovey sprang; but it seems to bear great resemblance to the Seckel.



LAWRENCE. — This variety is one of the best of the winter-pears. It is said to have originated on Long Island, and was introduced to the public

some twenty or twenty-five years ago. This is also an accidental seedling that sprang up in the neighborhood of two old pear-trees, — one a St. Michael or White Doyenne, and the other a St. Germain. The tree is a good grower, quite symmetrical, with new shoots of a clear dark yellow, and rather slender, with a light-colored, pointed, and rather small leaf. It seems to prefer a light, warm, loamy soil. The fruit is of medium size, a little irregular, with one side often larger than the other; form obovate; color pale lemon when ripe, with patches of greenish-brown, and sometimes russet; stem about an inch in length, curved slightly, stout, being thick where it joins the tree, and rather deeply sunk in a large cavity; calyx large, nearly closed, in a large, deep, plaited, irregular basin; flesh nearly white, juicy, and melting, but rather gritty at the core, sweet and rich. Time of ripening is from November to February. The facility with which this variety may be ripened (it requiring no more care than a barrel of apples), with its other good qualities, all help to place it high in the estimation of the public. It is especially sought for by all who admire a sweet pear. It may be considered nearly or quite first-rate, though it lacks the rich aroma of the Hovey. It does not succeed well on the quince. If the reader has a pear-orchard, and it lacks either of the six varieties named, it should receive an addition, as soon as the weather will allow, of one or more of the kinds specified.

James F. C. Hyde.

PROPAGATING CACTI. — These are readily increased by cuttings; the shoots being cut below a joint or eye, and from four to six inches of the points taken off. These, laid on a shelf for a few days until the cut is dried or healed, may be inserted to one-third their depth in sharp sand, the base of the cutting resting on the sand; the pot, which should be well drained, being filled to within two inches of the rim with equal parts of turfy loam and pieces of brick, or crocks broken small. With the soil kept no more than just moist, they strike root well on the shelf of a greenhouse in the full sun. When the growth has attained its full size, and become plump, water should be gradually withheld, and the plants put to rest; never allowing the soil to become so dry as to cause the shoots to shrivel.

“Cottage Gardener.”

THE NEW CONIFERS.

HAVING paid some attention to the cultivation and acclimatizing of many of the new conifers, I am induced to offer you a few remarks, the results of my observation, which I trust may be of service to those who may contemplate ornamenting their grounds with this beautiful class of trees, and possibly prove of interest to your readers generally. Mr. Sargent, who had probably the most extensive collection of evergreens of any amateur in this country, gave us, in his new edition of Downing's "Landscape Gardening," the benefit of his valuable experience up to that time; but seven or eight years have since elapsed, affording us the advantage of so much more time for further observation as to the merits of the trees then in cultivation, and to test, to some extent, several of the Japanese plants more recently introduced into the country, a larger proportion of which, I am glad to say, from present indications, are likely to prove adapted to our severe climate.

Amongst the most prominent Spruces and Firs, I have had the opportunity of very thoroughly testing the following: *Picea nobilis*, *Nordmanniana*, *grandis*, *pichta*, *Cephalonica*, and *pinsapo*; and, with proper treatment, I can recommend them with much confidence for general cultivation in this vicinity, except, perhaps, in very exposed situations, or near the seashore. Their progress for some time after transplanting is generally slow, and somewhat discouraging, — the same as I have found to be the case with the European Silver Fir; but, when once well established, their growth is more satisfactory, and quite vigorous with the *Nordmanniana* and *grandis*. These six are all very distinct varieties; magnificent trees, of great size in their native soil, growing, in the case of the *grandis*, according to Gordon, to the enormous height of two hundred and eighty-five feet; are all worthy companions of the stately Norway, so justly popular with all planters; and, one of these days, they will no doubt be considered indispensable in every ornamental place of any pretension. The *nobilis* is a superb tree, growing two hundred feet high, forming vast forests in Northern California, with regular horizontal branches, resembling, when of great age, it is thought by some, the Cedar of Lebanon more than any other tree we can cultivate in this

country. There are several dwarf Spruces, such as *Abies Clanbrasiliana*, *compacta*, *elegans*, *Gregorii*, *pygmæa*, *pumila*, and *pyramidalis*, all perfectly hardy, quite interesting, and well adapted to places of limited extent. Amongst the larger-sized trees, we have also *Abies Orientalis*, *Abies Menziesii*, and *Picea Fraserii*, perfectly hardy, but not quite so distinct, which would not, probably, be considered so desirable as the preceding. Unless one should have a very sheltered location, and be disposed to pet and coax a great deal, I would not advise their attempting to grow such trees as *Abies Smithiana* (the Indian Spruce), *Picea Webbiana*, *Cunninghamia sinensis*, or the Cedar of Lebanon ; for they get more or less cut up every winter, lose their leaders, and are any thing but satisfactory.

It is a matter of deep regret, that, of the trees of recent introduction, the three greatest favorites for ornamental planting at the present time in England and on the Continent, — the *Araucaria imbricata*, *Cedrus Deodara*, and *Wellingtonia* (*Sequoia*) *gigantea*, — none will be found sufficiently hardy for general cultivation in New England ; though it is by no means certain that the two last named may not be successfully grown under unusually favorable circumstances as to soil and location. The *Deodar* almost invariably loses its leader every winter with more or less of its foliage, and, instead of becoming one of the most graceful and effective of trees, gradually degenerates into a straggling shrub. The *Wellingtonia* appears to be the less tender of the two ; and, though its foliage is apt to get a good deal browned, it seems to gain vigor with age, and bids fair occasionally to triumph over the difficulties of our severe climate.

Abies Douglassi. — I wish I could give a more satisfactory account of this tree ; but, although I have several very fine specimens eight or ten feet high, I fear it can hardly be classed with those sufficiently hardy for general planting in the neighborhood of Boston. It succeeds perfectly in England, where I saw trees of great size ; but here I have lost many after they were three or four feet high : and it is so capricious, it can only be recommended to those who are fond of experiment, and are willing to take the chance of failure.

Cryptomeria Japonica. — As is well known, this is a native of China, and one of those trees in regard to which great expectations have been raised ; but I am sorry to add, no very great reliance can be placed on it, and

that, in its cultivation, we must be prepared for occasional disappointment. It has, to a very great extent, the bad habit of making a late growth ; so it does not ripen its wood well : and, though I have two or three dozen trees eight or ten feet high, many of them are disfigured by a loss of a portion of their branches, and it is difficult to find a perfect specimen ; indeed, I saw but few in Europe.

Thuiopsis borealis, the *Nootka-sound Cypress*. — Here we have a perfectly hardy tree, of large size, which cannot fail to give good satisfaction, and must be considered a decided acquisition in any collection. A variegated variety has lately been sent out, which will also, no doubt, be found hardy.

Thuja gigantea. — It is gratifying to be able to state that this tree, which had just been introduced when Mr. Sargent's book appeared, has been found perfectly reliable on further trial. It is described as a noble evergreen, with an umbrella-shaped top, from the Columbia River, growing to the great height, for an *Arborvitæ*, of one hundred and forty feet ; and it is to be hoped our enterprising cultivators will lose no time in getting up a stock, so that it can be freely distributed throughout the country.

Cephalotaxus Fortunei. — A fine evergreen-tree, of undoubted hardiness ; growing forty to fifty feet high in the north of China ; resembling very much the English Yew, which it is likely to replace where the latter does not perfectly succeed. It is a very ornamental tree, and merits general cultivation. There is another variety, called *Cephalotaxus drupacea*, which I have had several years ; but it is of very slow growth, and has made very little progress so far.

Pseudo-Larix, or *Abies Kaempferi*, the *Golden Larch*. — When Mr. Sargent's book was published, small seedling plants of this tree had just been received ; but their growth has been so slow, they are still quite small, though hardy beyond any question. It resembles very much our common Larch ; but, from some cause or other, the price continues too high in England for any except very limited importations to this country.

Of trees of a medium size amongst the *Arborvitæ*s and *Junipers*, we have a considerable number, all more or less desirable for general cultivation, and indispensable where any complete collection is attempted. They consist of *Thuja Lobbiana*, *variegata*, *glauca*, *Meldensis*, *Wareana*, and *Hoveyii*,

Juniperus sabina, *Hispanica*, *squamata*, *tamariscifolia*, *Suecica*, *Bedfordiana* *Chinensis*, and *oblonga pendula*. The latter will be found one of the most lovely weeping-trees imaginable.

There is little to be said in regard to such Pines as *excelsa*, *Lambertiana*, *monticola*, *ponderosa*, *Benthamiana*, *laricio*, *Pyrenaica*, and *cembra*, except to confirm opinions heretofore expressed as to their extreme hardiness, and to hope that in future they will be more freely introduced in all ornamental plantations. The *excelsa* is an object of great beauty when its growth is not too rank, and will probably continue to be the greatest favorite with cultivators.

Thuopsis dolabrata. — This is one of the new Japanese trees which I have had out for two or three winters, and found perfectly hardy. It is described as one of the most beautiful of all evergreen-trees, with a pyramidal-shaped head and vertical branches drooping towards the points. There is also a variegated variety equally hardy.

Retinispora cricoides is a neat, heath-like, pyramidal bush from Japan, quite hardy, though it changes its color somewhat in cold weather. It bears the shears well ; and, by clipping, I have found it to make an extremely pretty edging for gravel-walks. There are several other *Retinisporas* and *Arborvitas* now under cultivation ; but there is so much confusion in regard to them, that no reliable description can be given at present. We have a variegated variety under the name of *pisifera aurea*, a wonderfully pretty plant, of a light golden-colored foliage, than which nothing of the kind can be more lovely. It is so delicate in its appearance, it might be taken for a stove-plant ; but I have had it out for two or three winters in exposed situations, and have no question of its resisting our most severe weather. It is not mentioned in Gordon's Pinetum, and it is more probably the *obtusa aurea variegata* ; but, whatever may prove to be its name, it will surely be found a perfect little gem in its way.

Sciadopitys verticellata, the *Umbrella Tree*. — This is described as a very singular evergreen-tree, from Japan : but my plants, being quite small, are out for the first time this winter ; so I can say nothing as to its hardiness at present.

Cupressus Lawsoniana. — I have purposely left for the close of this article a notice of this beautiful Cypress, because I consider it an "evergreen-

glory," to borrow one of Downing's expressions in speaking of the English Holly; and I think, upon the whole, it possesses so many good qualities, it is likely to be brought into general cultivation more speedily than any other of the new conifers. It comes from the mountains of Northern California, where it grows a hundred feet high; is easily cultivated and transplanted; of undoubted hardiness in our climate, and a most vigorous grower, ripening its wood so well, that I have never noticed a branch in the least injured by our most severe winters. It is nearly related to the *Thuiopsis borealis*, and, according to Murray, was the handsomest tree seen by him in his whole expedition. Gordon, speaking of it, says, "Its habit is most graceful, the branches at first curved upwards like those of the common Spruce, and, towards the ends, hanging down like an ostrich-feather, with the leading shoots, when young, drooping like those of the *Deodar cedar*." This droop of the leader here referred to is most marked and unique, hanging down, in strong-growing plants, eighteen to twenty inches; and some of my largest trees, which are eight to ten feet high, fully come up to the description given of their beauty. It is readily propagated by seeds; and it also grows freely from cuttings, which seem to make as strong-growing plants as those raised from seeds: this must greatly facilitate its introduction, and I doubt not it will soon become a great favorite with all who are desirous of adding to the attractions of their country-places. It has but one single fault, I believe,—an unfortunate trick, in some cases, of throwing out its branches on one side only, leaving two or three feet of the trunk opposite bare, thus marring somewhat the symmetry of the tree in its general appearance. It is difficult to account for this blemish, as it occurs on the north as well as on the south side of the tree; but it is to be hoped it will not continue as they arrive at a greater age. There are two new varieties lately sent out, called the *gracilis* and *argentea fol. var.*, which I shall test this winter; and with success, I trust, as the former particularly has been much admired.

It is well known that the labor and expense attending the importation and acclimatizing of these new evergreens have been heavy; and the question naturally arises, How far have the efforts of cultivators been rewarded with success? That there have been many disappointments is true, though no more than it was natural to expect under the circumstances; and, upon

the whole, I think it will be admitted we have great reason for congratulation, upwards of fifty new evergreen-trees having been found adapted to our climate. Such an accession to the meagre list of some half-dozen now seen, consisting principally of the Norway, Hemlock, Balsam Fir, White and Austrian Pines, Scotch Fir, with an occasional Silver Fir, cannot fail to have a most happy influence in the advancement of public taste, and add materially to the resources of those, who, tired of the excitement of the city, seek occupation and enjoyment in rural pursuits. By their great numbers and beauty, they will be found invaluable to the skilful planter in his attempts to give greater variety to his plantations, and in producing examples of the highest order of merit in the beautiful art of landscape-gardening.

Though it cannot be denied that evergreens possess many great advantages over deciduous trees for many purposes, it is occasionally urged against them, that their perpetual verdure produces a dull and gloomy effect; and, of course, it is possible that their introduction in too large proportions may render them open to this objection in the minds of a few persons, as in the case of the famous Elvaston Castle in England, where it is generally considered the evergreen feature has been overdone, its enthusiastic proprietor having confined his extensive plantations almost exclusively to evergreen-trees. It is not probable, however, that any one in this country will go to the same extent in that direction, as may be inferred from the fact that I was told by a nurseryman that he furnished him on one occasion with three thousand pounds' worth of a single shrub, the Golden Yew.

H. H. Hunnewell.

DRESSING ASPARAGUS-BEDS.—When the stems become yellow, they should be cut off close to the ground: the beds may then be covered with from three to six inches of half-decayed manure, and the soil from the alleys neatly dug out, and thrown on the beds. The only good that can result from the stalks being spread over the beds before covering with manure will arise from the berries being left on the beds, and young plants coming up in the following year. Some pick off the berries, and scatter them on the beds, covering with manure afterwards, and remove the stalks: others remove the stalks and weeds, and then cover with manure. The one plan is as good as the other.

“Journal of Horticulture.”

A NOVEL DEPREDATOR OF THE GRAPE-VINE.

THE wonderful ingenuity with which the white ants of tropical countries construct for themselves habitations of great size and strength was first made known in detail by Smeathman, who in 1781, in the Philosophical Transactions of the Royal Society of London, gave full and accurate accounts of several species. His statements and illustrations, with some minor additions, whether of observation or fancy, have found their way into all the encyclopædias and text-books since published. Accounts have also been given of other species of the genus *Termes*. In the fourth volume of the Proceedings of the Academy of Natural Sciences of Philadelphia, Dr. T. S. Savage, a missionary of West Africa, gave some interesting observations on the dissection of nests of Termites, both confirming and criticising Smeathman's account.

It is not generally known that white ants are found in this country. We have, however, one species which has spread quite widely, and has become, at times, very destructive. There is, indeed, no fear that the devastations of these insects will equal those of their congeners of Africa and India; that our houses will be undermined, and our furniture crumble to dust at a touch: for it is under ground, and in damp, moist localities, that they are generally found; although, in some instances, they have been discovered at work on perfectly dry material. A friend of mine noticed a colony, one spring, in an old stump: the stump had been standing for years, too dry to rot away, its roots scarcely buried in the gravelly soil of the hill-side.

According to Dr. Asa Fitch, in his third and fourth reports on the injurious insects of New York, these ants are found in myriads in that State, where they wholly consume the interior of posts and stakes, leaving the outer surface entire; and, at times, destroy a fence in the course of four years. Their favorite abode seems to be in posts from which the bark has not been removed. There, hidden from view, they consume the soft sap-wood immediately under the bark, and afterwards extend their burrows into the more solid heart-wood. Decaying stumps, wood lying on the ground, and especially logs of the white pine, are everywhere occupied; and where pieces of the "second-growth," so much softer than those of the original or

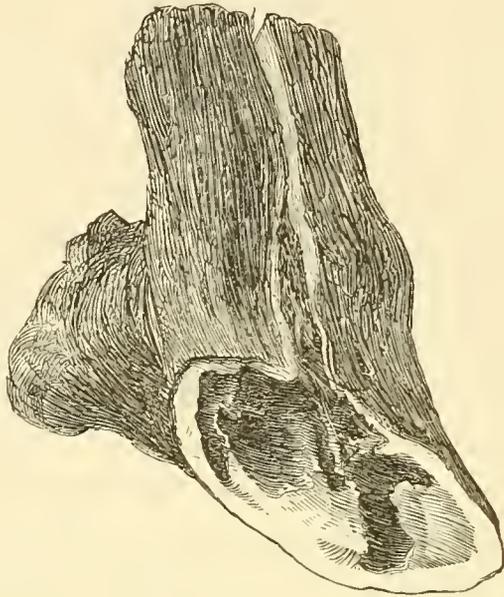
first growth, are cut down, their roots and trunks immediately become the abode of colonies of white ants. They rapidly multiply into countless hosts, and their operations are continued until the stumps are reduced to mere shells.*

Their food, like that of other species of termites, is rotten and generally moist wood : that they are not, however, limited to this, has been already seen, and may be further proved by facts which I will now mention.

My particular attention was first called to these ants by winged specimens sent me from Salem, in January, 1860, by Mr. J. F. Allen, an extensive cultivator of hot-house grapes. He asserted that his forcing-houses were completely overrun with ants, of which these specimens were the parents ; and that they were causing serious injury to his vines. I visited the place shortly afterwards, and found that within and beneath every damp piece of wood, under boxes holding plants, and on the lower surface of thresholds, and bottoms of door-posts, myriads of white ants were swarming ; while the sashes above were covered with remains of the winged males, adhering to the glass by means of the moisture continually present. Mr. Allen stated more fully, that, whenever he attempted to "layer" a vine, the portion beyond the layering was sure to droop, and finally die ; and that an examination of the part beneath ground revealed hosts of these ants literally eating up the vine. Not only did they attack layered vines, but three or four healthy, full-grown vines had been destroyed at the roots in the same way. As he could not show me any examples of the kind, I was unable to observe the insects at work, and, notwithstanding these representations of a careful and interested observer, was inclined to attribute the true cause of the difficulty to some disease of the vine, supposing that the ants simply carried away the rotten material. But Mr. Allen subsequently relieved my mind of all doubt upon the subject by sending me the root of a vine destroyed in the way he had described. The whole root had been excavated and chambered through and through : in some places, a mere shell being left ; in others, the shell itself eaten away, and the excavations carried unmistakably into the solid, living wood. Cavities and

* Dr. Fitch has also observed that the white ant lives in society with, and is nursed and protected by, the common black and red ant (*Formica rufa*) ; being sometimes found in these nests in greater numbers than the builders and true owners of the hillock.

burrows existed in the centre of the stem, more than two inches above the point which had been at the level of the ground.* The sides and ends of the cavities were of perfectly solid wood, with no indication of rottenness.



I believe this is the first time that any species of white ant has been described as attacking living plants so as to cause their destruction. Even this case seems somewhat anomalous: for it is doubtful whether, under natural circumstances, they would multiply here to so great an extent, as we have seen them in this greenhouse; and more than questionable, whether, out of it, they would attack the vine at all. Smeathman, indeed, asserts that they sometimes feed upon living plants; but Dr. Savage states that their nests are frequently built about the stems of trees and shrubs, which are never injured thereby.

I retained a colony of these American white ants in my study for many months, in a pot filled with moist earth and rotten wood. When subsequently examined, the whole upper portion of the earth was completely filled with minute passages, about large enough for two of these ants to pass each other.

This same insect, described in this country by Mr. Haldeman under the

* The accompanying wood-cut shows the nature and extent of these chambers. It is taken from a diagonal section of the stem, between one and two inches above ground.

name of *Termes frontalis*, has long been known about Vienna in Europe, where, according to Kollar, it did injury to the plant-houses around the imperial palace of Schönbrunn, and was supposed by him to have come originally from Brazil. He described this species previously to Haldeman under the name of *Termes flavipes*, by which it must be known. Burmeister states that there are specimens in the Berlin Museum which were taken in Portugal.

It may be readily distinguished from our common ant, which it most closely resembles, by its large head, its pale or whitish body, and by the nearly uniform size of the joints of the antennæ; the true ants having the basal-joint nearly half as long as all the rest of the antennæ together.

Noticing their fondness for damp places, Mr. Allen tried the plan of surrounding the layered portion of his vines with coal-ashes; and, in these cases, had experienced no trouble from the ants. The same experiment might be tried on the roots of full-grown vines, displacing the earth, and leaving a surrounding of ashes one or two inches in thickness. The dryness of the ashes, and the superabundant moisture of the surrounding earth, would probably prevent the ants from attacking the vine.

Samuel H. Scudder.

NEW STRAWBERRIES.

I PROPOSE giving here a brief account of my success in fruiting various kinds of strawberries, new and old, in 1866; and, having nothing novel to say in regard to methods of cultivation, I proceed to discuss the different varieties in alphabetical order.

AGRICULTURIST. — It is not necessary to describe minutely this famous variety, as almost everybody has it under cultivation; but I may say a word or two as to its merits. Although I have been severely criticised for speaking so strongly in favor of the Agriculturist, I have very little to take back. Its flavor is very good, — not first-rate, — and it is a most abundant bearer. Various people who make a business of raising strawberries for market visited my beds when the fruit was ripe, and expressed their unqualified admiration of both vines and berries.

BIJOU. — A new variety. An excellent grower, of dwarf habit. Leaves wedge-obovate ; flowers large and handsome ; berry between round and conical, bright crimson, sweet, and very good.

EXPOSITION À CHALONS. — The Exposition is a rather straggling grower, with deeply serrate, dull-green leaves, and large, conical, tolerably good fruit, worth about as much for one's own eating as Triomphe de Gand.

FROGMORE LATE PINE. — I do not know which to put first in point of excellence, — the Frogmore or the Lucas. The first is unquestionably one of the very finest foreign berries added to our list of late years. The fruit is monstrous, conical, brilliant crimson, and is easily hulled ; the flesh is white, perfumed, and extremely juicy and refreshing. The plants are tolerably productive, and every amateur should have one row of this kind.

LA DÉLICIEUSE. — I fruited a strawberry this year which I bought by this name ; but I am inclined to think it is not the true La Délicieuse, although it is a very nice berry. Blossoms small, apparently pistillate, different as possible in aspect from the flowers of the Frogmore or any similar strawberry. The berries are rather small, in clusters, deeply pitted, very dark crimson, very sweet and delicious. The fruit is too small for market, but most desirable for family use. The plants produce an infinity of runners.

LUCIDA PERFECTA. — This is the latest variety with which I am acquainted, and would be an immense acquisition if it were not so unproductive ; but, as it is, it is hardly worth raising except as a curiosity. Leaves roundish, dark shining green, the old leaves looking as if they were varnished ; berries large, bright crimson, white towards the neck, conical or flattened ; flesh white as snow, with abundance of sweet, high-flavored juice. A few berries remained on the vines up to the 27th of July.

In raising a large number of seedlings from the Lucida Perfecta, two things struck my attention very forcibly ; viz., the regularity with which the seeds germinate, and the strength of the resulting plants. I hope some one of them will exceed its parent in productiveness.

LUCAS. — M. De Jonghe is said to have selected La Constante as his best seedling ; but it seems to me that he must have come to this decision before a seedling of La Constante, the Lucas, fully displayed its merits.

The vines are very handsome and vigorous, with leaves a shade lighter than those of the parent plant. The fruit, which with me was ripe about July 4, is immensely large, very decidedly conical in shape, rich, juicy, and sweet, with a flavor very much like a raspberry. The seeds germinate very poorly indeed ; not one in fifty coming up in a cold frame in August.

ORB. — A large, round, light-colored, sweet, and very delicious strawberry, but having certain faults which will not allow it to be cultivated largely. These are, first, its tenderness, of which I cannot speak from experience, having carefully covered my plants ; and, second, its unproductiveness, there being but two or three berries to a plant. I have not esteemed it highly enough to plant any of its seeds.

QUINQUEFOLIA. — I write the above name with some hesitation, as the leaves of my plants are *not* five-parted ; but I cannot omit the plant from my list, as it is a most admirable strawberry. The leaves are rounded, crumpled, and of a medium green color ; the berries are monstrous, regularly conical, light red, and of the very choicest flavor. I hardly set the Frogmore and Lucas above this variety.

HAQUIN, LA NÉGRESSE, AND MADAME COLOGNE, are varieties which might as well be dropped at once. The first is utterly useless, and is remarkable as showing how poor a strawberry can be ; the second is a sweetish, dark-red, but by no means black, conical berry, of no particular excellencé ; and the third is a dry, sweet fruit, not likely to please a refined taste, and the plants are very unproductive.

I have described Madame Cologne elsewhere as “not very juicy ;” but I think I spoke too well of it, and that it will not be much grown. It is distinguished from all other kinds I know by its extremely delicate filiform roots.

My Agriculturists this year were inspected by my friends oftener than any other variety, simply because they were new and much talked of ; but perhaps the finest display of berries I could show was on a splendid row of Rivers' Eliza, whose handsome leaves, vigorous growth, and enormous fruit, ought to keep it forever from the list of rejected kinds. I know that the berry is soft, and will not bear much handling ; but still the Eliza ought to be grown by all who like to surprise their friends with “something large.”

Lennig's White is of most exquisite flavor, but so poor a bearer, that half an acre of plants would hardly suffice a hungry man through the season. Mine grew last year in the shade, and were really white, with only a faint blush on one side. It is strange that this exquisite berry should be, as it is asserted to be, a seedling of Wilson's Albany; for the two kinds have only the faintest resemblance.

If I were consulted by an amateur as to the kinds he should plant in his garden for the use of his family, without regard to profit, I should advise him to set out some rows of Agriculturist, Lennig's White, and French's Seedling, for American kinds; and from the foreign varieties I should select for him the Frogmore Late Pine, Lucas, and Quinquifolia, certainly; and then, if he wished to extend his list, he might plant a row or two of Bijou and Orb. La Délicieuse might suit him if he were fond of our native strawberry, which it much resembles; and, whatever kinds he might plant, I take it for granted that he would cultivate his vines in hills, cut off every runner, and mulch the plants well.

J. M. Merrick, Jun.

PRIZES FOR MAMMOTH SQUASHES.

IN a state of civilization farther advanced than our own, and which it is not over-presumptuous in us to look forward to reaching, small children will obey their parents without a lump of sugar; youths will strive for knowledge without school-medals; and cultivators of the soil will present the products of their industry for the public inspection, and approval of their fellow-laborers, without the incentive of prizes or diplomas. But, until that time comes, it surely behooves us to see that the sugar, the medal, the prize, and the diploma are judiciously awarded.

As we understand it, the giving of a prize is for the encouragement of some good purpose or thing, some useful object, or something that will benefit somebody; and we contend that this should be strictly adhered to, or the system of prizes is worthless, and exerts a bad influence where it was intended only for good.

We beg leave to ask, in what manner, way, or shape, a mammoth squash, weighing a hundred and fifty pounds, can possibly answer our idea of a superior squash. It is simply a monstrosity, a substantial nothing. The nutriment it takes from the soil is just so much wasted. "Why cumbereth it the ground?" The gardener says, "Let it grow, and I will take it to the exhibition and get a premium for it;" and the result is a display at our exhibitions of a ton or two of the most worthless vegetables, as much like the article of food of the same name as a sea-serpent is like a flounder; and it would be as practicable eating the one as the other.

But it is urged that these mammoth squashes make a great show; are, in fact, a sight in themselves; and are considered as much a part of the exhibition as the fat woman and giant at an agricultural fair. With a groan as we think of this latter practice, we can only beseech the managers of horticultural shows to remember that they are to educate the public taste, to raise it to a higher standard, to an appreciation of the really useful and truly beautiful, and not to cater to its ignorance, its foibles, or its eccentricities; that they are not to encourage a gaping crowd who exhaust their brains by saying "Oh my!" at any thing they never saw before, but rather to satisfy the expectations of those who come to see for themselves how a better cultivation of the soil produces better vegetables and fruits and flowers, and how intelligent cultivation produces a more nutritious squash, a pear of a better flavor, and a fairer-tinted rose.

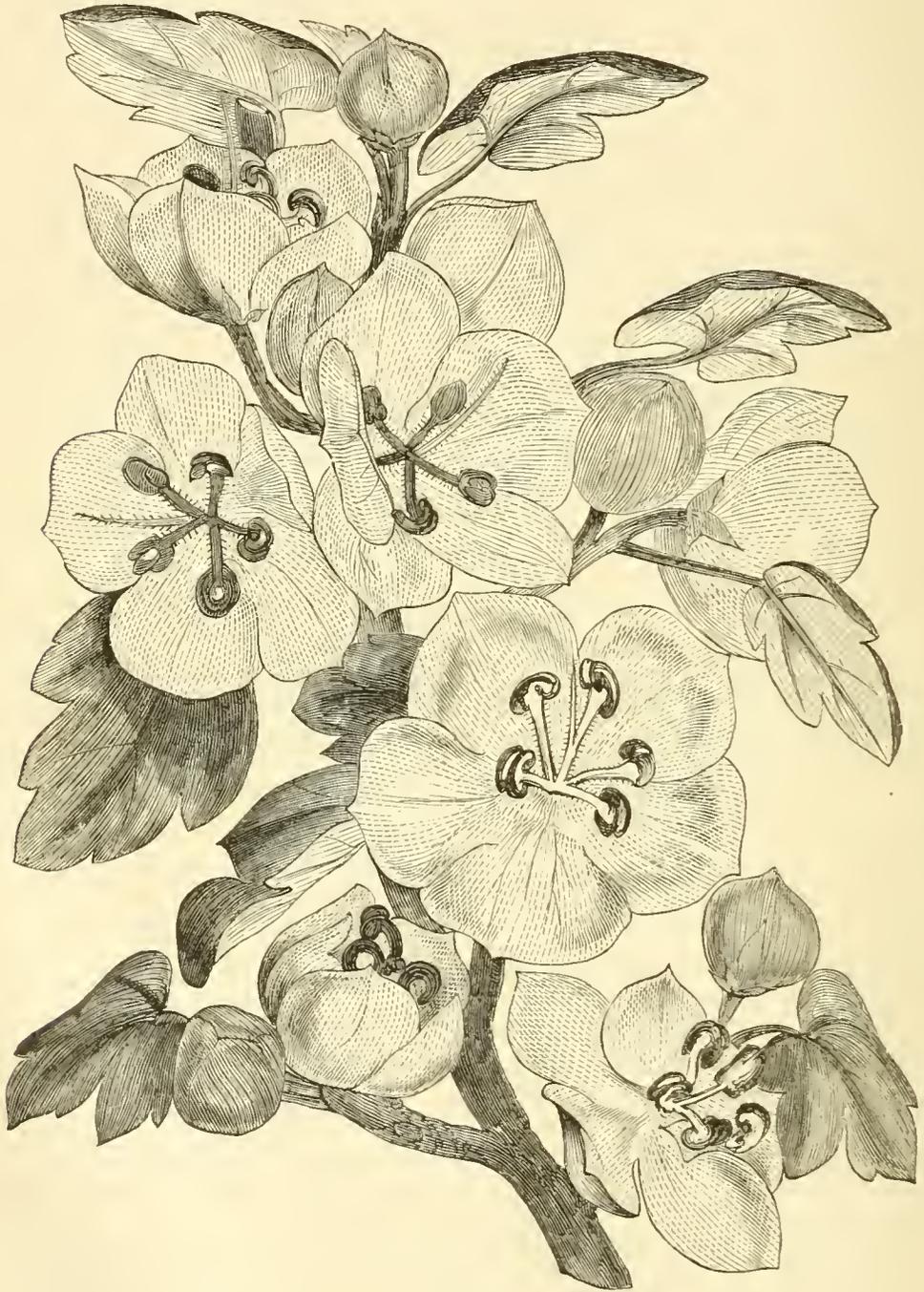
Francis P. Denny.

PRUNING STEPHANOTIS FLORIBUNDA. — The long twining shoots ought not to be stopped, but trained at their full length, and not too closely together, so that the wood may have the full benefit of light. All pruning should be confined to cutting out the old weak shoots. The main point to be attended to is to secure a good growth, and thorough exposure afterwards to light and air, with a diminished supply of water at the root, and corresponding dryness of the atmosphere.

"Journal of Horticulture."

FRÉMONTIA CALIFORNICA.

THIS new shrub, lately introduced, will probably prove a great acquisition to the flower-garden and shrubbery. It was discovered during the



adventurous expedition of Col. Frémont to the Rocky Mountains, and bears the name of this distinguished officer and eminent explorer. It

was found growing near the source of the Sacramento River, in the northern part of the Sierra Nevada Mountains. The flowers, which are produced in May, are very beautiful, surpassing in many respects the *Forsythia*; and the plant grows to the height of four or more feet, recalling by its general aspect and foliage the *Mespilus*.

A woody shrub in its nature, attaining a height of ten feet, and resembling a fig-tree. Leaves growing at the extremity of the branches, petioled, nearly circular (suborbicular), three inches in width; lobes entire or notched, covered above by a shining pubescence, glaucous below, and of an iron color when dried; peduncles strong, one-flowered, as long as, or longer than, the petioles; flowers numerous, of a golden-yellow color, three-bracted at base, and two or two and a half inches in diameter; bracts small; calyx largely bell-shaped, five-lobed above the middle, petal-shaped, light down on the outside, velvet within, with five indentations at the base; lobes oval, sharp-pointed; stamens short, divided into five spreading arms, each terminating in two lobed anthers, reniform, parallel, dehiscent on the outside; germ conical, downy, five-eyed; seeds numerous; style filiform, with spreading bristles; stigma sharp.

This plant first flowered in the collection of Messrs. Veitch in 1866, and is, as yet, very rare. The probabilities are, it will prove hardy with us; certainly south of Philadelphia. Its ornamental character must greatly recommend it.

Adapted from "L' Illustration Horticole."

NEW PLANTS.

Helipterum Cotula. — A West-Australian everlasting, seeds of which were sent from Swan River, by Mr. Drummond, to Mr. Thompson of Ipswich. The plant grows from six inches to two feet high, and produces flower-heads half an inch to an inch across, in one variety golden-yellow, and in another white, with a golden-yellow eye. — *L' Illustration Horticole.*

Rose Mrs. John Berners. — A new hybrid perpetual, with very compact, rosy-pink flowers, bright and distinct in color. The name of the raiser is not stated. — *Floral Magazine.*

APPLE-CULTURE. — THE APHIS.

THE past few years have been discouraging to the fruit-culturist in New England; and every one depending upon his apple-orchard as a considerable means of support has been sorely disappointed. We formerly gathered a supply of fruit every year, and a superabundance in alternate years. We well remember when cider was a dollar a barrel, and good grafted apples abundant at twenty-five cents per bushel; and when cider was in demand at five dollars per barrel, and apples at a dollar per bushel, we pitied the purchaser, and felt some qualms of conscience in taking what he was so ready to give. But we have gradually grown accustomed to high prices; and the scarcity of fruit has been so great for two years, that we part with apples reluctantly at five dollars per barrel, and can hardly afford to make cider at ten dollars. These prices indicate great changes; but they do not necessarily show that fruit has diminished in the same rate that the price has advanced. In 1834, the quantity of fruit in New England was probably as small as in 1866: but the demand was also limited; our population having more than doubled within that time, and the consumption of fruit having increased faster than the increase of the population. Is it not possible that the limited supply of the present day is in part owing to the fact that the orchards which our fathers planted have died from old age, and want of care, and new ones have not taken their place in a ratio commensurate with the increase of population? We know that untimely frosts, blighting winds, greedy caterpillars, and voracious borers, have produced sad havoc of late: but the frosts are no more untimely, and the winds no more blighting, than of yore; and though the caterpillars, borers, aphides, and curculios have increased, our knowledge of them also has increased, and the means for their extermination are, to a good extent, within our power. We must expect, as our fruits become more delicate in texture and flavor and our fruit-trees more highly cultivated, that their diseases and insect-enemies will increase. This should not discourage us, but serve rather as a stimulant to increased exertion. A good apple is too luscious, and too much a necessary, to be lightly relinquished because an insignificant bark-louse has fastened itself on the

apple-tree, and is sucking its vitals; or because a curculio punctures the apple to make a nest for her egg, soon to hatch into an ugly worm. It is man's prerogative to snatch the apple from the claim of these insects. It is our purpose to show how this can be done, so far as the *aphis mali*, or apple-tree aphis, is concerned. This insect is rightly named aphis, which means an exhauster; for it sucks the life-blood from the tree. It began its depredations in America about the close of the last century, and was probably imported on young trees from Europe. Like all of the aphis tribe, it is very prolific, as two broods at least are produced in the course of a summer. If, in the latter part of May, we carefully raise the body of the aphis, we can discover numerous eggs, destined in a few days to produce thirty or forty lice, all eager for food and to reproduce their species in the same ratio; so that a thousand-fold is a moderate calculation for the increase each season. One who has not examined carefully will be surprised to find how extensively our apple-trees are infested with these lice, and how much they exhaust the vital energies of the trees. They can live only on the fresh, juicy bark, and are, consequently, mainly found on the trunks and branches of young trees, and the extremities of the branches of the older ones. Within a few years, so great has been their increase, that we have found them on the apples themselves, though the bark is evidently their favorite home. Being nearly of the color of the bark, and only about a tenth of an inch in length, a careless observer may pass them by unheeded. If so, the diminished product of his trees, and the decaying and dead limbs, must soon attract his notice. The sap, which should support the foliage and fruit, sustains myriads of these lice. We have seen the bodies and limbs of some apple-trees so thickly covered with these insects, that myriads is no exaggerated term in which to speak of them as existing on one tree. The female, after laying her eggs, dies; but the outer skin remains as a protection to the eggs. When first hatched, the young have some motion, and disperse themselves over the tree. While in the larva state, the young lice grow rapidly, and must greatly exhaust the trees by drawing from them the nourishment necessary for their growth. In a few days, they pass into the pupa, or chrysalis state, and the females become fixed, never changing their location after they have once become stationary, and seem merely a rough excrescence on the

bark. In this state, they probably exhaust the tree less; but the functions of life still go on till after the eggs are laid, and their bills are constantly inserted in the bark to draw from it the little nourishment they may require.

It is not merely by these exhausting bills that damage is done to the tree. The bark serves much the same purpose to the tree that the skin does to the animal. Through its minute pores, exhalations and inhalations are constantly going on. Now, if the bark is thickly covered with these scaly lice, these pores must be stopped, and the functions of the bark cease in a manner, and the health of the tree be impaired. We have dwelt somewhat minutely on the description of this aphis, that the attention of farmers may be called to it. The insect is so insignificant, its onward march is so silent, and its aggressions so insidious, that we have treated the enemy with too much neglect; and he has partial possession of nearly all our orchards, and is a prominent cause of the premature decay of our trees.

The remedy is simple, and is in the hands of every one. It is merely to wash the trees with strong soap-suds; half soap and half water in the case of old trees, and one-third soap and two-thirds water for the younger trees. The best time to put this wash on is the latter part of May, or first of June, when the young lice are in the larva state; and the most efficient instrument is an old broom. Strong lye, or a strong solution of salt and water, will also destroy the lice. Old mackerel-brine is one of the best exterminators of tree-lice, as, besides the salt, it contains a penetrating and destructive oil. But, of all the remedies, we recommend the soft-soap as the most efficient. Besides its efficacy in destroying the lice, it is an excellent fertilizer for the tree, rendering the bark smooth and healthy, so that it may best perform its functions. Whatever soap is washed off from the trunk and limbs of the tree is not lost, but serves as an excellent stimulus for the roots. We have been in the practice of washing apple-trees with soap once a year, and have no doubt of its efficacy upon the health of the trees. We doubt not that two washings a year would be still better; and, if a second wash is given, we would recommend the first part of August as the time, as then the second brood of lice makes its appearance, and may be seen sometimes on the apples. If the soap is rubbed thor-

oughly around the crown of the roots, it is also a great preventive of the louse. We have never been troubled with this pest of apple-trees, when they have been thoroughly soaped. Keep the trees vigorous, and the insects will be much less likely to attack them. Strong soap-suds act both as a preventive and a remedy. While they are death to the insect, they give life to the tree. They are, therefore, the ounce of prevention and the pound of cure.

Alexander Hyde.

CULTURE OF THE GRAPE IN CITIES.

WHEN they whose lives are pent up within city-homes escape at rare intervals to the country, and find their friends luxuriating in domains whose area is told off by the acre, not the running foot, and amidst whose almost unbounded amplitude

“ Blossoms and fruits and flowers promiscuous rise,”

the unconscious sigh escapes from their laboring breast; and “Oh that!” ushers in some specific desire expressive of their sad condition.

City-yards, no doubt, *are* small. One or two peach or half a dozen dwarf-pear trees would exhaust their capacity. One of those straggling vines in which the country rejoices would almost remand them to their pristine wilderness-state. Nevertheless, experience has fully shown that cities are the true place for the perfect development of the grape, and that yards of very moderate size are amply large for the rearing of a goodly assortment of the choicest kinds.

It has been demonstrated by actual culture during many years, both in Europe and America, not only that a space, or section of trellis, ten feet long and one and a half or two feet in height, is sufficient for the demands of one vine, but that vines thus confined produce grapes of a finer flavor than can be obtained by the old system.

Having tested the matter to his satisfaction, let the writer present the subject in some detail, — not for the instruction of the experienced horti-

culturist, but rather for the benefit of any, who, having recently *taken the grape-fever*, are earnest inquirers after elementary and practical knowledge. Has the reader a small unoccupied space — say ten feet long and from two to three feet wide — beside any fence of his lot where the sun shines for six or eight hours per day? Then let him rejoice in the assurance that he may have his four favorite vines, — an Iona and a Delaware, for instance, with an Israella, and a Diana or Allen. Does he ask *how*? In this way: Procure the four vines from some reliable source, and plant them in a row, at intervals of two and a half feet, leaving half that space between the outer vines and the ends of the border. Train the vines perpendicularly the first season; cut them down within a few inches of the ground in November. The second year, grow single canes from each stem, until, by measurement, you find that each is just long enough to take its place in the centre of the trellis in the course you have assigned it to, and then pinch off the terminal bud. This will cause the highest lateral buds to grow rapidly. Train both branches perpendicularly to the end of the season, and cut them off at the distance of a foot from the point of separation. In the spring, fasten the cane to the trellis at the selected spot, and lay down these branches right and left, and secure them to the trellis as the permanent arms of the vine. Each arm should be permitted, the third season, to put up only two or three fruit-branches, yielding some three bunches apiece; and, if thrifty, the arms should be lengthened a foot or more every succeeding year, until they attain the full dimensions of five feet and occupy the entire trellis.

When I speak of measuring the distance to the spot on the trellis to be occupied by the centre or branching point of each vine, I mean this: A trellis should be constructed of the exact length of the border, say ten feet; stout cedar-posts, sunken two feet into the ground, and reaching to a height of nine feet, should be placed near the ends of the border; and to these posts should be nailed four well-seasoned strips of scantling, three inches wide and one thick; the first, one foot from the ground; the others at three, five, and seven feet elevation: complete the trellis by fastening two wires of stout galvanized iron above each of the four horizontal strips or bars. In the centre of each bar drive a grape-hook or nail, leaving the head slightly projecting. Select one of the two inner vines to occupy the

lowest bar, or course, as it is called; and the other to occupy the second: allot the two outer vines to the third and fourth courses respectively. Each vine should be grown, the second season from planting, with a single cane or standard, until it has reached a height equal to the distance obliquely from its roots to the grape-hook, by which it is to be fastened to the trellis: at that point let it be *pinched*, and caused to produce two canes for the arms, as above suggested.

The trellis should be placed eighteen inches from the fence, — thirty inches space would be preferable, — so as to insure ample ventilation for the vines in hot, moist weather, and prevent mildew of leaf and fruit. A good coat of whitewash applied to the fence in March or April, before the bursting of the buds, would add, by reflection of the solar rays, several degrees of heat to the temperature through the season.

Perhaps I should fortify my position in respect to the close planting of the vines. Pruned as the tops will be, the roots require less space than in the old untrimmed state; and, though placed in such juxtaposition, they may, and probably will, run nearly across the yard, and obtain all the space they need. And if most of the yard be paved, so much the better. A brick or stone pavement keeps the ground in a damp, warm condition, admirably adapted to the requirements of the vine. But attention should be given to the *soil*; and, if one desires to possess vines which shall ripen abundant crops for many successive years, he should remove the ground to the depth of two feet, and width of five or more, and substitute a soil composed principally of fence-corner or old-field sods, with a little thoroughly-rotted manure, some plaster and cellar-dirt, and a liberal sprinkling of bone-dust, all well incorporated. After planting the vines in this unfailing soil, the entire border, excepting a small space around each vine, may very profitably be paved over, and used as if no roots were beneath.

Another inquiry let me anticipate: “Will the vines consent to remain within the restricted limit of two feet perpendicular space?” At first they will not, and the *pinching-in* process is requisite. When the young fruiting-shoots have advanced three leaves, or joints, beyond the highest bunch of grapes indicated upon them, their terminal buds should be

pinched off. In a week or ten days, the highest buds will start ; and, when another leaf is formed on each, the buds must be again removed ; and, later still, the process must be repeated, each time an additional leaf being left. As the effect of these pinchings, the formation of wood to a great extent is arrested, and the energies of the vine are directed to the development of the fruit. After the third pinching, it is best to let the main shoots grow ; and, should they overpass the bar or course above them, push them *behind* it, and leave them to expatiate in the plenteous sunshine. These pinchings of the shoots also cause the older laterals to grow rapidly: they, too, should be pinched in, a fresh leaf being left each time. And the result of it all is the gathering of a clump of greatly enlarged and healthy foliage around the cluster of fruit, protecting it from the intensity of the sunshine, and elaborating its juices to a perfection not otherwise attained.

Let us now glance at the fruit from your ten feet of fencing. At the end of the third year, the four vines will yield about twenty bunches, giving you a foretaste of what is in store, and amply rewarding your patient toil. The next season, you will gather twice the quantity of larger and finer grapes ; and in the sixth year, when your vines will have reached their maturity, you should find — let us see : eight arms, with ten shoots to each, and the shoots severally garnished with three noble bunches ; yes, two hundred and forty bunches of truly delicious fruit. Ye dwellers in city-homes, be comforted.

But in many yards there are vacant spaces of far greater extent. Thirty, fifty, a hundred feet of fence may be appropriated to the grape ; and the plan above suggested may be applied to the several sections of the trellis. For an extended line, however, there is a better mode of distributing the vines over the trellis, by which the length of the standards is reduced, and their obliquity greatly lessened. But to every mundane task there is an appointed bound, and the end of this has come.

C. W. Ridgely.

BALTIMORE, MD.

THE CHERRY AS A PROFITABLE FRUIT FOR MARKET-PURPOSES.

WITHOUT recurring to the records of profits and products realized from individual cherry-trees, as so much tangible, incontrovertible evidence of the money-profits to be derived from cherries, I will give attention rather to a general assertion, covering a few plain truths known to all who have given attention to the subject of fruit-growing. These are, First, that, as a rule, the cherry in some of its varieties succeeds perfectly, when classed as a tree for general cultivation, in nearly every section of our Northern, Middle, and Western States.

Second, The trees grow rapidly; are usually healthy; can be easily grown from seed, or varieties readily propagated by budding or grafting; and arrive at profitable mature bearing age in from four to six years.

Third, It is not particular about soil, provided it be one in which water never stands twenty-four hours at a depth nearer the surface than two feet, although it delights in a rather light loam, resting on a gravel subsoil.

The product of the trees varies, according to their age and the variety, at from one-fourth of a bushel to thirty bushels; and the fruit always commands ready sale at prices varying from four to twelve dollars a bushel.

These are some of the generally acknowledged good points taken in connection with the cherry when fruit-growers come to consider the policy and probable profit of planting it as a market-crop; and yet with all these, and the fact, that, yearly, thousands of bushels of cherry-fruits are grown and marketed, there are hundreds of our smaller cities and market-towns where it is rare ever to find an eatable cherry offered for sale.

As a tree combining beauty of form, or delicacy in spray, glossy foliage, and snowy bloom, for ornament, and a delicious healthy fruit for use, none among the whole catalogue deserve or receive the same amount of favor as the cherry. It is planted as shades in the village door-yards; it adorns the home-grounds of the farmer, whether of ten or a thousand acres; it is often planted by scores as shades decorative and cooling, bordering an avenue or approach-road. Go where you will, the country over, and where

do you find a cottage log-house, the remains of an abandoned home, or the fresh paint of a new settler or naturalized foreigner, without finding more or less cherry-trees growing? True, some of them are what we call sour or Kentish fruit; but they are hardy and productive. Orchards by the thousands of trees are growing and being planted in the Western States, while orchards of trees numbering their hundreds are frequent in the Middle and Northern States: but, with all these, our statement, that, in many small cities and market-towns, cherries are never found for sale, holds good; while in the larger cities it is rare that the market is ever fully supplied; and hence many a person passes year after year without ever tasting a cherry, much less enjoying them in abundance.

This ought not to be so; and from among the crowd who are making, and about to make, their fortunes out of grape, pear, or strawberry growing, let us hope to draw the attention of some to the fact that the people love cherries, the people will buy cherries, the people will pay good remunerative prices for cherries. Cherries are good to eat fresh from the tree, good to can, and as good or better than Zante currants when dried; and there is money — which is the grand point — in growing cherries for market-purposes.

In years gone by, when fruit had to be transported twenty or more miles by wagons, and canning was unknown, there was often much reason for the fruit-grower confining himself to such varieties mainly as were not immediately perishable, and that would bear the rough transportation of that day to market; but now, when railroads cross our country like the threads of a spider's web, the man with land at one hundred miles from the consuming market can grow cherries as profitably as he who resides at a distance of only five to seven miles.

I have said the trees can be easily grown from seed. It is only requisite to gather them when ripe, and keep them until the next spring, never letting them get *dry*, and planting as soon as the frost is out of the ground, covering about as deep as for Indian corn.

A friend of mine pursues a ready way of supplying his wants from year to year as follows: About the time the trees are in flower, he starts on a rainy morning, with trowel, dibble, and basket, to some tree of a well-known good kind, underneath which he finds from one to fifty young natural seed-

lings from pits of the previous year's fallen fruits : these he takes up with his trowel carefully, and transplants to his garden-nursery, where they grow two to three years, and are again transplanted to the permanent orchard, where they are fruited, and such as are proved unprofitable are budded, or ingrafted with some known valuable kind. Where the sweet cherry is a success on its own roots, and the owner has time and enthusiasm to meet the delay, this is a good way ; but when the planter wants to realize as soon as possible, or when the trees must be worked on morello-roots to insure their success, it is better to purchase the first plantation of trees from a nurseryman, and afterwards bud and graft as time and inclination serve.

I have said the cherry can be grown successfully nearly everywhere ; but, while such is the fact, it is also true that the tree must be worked on the roots of the morello to insure that success. I so said and wrote twenty-six years ago ; but as it was more difficult to work on morello than mahaleb, as stocks were not as easily obtainable, and trees did not show as large at one year old, the advice was not popular : but, at the recent meeting, that most intelligent body of fruit-growers, the Illinois State Horticultural Society, stated plainly that the morello is the only stock from which to look for success in cherry-growing ; and I think the practice will now be popular. Let any one, who has been unsuccessful in cherry-growing, work his varieties on seedling morello-stocks, and grow his trees moderately, — not with extra stimulants, — and he will be able to gather plenty of fruit in four years from the setting of the bud.

In connection with this assertion, that the cherry can be grown nearly everywhere, the planter for market-purposes should remember, that, as with every thing else, there is always a best side ; and that there is more certainty of permanent, steady, profitable returns from an orchard well located as regards altitude and soil, than from one not in the most favorable position. Remember one thing more : which is, let the planter select varieties likely to meet the tastes of the people whose appetites he expects to appease, and whose money he intends to receive.

In some markets, the dark or black cherries command one-eighth to one-sixth more price than the light colors ; in others, it is the reverse : but, in all cases where the fruit has to be transported miles in reaching its consuming customers, black or dark fruit will be found best, because it can be

picked ere it is fully ripe, and will not show the injury of a bruise as quickly or plainly as that of a light color. To this add that the very earliest fruit and the very latest will command always one-quarter to one-third more price than that of medium seasons, and I have written enough for the present.

F. R. Elliott.

CLEVELAND, O.

THE MAGNOLIACEÆ.

THE hardy members of this order are embraced in the genera *Magnolia* and *Liriodendron*.

(*a.*) *MAGNOLIA*. — An erroneous opinion prevails that the several species and varieties of this genus can be successfully cultivated only in more southern latitudes. Two are indigenous to northern sections of the Union; and it is evident, that, with suitable management, all of them, whether of American or Asiatic origin, will thrive here, the *grandiflora* and one or two others excepted.

With the rapid advancement in ornamental gardening, no sufficient reason can therefore be offered why, though at present the most rare, they should not become common ornaments of our grounds. This view is sustained by the experience of a few individuals in Boston, Flushing, Newburg, Rochester, and Cleveland; and that experience has also shown the following kinds to be worthy of cultivation:—

1. *M. ACUMINATA* (*Cucumber-tree*). — In the original forests of Ohio, this tree was common, but, with their destruction, is rapidly disappearing; and, as its reproduction from seed is now commonly interrupted, it may be exterminated in the course of a few generations.

Its intrinsic merits as an ornamental tree, as well as its great value as a stock for extending the propagation of other kinds, may perhaps avert such a result.

Employed for this latter purpose, it imparts vigor to the weak, hardness to the more tender, and, by its profuse supply of sap, forces them into abnormal production of flowers, improved in size and perfection as well as in numbers.

When grown in open grounds, it assumes a regular-conical form. Its leaves are numerous, large, glabrous, and of a rich green color. In the month of August, they contrast strikingly with the brilliant scarlet of the carpels, or seed-vessels, numerous interspersed ; and, at the first approach of autumn, suddenly change to a straw color, which pleasantly blends with the more vivid and gaudy hues of the neighboring forests.

It annually produces an abundance of seeds, which are perfected about the first of September. These, falling among leaves and rubbish, vegetate freely during the spring following, and, in such situations, make only a few inches of growth in the course of the season. The small seedlings can be readily detected in autumn by their large, acuminate, and yellow leaves, conspicuous near the surface of the ground, among surrounding herbage.

The cultivator should now secure a supply of them. Removed with a ball of earth by aid of a gardener's trowel, they will suffer little from transplanting ; and, if packed in moss, may be transported successfully to a great distance. Unlimited numbers can be thus obtained in Ohio and Western Pennsylvania.

If their removal be delayed till the ensuing spring, not a plant will then be found. All in the intervening time will have been gnawed to the crown of their roots by rabbits ; and in this condition, and at this age, they will not send up sprouts. Hence young trees of this species are not often found, even in our most secluded forests.

The bark and young wood of all the magnolias are favorite food of the rabbit ; and the trees are frequently attacked by them in gardens and lawns, unless carefully protected.

A more common method of obtaining young cucumber-trees is by sowing the seeds. It should be borne in mind, that, if the seeds of this or any other species of this genus become dry, no subsequent management will cause them to vegetate. As soon as they are mature, a point decided by the opening of the valves of the carpels, they should be separated from their attachment, and cleansed from their oily external coat by rubbing with sand and water. This coat contains an acrid principle which is thought to re-act on the seeds, and impair their vitality. They should be either planted immediately, in the manner hereafter directed, or may be

packed in crocks, or boxes, with a liberal supply of slightly moistened sand. It requires attention to preserve the requisite share of moisture till the next spring, and guard against depredations of mice. Thus packed, they can be conveyed to any desired distance. Contracts with our farmer-boys would secure abundant supplies.

2. *M. CORDATA* (*Heart-shaped-leaved Magnolia*). — The elder Michaux found it in a few and limited localities in Georgia and South Carolina. It was described by him as a new and distinct species. Doubts are entertained whether it is other than the *acuminata*, which is now known to sport in variety.

The leaves of the *cordata* are said to be “*broad-ovate, sub-cordate*.” It had never been introduced into this vicinity until Francis Parkman of Boston kindly sent me several seedlings a year since. Their leaves are *oblong* and *acuminate*, hardly distinguishable from the *acuminata* of our forests.

At the same time, a seedling *acuminata*, under high cultivation in my garden, exhibits leaves unusually large, and of an ovate and profoundly cordate form. Flowers of the two kinds may present essential specific differences. Loudon describes the color of the *cordata* as “white and purple;” Derby, as “yellow, streaked with red;” while Meehan says it is “yellow.” The colors of the *acuminata* are yellow and glaucous-green, with a slight tinge of blue. Further observation must determine their relationship.

3. *M. GLAUCA* (*Beaver-wood, Sweet-bay Tree*). — A swamp in Gloucester, on Cape Ann, in Massachusetts, is the most northern locality of this species. From thence it is abundant in favorable localities near the sea-shore far to the south. It is not a native of any of the North-western States, though it succeeds well under cultivation as far north as Lake Erie.

No species is more productive of seeds: every flower is sure to be followed by a well-filled carpel. Seeds frequently sow themselves, and young plants spring up spontaneously in adjacent grounds. These, with suitable care and protection, will grow into good-sized shrubs. On its own roots, this species will not, in this latitude, approximate any nearer to the magnitude of a tree. To develop satisfactorily its beauties, it must be propagated on the *acuminata* stock; and happily it is the most ready of all kinds to succeed by the process of budding. By it, an important change and

improvement in its habits are effected. We can show some convincing examples.

A *glauca* standing in my grounds, started from a seed in 1842, is now seven feet high. The trunk, eighteen inches above the ground, measures six inches in circumference ; and its top extends into several lateral branches. A dozen or two of inferior flowers are annually produced. Its aspect is that of an old and decrepit shrub, unworthy of attention.

In beautiful contrast, and contiguous to it, may be seen another *glauca*, with a large and spreading top, more than twenty-one feet high, with a body thirty-seven inches in circumference at its largest expansion. Its leaves and flowers surpass the others in size, numbers, and perfection. During a period of about six weeks, in the months of June and July, it puts forth daily a profusion of pure white blossoms, the neat and chaste appearance of which by day, and the agreeable odor at evening, excite admiration. At the approach of night, the perfume, mingling with falling dews, is disseminated a great distance along a thronged public thoroughfare, and elicits many exclamations of wonder and surprise, uttered in as many varied accents as were heard from the readers of the epitaph of "Poor Yorick."

This tree is probably the largest specimen of the *glauca* in the Union, certainly in the more Northern States ; and it illustrates both the feasibility and the advantages of employing the *acuminata* for the stock in propagating this species. It originated from a bud cut from the seedling *glauca*, just described, when that was four years old. The bud was inserted into a young cucumber-tree of a similar age in the summer of 1846.

Similar soil and cultivation have been afforded to each. The one is a mere shrub, that has already passed its maturity ; the other a good-sized tree, vigorous and healthy, annually extending as large a growth as in its early years.

Dr. Jared P. Kirtland.

CLEVELAND, O.

(To be continued.)

OUR SQUIRRELS.

It does not appear, at the first glance, that our squirrels, in their yearly labors, have any great influence on the interests of agriculture and horticulture: and we doubt, if the question were asked, if more than five persons out of ten would have formed any opinion in the matter; their probable reply being, "Oh! the squirrels are not of much importance either way. They live principally on nuts, and do not trouble us much, with the exception of the little striped ground-squirrel that pulls up our seed-corn."

But these little animals are of more importance than people usually believe them to be, and we will show this in a brief sketch of the habits of each of our more familiar species.



THE COMMON GRAY SQUIRREL (*Sciurus Carolinensis*), Gmelin. — This species is very generally distributed throughout the Atlantic States, and,

with its congeners the fox-squirrel and black squirrel, is well known. Its food, as most persons are well aware, consists almost entirely of nuts : and it is to this fact that the multiplication of our forest-trees is very largely indebted ; for its habit of burying the different nuts as a provision against the necessities of winter, covering them, to the depth of two inches or a little more, in the rich forest-mould, secures for them the most certain germination. This squirrel is a very liberal provider for its future wants ; and all who are conversant with its habits know how busy it is in burying them, from the time of the early ripening of the nuts until the ground is covered with snow.

Now, these nuts are not placed in one deposit, or two, or half a dozen : for accident might destroy such *cachés* ; or they might be placed by heavy falls of snow or thick formations of ice beyond the reach of the depositor, who would then be left without food through the most inclement season of the year. No : by an exercise of the highest instinct, if not actual reason, they are buried each by itself in every available spot in the woods, whether on the hillside, or beneath a fallen and rotten trunk of a tree, or on the edge of a swamp, — anywhere that it may be found when occasion calls for it. And we all know how this little animal goes through the woods in the heavy snow, digging down to its buried treasure with almost unerring precision. We have said it is a liberal provider ; and what is the proportion of the nuts it eats of the whole number it deposits ? Not one-fourth ; and as it instinctively buries only those nuts that are perfectly sound, without insect-stings, or germs of rot, of course all that are left buried sprout, and spring from the ground, miniatures of the parent tree. It is well known that only a very small proportion of those nuts that are left on the surface of the ground, exposed to the action of the elements, ever mature and sprout ; they rot and shrivel, or become the food and burrowing-place of noxious insects : and it can very readily be seen that it is on the labors of the arboreal squirrels that an extension of the growth of our forest-trees depends. It is not alone in the confines of the woods that the nuts are buried ; but all along their borders, sometimes rods away from them, in the open fields and prairies, do these active animals make their deposits : and people who live in the prairie countries, in which are belts of oaks and chestnuts, often find the young of these trees growing at a considera-

ble distance from the parent grove, and attribute their presence to the action of high winds that had blown the nuts to that distance.

In many sections, this squirrel is destructive in the fields of Indian corn, especially when such fields are situated near its haunts; but, generally speaking, we have no hesitation in saying that it is far more valuable on the farm than noxious.



THE LITTLE RED SQUIRREL (*Sciurus Hudsonius*), Pallas. — This is another of our little quadrupeds that is distributed almost entirely throughout our continent. Like the gray squirrel, it makes its home in the woods; and is, in some localities, very abundant. In the pine and hemlock forests of the Northern States, it is the most common of all the mammals; every little grove of these trees having one or more families. It feeds largely on various nuts and seeds; and in localities where the various pines abound, together with the oaks and chestnuts, it is especially valuable in securing a continuance of the latter, and even an introduction of them into the forests

of pines and hemlocks. For, preferring the dark shades of these evergreens for its home, it naturally eats its food in them: and all who have paid much attention to the different phenomena of Nature have doubtless noticed, that, when a patch of pine-woods is cut off, a growth of oak, hickory, and chestnut, almost invariably springs up; that is, if such trees are growing anywhere within the distance of half a mile from them. This new growth is almost always to be attributed to the little red squirrel, who had buried the nuts from which it grew for its winter food.

In sections where nothing but the various pines are growing, their seeds furnish the principal food of this animal; and I have often found, in my wanderings in the North, large piles of the coverings of these seeds at some favorite feeding-log of this little animal.

It is not in planting nuts that this squirrel is valuable alone; for, as it is not afraid to approach the gardens and orchards of its human neighbors, the choice apples and pears and cherries which it seizes and carries off to its forest-home, to be eaten in leisure there, often produce, from the seeds the little robber drops, a fine new variety or seedling that is oftentimes fully worth propagating. We have often found, in our woods, trees that had been planted by these squirrels, that were bearing fruit as choice as that growing on trees in the carefully-tended garden and orchard from which they originally came.

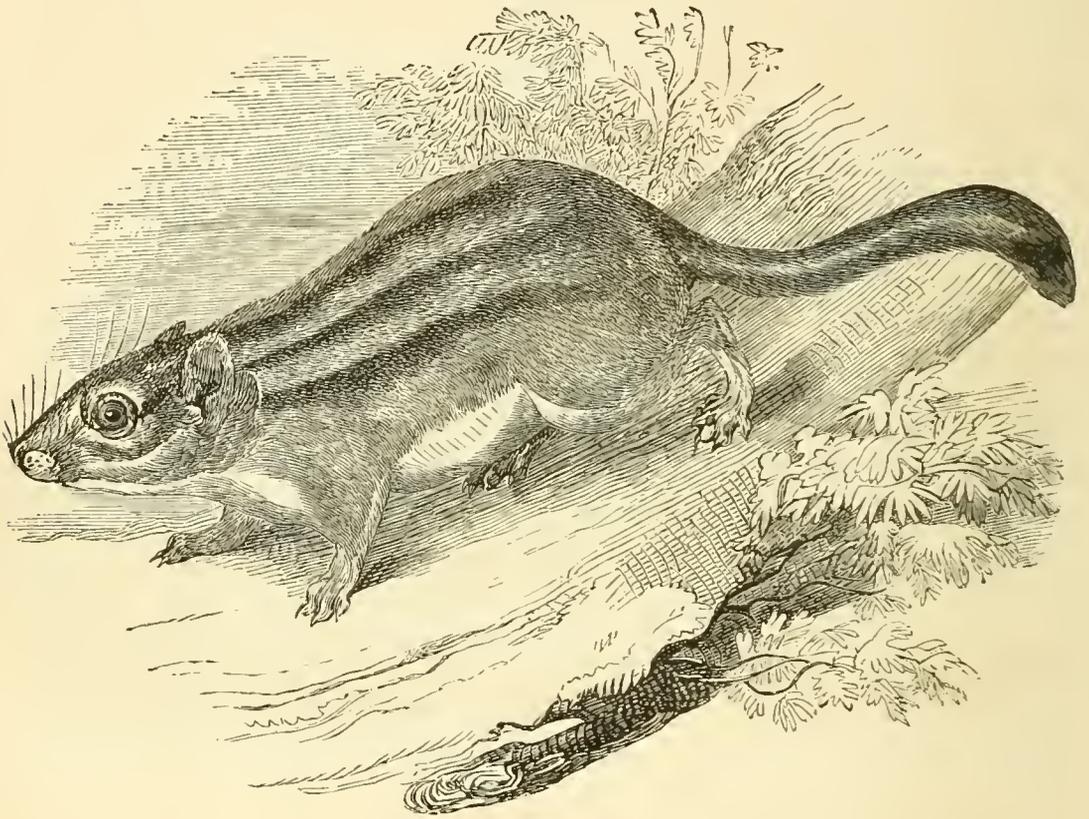
Unfortunately for it, the taste of the red squirrel for ripe fruits is well known; and, in the neighborhood of orchards, its services in the forest are often forgotten: but, in more retired localities, it is usually spared by the farmer, who regards it as a funny, jovial fellow, full of good nature and pleasant companionship.

THE LITTLE STRIPED SQUIRREL (*Tamias striatus*), Linnæus. — This is probably one of the best known and least popular of all our squirrels, and in most localities is really a nuisance. It prefers an open to a wooded country, and usually takes up its home in or beneath a stone wall, or pile of rocks in a field or pasture.

Early in the spring, as soon as the rays of the sun have penetrated to its subterranean home, it makes its appearance; and, as soon as the first corn is planted, it begins its depredations. It follows the rows of newly-

sprouted seed, and, digging with wonderful sagacity into each hill, finds the grains, and, cutting out and eating the germs, leaves the remainder on the earth, to become food for crows or other birds.

Later, when the strawberries and other small fruits are ripened, it takes no small share of these delicacies ; and, when the grains are fit for harvesting, the amount this little thief carries off is sometimes astonishing. In addition to these articles of diet, the chipmonk, as it is often called, secures great quantities of nuts ; and lazy people often watch the little gatherer,



and follow it to its home, where, digging into it with shovel and pick, the stores that had been laid up for future needs are discovered.

In the winter, unlike the other species, this squirrel partially hibernates ; sleeping most of the time in its burrow until warm weather comes. It would be unbearably abundant in cultivated districts, for it is very prolific, did it not have enemies in all the birds and beasts of prey and the various snakes. Its pretty form, cheerful, active habits, and confiding disposition, insure its protection, or rather secure for it a sort of tolerance, in

some localities ; while in most others it is regarded as a nuisance, and is destroyed at every opportunity.

THE FLYING-SQUIRREL (*Pteromys volucella*), Pallas. — This pretty and interesting little animal is not of sufficient importance to the rural economist to deserve more than a passing notice here. It feeds principally upon



various seeds and nuts ; but usually, instead of planting them in the ground like the two preceding species, makes deposits or stores in hollow logs and trees. It is nocturnal in its habits, and is rarely found away from its home in the woods.

Edward A. Samuels.

THE CHEROKEE ROSE.

No engraving can do justice to this rose. Its great beauty consists in the pure white of its broad petals, contrasted with the rich, shining green



of its foliage. Among single roses, it certainly has no peer. Unfortunately, it is too tender to bear a Northern winter; but in the South it makes a most luxuriant growth, and is often used for hedges. These, when in full bloom,

are the most beautiful objects conceivable, the large flowers shining like flakes of silver scattered thickly over the living wall of green.

I have had one of these roses, for several years, growing in the open ground: but every winter kills it to the earth, and seems even to enfeeble the root; for the summer growth is far from strong. Its proper place, in this latitude, is the greenhouse or the cold grapery, where it will put forth its beauties in perfection, and, being of a climbing habit, will soon cover the rafters. Though not to be classed as ever-blooming, it remains in flower for a long time.

It might be inferred from its name that it is a native of the South; but, in fact, it is only naturalized there, and its native place is China. It is the *Rosa levigata* of botanists.

Francis Parkman.

JAMAICA PLAIN, MASS.

TRITOMA UVARIA AND BURCHELLI. — They belong to the natural order *Liliaceæ* and sub-order *Aloææ*. The former was but little grown until during the last few years; yet it was introduced from the Cape of Good Hope in 1707. Good loam, enriched with one-third leaf-mould and well-reduced hotbed-manure, suits it. If the soil is wet and heavy, it would be improved by the addition of one-fourth sharp sand. All it requires is a mulching of leaf-mould or littery manure three parts reduced, placed round the crown in autumn, after blooming. The dead foliage should not be cut off until spring, as, if left, it forms a protection to the crown. If the weather prove dry during the throwing-up of the spike and flowering, copious supplies of liquid manure are beneficial. There is no difference as to treatment between *T. uvaria* and *T. Burchelli*; but they are very distinct: the latter is more dwarf and compact, and very bright in color.

It has proved hardy in the vicinity of Boston with a protection of leaves and fine boughs, and never requires more than the protection of a cold frame. A clump of either species is a marked feature in the garden; and, if the clumps are not divided, they soon become very large, and produce numerous spikes of bloom, which are very effective.

EDITOR'S LETTER-BOX.

A SUBSCRIBER. — Fifteen vines for a cold grapery, — eight black Hamburg, one white Chasselas, one rose Chasselas, one Wilmot's No. 16, one Wilmot's black Hamburg, one Chasselas musk, one flame-colored Tokay, one golden Hamburg. We give a list comprising the greatest variety; but, of all grapes, the black Hamburg and its varieties succeed best, and give greatest satisfaction, in a cold grapery.

A SUBSCRIBER. — In glazing a greenhouse-roof, shall I lap the glass, or but it? Our experience has shown that it is better to lap the glass: it makes a tighter and stronger roof.

L. F., Pennfield, N.Y. — Hyacinths should be placed in the glasses about the end of October, kept in the dark until the glass is half filled with roots, then removed to a sunny window. The time when they will throw up the flower-stem depends much upon the temperature of the room and of the water: they seldom bloom before the 10th of January, however. The room may be kept at the ordinary temperature of a parlor, say 65° Fahrenheit. At night, the glasses should be removed from the window, that the water may not be chilled. As the water evaporates, the glass should be filled up; but it is not necessary to change the water, unless it becomes foul. A small piece of charcoal in the glass will keep the water sweet. Hyacinths in water bloom weaker than when planted in earth, and are not as satisfactory. Soft water only should be used for refilling, and it should be of the temperature of the room.

R., Worcester. — The double hepaticas are as hardy as the wild varieties, but are not very easy to procure in this country. You will find them in florists' catalogues; but they rarely can supply them. The best way to get a stock would be to import them. They cost in England about a shilling a root. As the plants are impatient of removal when in growth, and seldom survive losing all the young leaves, it is better to import them in the autumn than the spring; as, if imported in spring, the young leaves grow in the case, and damp off. If, however, you send for them in September, they will reach you late in November. They will usually be in small pots or with good balls as they have been turned out from the propagating pot. Put them at once in pots of the same size, and give a gentle watering to moisten the plant; then winter them in a cold-frame. In early spring, uncover them, and set the plants in the border where they are to remain. They are impatient of division, and look best in large clumps. The proper time to divide for propagation is as soon as they have done blooming. The double-red is the most common, and is a little gem of a flower; the double-blue is rather a larger growing plant, with flowers on longer footstalks; the double-white is very rare, if, indeed, it is not lost to cultivation. The single varieties of our woods do well in the border. *H. angulosa* is a very fine species, with large blue starry flowers; recently introduced. All the varieties are valuable, and we know of no prettier plants for the spring garden.

S. H., Boston. — The earliest polyanthus-narcissus is *Gloriosa*, if you except the double-Roman, which blooms about Christmas. *Gloriosa* is white with yellow cups, very fragrant, and continues long in bloom. It generally, with ordinary culture of the parlor, blooms about the middle of January; while other varieties, such as Grand Monarque, Grand Primo, Gloria Mundi, and Soleil d'Or, seldom flower before the last of February.

W. D., Andover. — The Lawrence pear is an American seedling, and one of the best table-pears, ripening from the last of October to Christmas. It never shrivels; but all, large and small, ripen well. The flesh is white, deliciously perfumed, juicy; the skin smooth; color, when ripe, light clear yellow. It does best on its own root or pear-stock.

A SUBSCRIBER. — Sow Chinese primroses (*Primula sinensis*) in April in pans in the greenhouse, or even in the parlor. As soon as the plants are large enough to handle, pot them in small pots; or, what is better, prick them out in rows in a box or pan. Keep them in a shady place during the summer, but not under the drip of trees, — a plant-house, or piazza, where they receive some sun is best, — and repot as the plants grow. Pick off all flower-buds until November, when they may be allowed to bloom. There is no better window-plant. The double varieties are very fine, but do not succeed as well in the parlor as the single. They are propagated by division. Old plants are increased by dividing in spring, and treating during the summer as above.

A SUBSCRIBER, Auburn, N.Y. — The best plant for a yellow bed is *Tagetes signata pumila*, plants of which may be obtained from nurserymen, and seeds of any seedsman. Sow in a hot-bed in April, and transplant to position like any marigold.

CONSTANT READER, Roxbury. — The plant you describe as seen by you at the Horticultural Rooms last autumn was probably *Dahlia imperialis*, a recent introduction. It grows twelve feet high, producing an abundance of large single drooping white flowers. It is doubtful whether our season will prove long enough for it; but, planted out in a conservatory border, it would be very effective. We shall try a plant this next summer, and report its value in our latitude. South of New York, it would probably do well.

A WELL-WISHER, Cleveland, O. — You can probably procure seeds of *Tritoma uvaria*, which, if sown this spring, would flower in about two years and a half; but the best way is to buy plants, which any nurseryman will furnish for three dollars a dozen. If well protected with leaves, the plant will stand the winter. For a mass in a lawn, there is no more showy plant.

ANNUAL, Albany, N.Y. — A very good dark-foliaged plant, and one that would suit your purpose, is *Perilla Nankinensis*. It is an annual, and may be had very early by sowing in a hot-bed, and transplanting: it will usually come up the second season where it has once been planted. The flower is whitish and inconspicuous. Other dark-foliaged plants are *Amaranthus melancholicus*, *Iresine Hebestii*, and *Coleus Verschaffeltii*; but the *Perilla* will best suit you.

CAMELLIA, N.Y. — Six good camellias for bloom and hardiness are *Alba plena*;

Fimbriata, white ; *Imbricata*, *Feastii*, variegated ; *Lady Hume's Blush*, creamy white ; *Henri Favre*, rosy carmine. To these add *Saccoi nova* and *Wilderii*, rose ; *Sarah Frost*, ruby red, occasionally striped ; *Candidissima*, white ; *Mrs. Abby Wilder*, creamy white, sometimes striped ; *Landrethii*, pale rose ; *Jeffersoni*, bright scarlet.

I. P. H., Greenfield, Mass. — Mr. Strong thus answers your question : —

MR. EDITOR, — In answer to the inquiries of your correspondent in regard to my experience with the "horizontal mode of training the grape" during the past season, I reply as follows : Owing to the pressure of spring work, the principle was not applied to many varieties. The Hartford Prolific and Concord varieties, being very luxuriant in growth, were thought to be good subjects for experiment. In the spring of 1866, I selected two rows of Hartfords and two rows of Concords, each row being about three hundred feet long, the vines of which rows had been planted five years. Having been previously trained in an upright position, I had noticed that the base buds, or those lower down, and nearest the cane, were each year becoming weaker and less productive. I believed this new position of the branches would remedy the evil, though a large crop could not be expected for the first season. The trellises, which were previously six feet high, were cut down to three feet. A horizontal trellis of three wires was then stretched upon the top of the posts, as described in my book upon the grape, page 132. The result has fully equalled my expectations. My crop was not large, for the reason, as stated, that previous training had weakened the fruiting-eyes ; but the vines appeared well, and the fruit matured well and in excellent condition. During the past season, mildew has been prevalent in all the vineyards in this section ; and my own vines were by no means exempt. In early August, I thought the signs of mildew were more noticeable on the horizontal trellises than on the upright, which were side by side, and of the same varieties of grapes ; but a further and more careful observation convinced me that the difference was only in appearance. Standing over and looking down upon and along the horizontal trellis, all the new and tender growth is in plain sight. Of course, any sign of disease would be much more conspicuous than upon an upright trellis. But, in September, there was no perceptible difference in the foliage of the different trellises. It is a moderate statement to say that the fruit on the horizontal trellis ripened equally as well as the other ; and I am quite certain that the fruiting-eyes for next season are in much better condition than those on the upright trellis. Vines which were trained in this arching way in 1865 have developed better fruit-buds and larger bunches, so far as I have been able to judge. I may add, that several friends who have heretofore doubted this plan have expressed more or less confidence in its merits after witnessing these results. It is due to the public, in this connection, to call attention to the instance of horizontal training mentioned by Mr. Meehan as occurring in the interior of Pennsylvania during the past season. The particulars, the exact mode, the pruning, the variety, — none of these items are given. In a private letter, Mr. Meehan informs me that the experiment was "a stupendous failure." I incline to believe that neglect was a prominent cause ; and I think Mr. Meehan

would do us good service by a statement of all the facts in the case. If the Delaware was the variety experimented with, the result was in harmony with most other vineyards of this kind, in Pennsylvania, during the past season.

S. E., Illinois. — The Norway spruce is used as a hedge in the vicinity of Boston, and some fine specimens can be seen. It makes a very dense and close protection for nurseries, and will turn cattle. It seems especially adapted to break the force of the wind, bears the shears well, and is ornamental.

Many inquiries have been received as to the locality of the writers in the January and February numbers. They are as follows : —

Francis Parkman, Boston, Mass. ; J. M. Merrick, Jr., Walpole, Mass. ; John L. Russell, Salem, Mass. ; E. S. Rand, Jr., Boston, Mass. ; William C. Strong, Brighton, Mass. ; J. F. C. Hyde, Newton, Mass. ; Jos. Breck, Brighton, Mass. ; Ed. C. Herbert, Boston, Mass. ; Fearing Burr, Jr., Hingham, Mass. ; E. A. Samuels, Boston, Mass.

The localities will be given in future.

F. H. — "Tazetta" is the name given to varieties of *Polyanthus narcissus* from the Italian *tazza*, "a cup," alluding to the form of the flower. In Dutch catalogues, this name is of frequent occurrence.

Hollis. — The specimen sent is a leaf of some *Begonia* allied to *B. rex.* ; but there are so many seedlings raised yearly, many of them better than named varieties, that we cannot undertake to distinguish them.

E. M. — The apple is Bottle Greening, a New-York variety not mentioned in Downing. A friend who is familiar with the history is investigating the subject, and will soon furnish an article for our pages.

R. — The English holly is not hardy in New England, and the variegated varieties would probably prove more tender than others. As parlor-plants, or for entries, they are very ornamental. The English holly is *Ilex aquifolium* ; the American, *Ilex opaca*.

The Editor is in constant receipt of letters in which the address of the writer is very obscure or illegibly written. To answer such letters is of course impossible. Correspondents are particularly requested to write the name and post-office address in a clear, legible hand. We also request that correspondents will not write personally to the contributors to the "Journal" on subjects connected with the magazine or their articles published therein. All questions will be answered in our columns.

HORTICULTURAL DOINGS.

THE meeting of the Minnesota Fruit-growers' Association was held at St. Paul, Jan. 10, 1867. A very interesting and valuable address on fruit-growing at the extreme North, as practised in Russia and other cold climates, was read by Col. Robertson, by whom it had been prepared at the request of the society. It embodied many facts of great interest, and showed, that, with proper selection of varieties, there is good reason to hope for substantial success in this interesting pursuit. The address is of the first importance, and should be published and circulated through the State.

At the conclusion of the address, an opportunity was offered, for those who were willing, to state their experience in regard to fruit-growing, or any fact that had come under their observation bearing upon the subject. Statements were made by L. M. Ford, Messrs. Wheaton of Northfield, Smith of Freeborn, Mitchell of Goodhue, Nichols of Olmstead, Gov. Marshall, and other gentlemen. The subject is not only an important, but an exceedingly interesting one; and we are glad to see so much interest manifested.

A resolution was passed to hold a meeting every Thursday evening during the session of the legislature; also that the subject of conversation for the next evening should be the winter protection of fruit-trees, grape-vines, and plants.

HANCOCK COUNTY, ILLINOIS. — It seems that the fruit-growers of this grape-region of Illinois have been stimulated by their success to form a society which has for some time been in active existence. The planting of grapes and other fruits has for some years attracted much attention. About Nauvoo, there are a good many vineyards; but, at the meeting near the close of the year, it appears, that, predicating upon statistics carefully made in one-half the county, the secretary thinks he can safely estimate the number of grape-vines in cultivation at one million.

The Committee on Grapes came out very strongly in favor of the Concord, as one of the most satisfactory and valuable varieties. They fully sustain the verdict of the Greeley Prize Committee. The Catawba still holds the first rank among the vineyards, and has borne well where slightly protected: they have had little rot, and that on young vines equally with old ones. The Isabella was declared unworthy; the Clinton highly commended for the production of a red wine, if allowed to hang until well ripened.

The committee believe that all varieties should have some kind of winter protection, and for this purpose advise pruning in the fall, and a light covering of earth in the vineyard, or a wrapping of straw in the garden. Their account does not include the newer varieties, because, they say, "of the hundreds or thousands planted there within five or six years, the majority are now dead."

The statements as to the weight of the must, or the grape-juice, appear very high, and must be taken as evidence of the thorough maturity of the fruit in

that region. Delaware was 100 ; Clinton, 96 ; Taylor, 90 ; Catawba, 86 ; Concord, 83, &c.

At the annual election, the following gentlemen were chosen officers for the current year : *President*, A. C. Hammond ; *Vice-President*, G. B. Worthen ; *Secretary and Treasurer*, N. W. Bliss. — *Contributed by John A. Warder.*

INDIANA HORTICULTURAL SOCIETY. — This very useful association held, in January last, one of its very useful and interesting meetings. A large number of members were in attendance, — more than at previous meetings. The display of fruits was magnificent : very many varieties were on exhibition, and the quality and naming were beyond criticism. The display, taken as a whole, was quite equal to that made at Zanesville, O., last month ; though the number of varieties was not so great, nor the quantity so large. A very similar list of varieties was shown in both States ; but there were some sorts peculiar to each State.

The Business Committee reported programme for order of proceedings. The election resulted in the selection of, — *President*, J. D. G. Nelson ; *Vice-Presidents*, Allen Furnass, Calvin Fletcher, J. C. Shoemaker, E. C. Siler ; *Corresponding Secretary*, Jos. Gilbert ; *Recording Secretary*, S. W. Pearson ; *Treasurer*, J. S. Dunlop.

The committee reported some interesting matters ; when the subject of small fruits was taken up, and a spirited discussion was had, and was participated in by all the members.

Wednesday Morning. — There was a good attendance of members, and a spirited meeting. Some suggestions were made to amend the premium list of the State Board of Agriculture, so as to insure an increase of exhibitors.

A paper was read from Dr. Matthews of Mason, Ill., recommending the Ben Davis apple ; and those acquainted with the variety spoke very highly of it as a market-fruit.

An amendment of the constitution was then proposed and adopted, providing for a corresponding secretary ; whereupon Judge Gilbert of Terre Haute was elected.

The revision of the fruit-list section was then taken up and carefully revised, with excellent results.

The afternoon was devoted to a consideration of the same important subject.

In the evening, several papers were read and disposed of ; and Dr. Warder read a very feeling eulogy upon the late George M. Buler, former secretary of the society ; when the session immediately adjourned for the day.

Thursday Morning. — The society re-assembled this, the third day of the session, in goodly numbers. It is remarkable how deep an interest is taken in this good work by members of the Society of Friends. Fully three-fourths of the attendance was from that excellent class of citizens, and several of the officers and leading men are Quakers ; which gives a solid, substantial, and reliable character to this body of fruit-growers.

The committees rendered their reports on the articles exhibited. The fruits could not be too highly commended. The display was remarkably fine, and

eminently characteristic of the advance of this society, as evidenced by the admirable arrangement and by their correct terminology.

Resolutions were offered recommendatory of the new serial, "The Journal of Horticulture," published by J. E. Tilton & Co., Boston; and the members were asked to lend it their hearty support.

The importance of the subject of entomology was urged, and the necessity for farmers and horticulturists to become familiar with their insect enemies was set forth. To meet this, members were directed to "The Practical Entomologist," printed in Philadelphia, as a means of communication with the scientists in this department of natural history.

MASSACHUSETTS HORTICULTURAL SOCIETY. — A quarterly meeting of this society was held in its library-room on Saturday, Jan. 5, 1867.

The retiring President, C. M. Hovey, Esq., delivered a parting address, setting forth the prosperous condition of the society, and its means for future usefulness. He stated that its income for 1866 would be about thirty thousand dollars. It has given for prizes, in the last twenty years, fifty thousand dollars. The value of the society's property is estimated at about two hundred and seventy-five thousand dollars, on which there is a mortgage of about half that amount.

The President elect, J. F. C. Hyde, Esq., on taking the chair, made a short introductory address. He expressed the idea that the society was in its infancy for usefulness.

A very able and interesting report on the Depredations of the Robin was presented by Prof. Russell of Salem, in which he expressed his feeling for that bird, and also the opinion, as the result of his investigations, that the robin does more good in the destruction of noxious insects, worms, &c., than he does harm in making his own selection from the choicest fruit.

He urged the protection of the smaller birds as useful to the cultivator of the soil, and for this purpose recommended a tax on cats.

The Garden Committee made their annual report by W. C. Strong, Esq., chairman, giving an account of their official visit to the Public Garden and to Deer-Island Farm by invitation of the city authorities.

They speak of the bad arrangement and grouping of shrubs and plants in the Public Garden, of the inferior quality of the lawn in comparison with that around many private residences, and of the conservatory as not being what the public expect of such an institution; while they were evidently satisfied with the condition of things on the city farm at Deer Island.

Some other business of less importance was transacted, when the society adjourned for one week.



APRIL.

CLASSIFICATION OF APPLES.

WITH the great increase of varieties that are cultivated in the nurseries and planted in the orchards, and with the extended length of the fruit-lists discussed at the pomological gatherings of our country, it is strange that none of the savans and teachers of the art have yet attempted to give us a philosophical classification. Some arrangement would appear absolutely necessary; and one American writer, J. J. Thomas, has essayed to group the fruits he describes in a systematic way.

When attempting to analyze a list of some thousand names of varieties of apples which had been collected from the writings of pomologists, the catalogues of nurserymen, and from various other sources, the necessity for a classification was most fully realized.

European authors were consulted to see what they had provided in the way of a classification that might be adapted to our own country. Several formulæ were found; but they were all too complex in their arrangements to suit the simple tastes of an American.

After continued study of the different methods proposed, and of the distinctive characters that were observed to be most permanent, I have ven-

tured to compose a classification upon the combined traits furnished by *shape, flavor, and color.*

The general figure was found to be divisible into four well-marked forms:—

1st, The **FLAT**, having the axial diameter decidedly shorter than the transverse one.

2d, The **CONIC**, or tapering, in which the apple is contracted decidedly toward the blossom-end. In this form, the upper portion of the fruit is much less than the lower, or stem-end. The diameters are about the same, or nearly equal.

3d, The **ROUND**, or globular, in which there is a nearly equal development of the two ends, and the diameters are about the same.

4th, The **OBLONG**, or apparently oblong and oval forms, in which the axial diameter is longer than the transverse; or, if only equal, the fruit appears elongated in that direction, as it often does when this diameter is really the shorter. This is particularly the case when the sides are nearly parallel, and the ends are truncated, so that the fruit assumes a cylindrical appearance.

Each of these classes is capable of subdivision into two **ORDERS**, dependent upon the regularity or irregularity of the contour of the fruit, as shown by a transverse section across the core and axis, or by holding the specimen with its blossom-end toward the eye of the observer. If the outline thus presented be a circle, the fruit is called *regular*; but if flattened on the sides, ribbed, or furrowed, it is angular, or *irregular*.

Each of the orders may be divided into two **SECTIONS**, according to the flavor in its broad distinctions of *sweet* and *sour*; though it must be confessed that the difference between the two is not always very well defined, and that these flavors are often so nicely commingled, that it is difficult to distinguish between them, especially at the period of the perfect maturity of the fruit.

Finally, these sections embrace three **SUBSECTIONS**, that are based upon permanent and decided distinctions in coloration.

The **FIRST SUBSECTION** contains all those which are not striped: they may be called the *self-colored*; and they are generally white, green, or yellow, with or without bronzing and blushing on their exposed sides; or the red

tints may prevail over the whole surface, but they are never arrayed in stripes or splashes.

The SECOND SUBSECTION includes all *striped* apples. These stripes and splashes, of various tints of red, are more or less developed. In some specimens, there may be but an occasional short broken splash ; and, on the other extreme, some varieties are so covered with the commingled stripes as to appear wholly red : but a careful examination will demonstrate darker streaks, and shaded specimens from the same tree will show the striping very plainly. This character, though only one of coloration, which is lightly esteemed by botanists, is found to be very reliable in pomology.

The last subdivision of this classification is the THIRD SUBSECTION, which includes the apples that are russeted.

CONSPECTUS OF THE CLASSIFICATION.

CLASS I. — Flat apples.

CLASS II. — Conic, or tapering.

CLASS III. — Round, or globular.

CLASS IV. — Oblong, or oval.

ORDER I. — Regular apples.

ORDER II. — Irregular, or angular.

SECTION 1. — Sweet.

SECTION 2. — Sour, or subacid.

Subsection 1. — Self-colored.

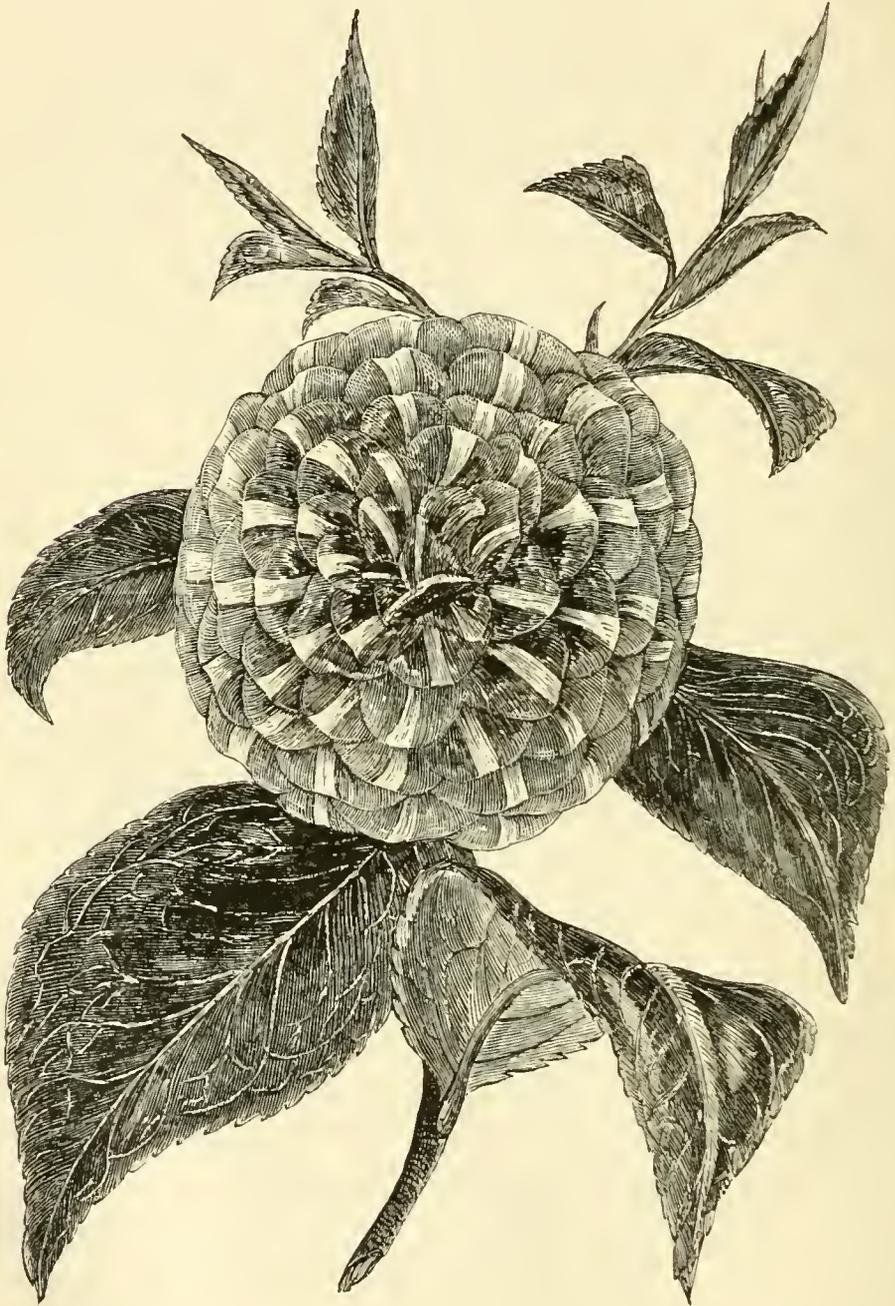
Subsection 2. — Striped.

Subsection 3. — Russeted.

This is the classification adopted in the volume of AMERICAN POMOLOGY devoted to the consideration of the APPLE, and which is soon to be presented to the public. The author bespeaks for it the kind consideration of his friends, the readers of "The Journal of Horticulture," or as many of them as may be interested in the study of pomology.

CAMELLIA POLAR STAR.

THIS exquisite new variety is of Italian origin. The flower is bright, rosy carmine, each petal striped with rosy white, or rather divided equally into



two stripes of carmine and white, presenting the appearance of a star. The whole stock is in possession of Verschaffelt, who has not yet put it upon the market. — *L' Illustration Horticole.*

THE LAWN.

THE general laying-out of a lawn, and the arrangement of trees and shrubs so as to produce the most striking and pleasing effects, belong to the province of landscape-gardening. They must always be governed very much by local circumstances, and by individual taste in the application of general principles : but the preparation of the land, and the selection of grasses best calculated to produce certain results, though modified somewhat by the character of the soil, will, in general, be the same ; and it is to this branch of the subject, in which I have had some experience, and a somewhat extended observation both in this and other countries, that the reader's attention is just now invited.

The preparation of the soil for a lawn can hardly be too minute or elaborate. The object is to produce a fine, velvety, and elastic turf, of uniform surface, free from all coarse herbage, permanent in its character, becoming more and more beautiful, soft, and delicate with age. Good economy, therefore, dictates that the work should be properly done at the outset, if we would save future expense and disappointment. There are few soils that are well calculated for a lawn that will not be benefited by drainage ; we might say, none : for though an open, porous, gravelly, or sandy soil, so inclined as to carry off the water, or to allow it to pass down to a sufficient depth below the surface, would not require this outlay, such soils are not well adapted to lawns, though necessity may often compel their use ; and a sufficient outlay of another character may overcome the obstacles which they naturally present.

It is not our object to go into details as to the best modes of draining, or to estimate the expense of this improvement, in this connection. It is a subject of sufficient extent and importance to form a separate article in this Journal, and we trust it will be developed as it certainly deserves to be. But we may say, in passing, that tile-drains, laid at sufficient depths, not less than three feet, — and four would be better, — will be found in the end most effective and most economical, even though the expense may seem greater at the outset.

The next important step is that of trenching ; for though, in comparatively

light soils, the subsoil-plough might be substituted, trenching would be most effectual, and no doubt produce more satisfactory results. Before commencing either of these operations, a liberal supply of manure should be carted on, say from four to eight cords to the acre, of the best manure from the yard, according to the quality and previous treatment of the soil. This manure is to be spread only as it is dug in ; and we would add from three to five hundred pounds of plaster of Paris at the time of the application, so as to be trenched or ploughed in together. Begin now at one side of the proposed lawn, and open a trench about two feet wide and fifteen inches deep, throwing the earth taken out into carts or wheelbarrows, to be removed to the opposite side of the lawn, and deposited alongside the last trench to be dug. It will be needed to fill up that trench when it is reached. Then open another trench alongside of the first, of the same width and depth, throwing the earth into the first trench, and at the same time mixing it well with manure and plaster ; and so continue through the whole lawn. If there are stones of any considerable size, leave them upon the surface to be removed. If there are coarse bits of earth, sods, corn-stumps, or any similar substances, they may be covered in the trenches, so that the six inches of surface-soil may be light, free, and open.

If the soil on which this operation is performed is heavy, the stable manure used may be coarse and undecayed. It will improve the mechanical condition of the soil, and serve to keep it light and open. If, on the other hand, it is gravelly and free, we should prefer fine manure. The operation of trenching, properly performed, has left the surface smooth and even ; the coarse lumps of earth of every description having been buried deeply in the trenches. Some manure is now wanted near the surface in order to give the grass a rapid start, and to promote the growth of the tender roots. We may take good Peruvian guano, spread on uniformly at the rate of about two hundred pounds to the acre, or good superphosphate of lime at the same rate, to be immediately harrowed in. Either of these articles should be mixed with an equal amount of plaster of Paris. They may be spread and worked in with the grass-seed if it is preferred ; but it is better, perhaps, to work them in first. These operations may be performed, and the manure applied, as early as the ground is fit to work in the spring.

The land is now ready for the seed ; and it is important to secure the

right sorts, such as will produce a fine-matted turf, such as will endure close and repeated cropping without injury, and such as will produce the desired result as soon as possible. If it were August or early in September when the seed were to be sown, there would be little need to provide any protection; but grass-seed sown in spring is more sure to succeed with the protection afforded by some kind of grain or millet against an excessive drought to which we are liable every year, and therefore we should consider it safer to sow some seed along with the grasses. Barley is better for this purpose than oats, and in some respects, perhaps, better than rye. Three pecks of either may be used; or, if you prefer it, fifteen quarts of millet-seed to the acre. Bear in mind, also, that the grass-seed is to be sown much thicker than would be required for an ordinary seeding-down.

The following mixture will produce a good sward: One bushel of red-top (*Agrostis vulgaris*), half a bushel of sweet-scented vernal (*Anthoxanthum odoratum*), half a bushel of June grass or Kentucky blue grass (*Poa pratensis*), and six pounds of white clover (*Trifolium repens*). These are species that may be obtained fresh from almost any trustworthy seedsman. But, as there is now ample time to procure other species by sending abroad forthwith, we would recommend a still more complete list, as follows: Get "fine top" (*Agrostis vulgaris tenuifolia*), hard fescue (*Festuca duriuscula*), crested dogstail (*Cynosurus cristatus*), sheep's fescue (*Festuca ovina*), yellow oat-grass (*Avena flavescens*), red-top, June-grass, and white clover, as above, and mix them in equal parts by weight as nearly as practicable; when about four or five bushels so mixed may be sown to the acre.

If you ask for fine-top here, it is taken from the red-top bin. Most, indeed all, the above-named grasses are found here, some of them very commonly; but there are no pains taken to save them, and so we rely upon importation for the seed. Fine-top is a well-marked variety of red-top, due as much to soil as to any thing. The fescue-grasses are especially adapted to lawns where a fine, close, soft sward is essential; and crested dog's-tail, a grass very rarely if ever found in this country, is also admirable. We have seen acres of it growing profusely, and forming a large part of a park-turf. Its habit of growth is not very unlike the sweet-scented vernal, so common with us; and, if it is not easily obtained, the latter may be substituted for it.

Having now the grass-seed ready, sow as evenly as possible, and rake in with short-toothed iron rakes, or, if the lawn is of great extent, with the harrow ; and roll carefully with a heavy roller if the land is light, avoiding the treading of heavy animals if it is possible. Too much care cannot be taken to get a firm and even surface, as very much of its beauty, for the first season at least, will depend upon this operation.

The grain that is sown along with this grass-seed will be thin, of course, and will not interfere with the young grass. It is designed merely to protect it from the scorching rays of the sun during any dry weather that may occur the first season. In three or four weeks, or when the grain or millet is about a foot high, it should be cut with a scythe, but not very closely. Three inches from the ground is better than less. It will then start again, and grow rapidly ; and in three or four weeks it should be cut the second time, and again in August or September. This mode of treatment will secure a uniformly green and luxuriant plat even the first year, while the sward is gradually forming ; during which time, it is not desirable to cut too close to the ground.

After a close and well-matted sward is once formed, the lawn is to be managed by top-dressing, rolling, and frequent cutting. Rolling is important, and tends to render the grasses finer and softer ; while frequent cutting is essential to promote the same end. In selecting a top-dressing, great care should be observed that no rapidly forcing or stimulating manures are used, — nothing which will have the effect to create a rank growth, which will inevitably incline to coarseness. The oldest and most finely-rotted manure, composted with some loam and plaster, may be spread evenly, and raked in with fine-toothed iron rakes, working the rakes back and forth so as to get the fine manure down among the grass-roots. When this is done, remove all the coarse parts of the manure, if any, from the surface immediately. No manure should ever remain to be seen on a lawn. It will make coarse and uneven patches, which are especially to be avoided. This finely-rotted manure, worked in as indicated, will, the second or third year, make the lawn as soft as velvet ; while a close shaving with a lawn-mower once a fortnight or oftener, according to the growth of the grass, through the season, will give it the appearance of being well kept. No expense

laid out in buildings or statuary about a country-house can add so much to give it an air of taste and refinement as a well-kept lawn.

We propose to speak of the grasses recommended in the above list at greater length hereafter.

Charles L. Flint.

BOSTON, MASS.

FIELD-CULTURE OF THE GRAPE IN MASSACHUSETTS.

BUT a few years since, our horticulturists would have pronounced the cultivation of the grape in the vineyard to be impossible; and we must confess, that, with the grapes known to us at that time, the great body of cultivators would have concurred in that opinion; but to-day, with one hundred acres of vines growing in Massachusetts, many of them yielding an annual income of one thousand dollars or more per acre, the question may be considered settled, — the vineyard is possible in our rude North.

I propose to show, so far as I may in this brief paper, a few of the conditions precedent to the successful cultivation of the grape in New England; some of which, though unnecessary in regions peculiarly suited to the culture of the grape, and therefore neglected in the popular treatises on that subject, are yet so needful to a complete success, that we feel obliged to present them frankly to the consideration of those who propose to plant vineyards.

The *best* climate for the grape is undoubtedly much warmer than ours. A long season, a fervid sunshine, and especially a dry and warm autumn, prolonged into October, secure the ripening of the grape so completely, that it reaches its best condition. In such climates, trenching the soil deeply is a preventive of the effects of summer droughts; and, as the heat of the long summer warms the earth to a great depth, the deepest roots get the necessary heat, and thrive and multiply. In such a climate, trenching is therefore serviceable; but at the North, if I can trust my own experience, it is not only unnecessary, but pernicious.

Here at the North, with the exception of very sheltered situations, well exposed to the sun, and having also a favorable soil for the absorption of heat, the soil does not become properly heated for the wants of the grape to a greater depth than one foot from the surface.

Trenching (and the concomitant manuring) invites the roots into the lower soil ; abundant moisture and manure force the vine into a rampant growth ; the wood ripens badly, and the buds are imperfectly developed. The fruit, though large and showy, will not be of so good quality as it would be under more favorable circumstances ; and unripened wood with immature buds, ripening the fruit later and later annually, constantly disappoints the hopes of the cultivator.

It is in this way, perhaps, that such different opinions obtain among cultivators in regard to quality of any given variety of grape ; the various circumstances of soil, aspect, culture, being sufficient to justify the most diverse opinions.

Now, the grape loves heat : it is a child of the sun, and should have both light and heat in as large measure as the circumstances of the case permit. Heat at the root is as necessary as it is in the surrounding air, — I had almost said more so, — and to obtain this heat at the root is one of the first needs of grape-growing. To this end, the soil should be light and warm, and the vines should be planted in rows running north and south, so that the sun will shine upon the ground in its whole length for the greater part of the day.

Sheltered situations increase the heat, and prevent its being dissipated by the prevailing winds. Screens of Norway spruce, or other evergreens, are a good alternative where neither hills, buildings, or adjacent woods, furnish the needful shelter ; but by all means secure heat if it be possible.

If the soil is not by nature warm and friable, it can, in most cases, be drained, lightened, and warmed by methods so well known to cultivators, that they need not be repeated here ; and, if the most vigorous and hardy grapes be planted, the planter will not be disappointed in his crop.

Indeed, one of the most prolific vineyards that I know of in the State had a heavy and wet soil before it was redeemed by deep, thorough drainage with drain-tiles, and such skilful culture as lightened and warmed the soil. The warmest soils, however, should be preferred.

When our people plant grapes, they usually prepare the ground by heavy dressings of manure. So constant is this practice, that I stop here to consider it briefly, and to give my reasons for arriving at a different conclusion. It is proper to state in advance, that slow-growing grapes require forcing.

Rich soil and all resources of the gardener, may be, and often must be, applied to such grapes. We leave them out of the argument, because they can never be made profitable in the vineyard; and proceed to those vigorous and hardy grapes which are sure to succeed, the number of which, I may add, will undoubtedly be increased by others equally hardy, and suited to field-culture

I have already hinted at the fact that excessive growth is necessarily immature, and the unripe wood unfit to carry a crop of grapes to perfection, and that this is one of the results of high-feeding. Let me add to this the fact, well understood in wine countries, that it impairs the quality of the fruit for either wine or table; a fact which has been verified in my own experience.

I have a piece of land at the top of a steep slope, which was planted with the Concord grape in 1857. At the time of planting, the soil was manured with peat compost at the rate of forty loads (equal to ten cords) to the acre, to promote the formation of roots in the young vines.

This ground has had no feeding since, — not even ashes. The fruit from this vineyard is so superior to that grown on vines of the same kind, in rich soil, about the house (planted in 1852), that it has been taken by experts even for another and better grape. They are not so large in bunch or berry; but the quality of the fruit is so much better as to be full compensation for the less crop.

The “Chateau Margaux” — a vineyard which has made famous the whole district now called by that name — is a case in point. According to Haraszthy, the chemical composition of the soil of this celebrated vineyard is as follows: —

Oxide of iron	3.341
Alumina	1.590
Magnesia	0.263
Soluble silicates.	0.380
Phosphoric acid	0.147
Potash	1.291
Carbonate of lime	0.891
Organic matter	6.670
Insoluble residue	85.427

This analysis shows the large proportion of more than three and one-

quarter per cent of oxide of iron, about one and one-half per cent of clay, one and one-quarter per cent of potash, with phosphoric acid and carbonate of lime in small quantities, and only six and one-half per cent of organic matter ; the rest, 85.427 per cent, being insoluble remainder. Not a very rich soil, one would say ; yet this vineyard produces the finest grapes of the district. Add to this the well-known fact, that when it becomes absolutely necessary to manure a vineyard, as happens in some isolated cases, the succeeding crop of wine is either sold to the distillers to be made into brandy, or without its proper name, lest it impair the reputation of the vineyard ; and we must, I think, conclude that it is bad husbandry to use manure in the vineyard.

Mineral manures, phosphates and potashes, are indispensable to the health and to the successful culture of the grape. Of these there is not space to speak at this time. In another communication I shall have something to say of them, and of some other essential preliminaries to successful grape-growing.

E. W. Bull.

CONCORD, MASS.

SPHAERIA MORBOSA.

How many of our readers know what a *Sphaeria morbosa* is? Most horticulturists, however, know it only too well under its more common name of BLACK WART, when their plum-trees have been covered with it. Familiar as the sight of its ugly excrescences may be, we imagine that many who have suffered from its invasions may be uninformed as to its place in the vegetable system.

The *Sphaeria morbosa* is a fungus, belonging to a very extensive group, which infests the bark of trees and shrubs. The different species are found in myriads throughout the whole vegetable kingdom ; sometimes preying upon living tissues, more frequently parasitic upon decaying matter. They vary in their mode of attack, or rather they occur in different parts of the plants which support them. Some are superficial upon the bark ; some are immersed in the sub-cuticular layer, bursting through the cuticle, erumpent as they are termed ; others take possession of the inner

bark, and so affect it as to occasion an unnatural and excessive development, a corky, irregular, warty growth, which finally bursts the outer cuticle, and covers the infested branches with unsightly excrescences. To this latter group belongs the *Sphaeria morbosa*. The fleshy growth which it induces in the plum-tree, or at least that portion which is immediately occupied by it, is called its *stroma*. This is, at first, a homogeneous mass, presenting no definite character. By and by, it takes on a reddish coloration, which finally deepens into black; the surface becomes carbonaceous in texture, and is studded all over with minute papillæ. A section of the stroma will then exhibit a woody centre with a carbonaceous rind. In this rind are innumerable little rounded cavities, the upper walls of which constitute the before-mentioned papillæ: these are pierced by a minute hole, through which the spores, or germinating processes, escape; the whole cavity and its walls being called a *perithecium*. The spores are infinitesimally minute, oblong bodies, contained, generally eight in number, in diaphanous sacs, or envelopes, called *asci*, which develop from the ends of filaments, which line, in a dense mass, the whole bottom and sides of the cavities. These are not carbonaceous like the walls, but are of a gelatinous consistency. Imagine an egg-shell, from the inner walls of which grows a dense mass of soft bristles half an inch long, on the ends of which are little whitish, sausage-shaped sacs, containing oval bodies lying diagonally in the sacs, one applied to the other, sidewise, the bodies being variously lined, and you have a tolerable idea of an immensely-magnified perithecium, with its filaments, asci, and spores.

That this structure we have just described should be a plant; that this hard, black, charcoal-like substance should be vegetable,—will seem strange to those unfamiliar with the study of similar growths; but it is vegetable, and has so permanent a character as to constitute a species. It must be allowed, however, that it is a matter of doubt, in mycology, how far the same fungus may be affected by the plants upon which it fastens as to change its habits and appearance. The older mycologists named the host of parasitic fungi after the plants upon which they were found; taking it for granted that they were all distinct species if they had a different look. Schweinitz, the great pioneer of the study in this country, has enumerated a vast quantity of them in this way; but, since later observations have

proved that many fungi take on different growths under varying circumstances, it has become a matter of considerable question how far the autonomy of these obscure vegetable growths can be established.

The group to which this particular fungus belongs, is, however, tolerably constant in character. The genus *Sphaeria* is well defined, if we include the newer genera made out of the old genus by later writers, more for the convenience of treating of so vast a number of species, it seems to us, than on account of difference worthy of generic distinction. These carbonaceous papillate fungi are so well defined in their peculiarities as to be readily identified by those familiar with their forms. Yet even these vary; and, when closely proximate forms are found on different plants, a question arises whether they are identical or not. The young growths of the wild-cherry (*Cerasus serotina*) are often found covered with a fungus very similar to the *Sphaeria morbosa*. Indeed, almost any woodland border will furnish plenty of specimens. The perithecia are smaller, and are sometimes prolonged into a short beak. The cherry belongs to the same order as the plum; and it may be that the parasitic fungus infests both, but is swayed by influences in both plants so as to develop differently. We have seen branches of the cultivated cherry similarly affected. The size of the spores is considered a good specific character, and yet these vary.

It has been thought by some that the peculiar growth of the bark which bears this fungus is occasioned by the sting of a curculio; but any one familiar with the stroma of fungi will understand that this growth is characteristic of a whole family, and arises, not from insect poisoning, but from fungus influence. The insects, seduced by its soft, pulpy character in its early stages, may deposit there their eggs, as it is not unlike the flesh of unripe fruit in texture, at one period. Various methods have been devised to stay the ravages of this fungus. Sulphur placed in holes made in the trunk of the tree has been resorted to; but we imagine that there are no sure preventives. When we remember the excessively minute size of the spores, we can understand that they may be absorbed with the nutriment of the tree, or taken into the stomata of the leaves, and carried into its tissues. Fungi infest wild plants as commonly as cultivated ones; a proof that their occurrence is not necessarily due to an unnatural or deteriorated state of the plant they attack.

Charles F. Sprague.

GARDEN ARCHITECTURE, AND HINTS ON LANDSCAPE
GARDENING.

IN treating of architectural gardening, it may be expected, that, at the commencement, some allusion should be made to the general principles of design.

The principles governing all design are UNITY, that is to say *breadth*, and INTRICACY, that is to say *variety*, including *contrast*. The former governs the whole scope of the design: the latter supplies the details. The influence of the one may be seen in works distinguished by their GRANDEUR and REPOSE; the charm of the latter, in the combinations which produce PICTURESQUENESS and CHEERFULNESS.

To know exactly how far to allow either *breadth* or *variety* to give its especial character to a composition is the great secret of successful design. There must be a proportion, and yet a preponderance; enough *breadth* to secure repose, enough *variety* to insure interest without creating *confusion*. In short, breadth must be so produced as to allow the aid of variety; while variety itself, to be pleasing, should be treated in a broad manner.

A few diagrams will serve to show how the principle of breadth applies to garden design, including the architectural features of terraces, which are introduced, not as garden architecture, but simply for the purpose of illustrating principles.

If any reader should have difficulty in understanding what, after all, is really meant by breadth, let him look out of a closed French casement at any object whatever, taking care to place himself opposite the centre of the window: he will then see the view cut into halves; or, in other words, that all breadth is destroyed. He will not know on which half of the view to fix his attention, and will instinctively change his position until he sees without obstruction all he desires.

It may seem paradoxical, but it is none the less true, that, under certain conditions, breadth may be destroyed by the very absence of a central object.

The following diagrams, 1 to 12, will show the application of the principle of *unity*, or *breadth*, to garden compositions : —

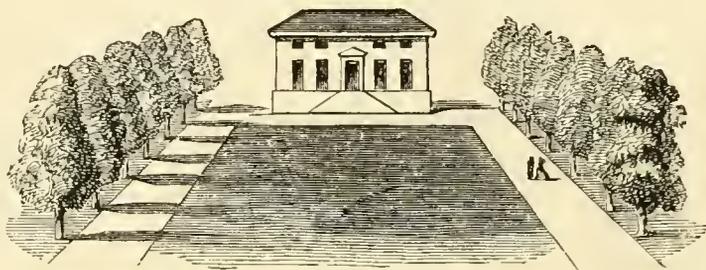


Fig. 1.

In Fig. 1, we have a fair expression of unity. The grass in centre is bordered by trees or shrubs. But the grass-flat is the feature to which the walks at the sides are entirely subordinate ; and whether this grass-flat be cut into beds, or whether the flat is composed entirely of gravel and beds, is immaterial.

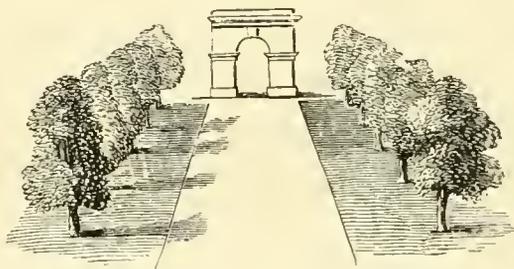


Fig. 2.

Fig. 2 expresses unity, perhaps, more plainly than Fig. 1. The centre consists of a path bordered by turf, flowers, shrubs, or trees.

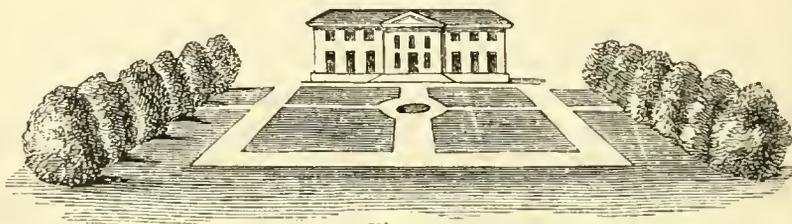


Fig. 3.

Fig. 3 will be seen, on examination, to be identical in principle with Figs. 1 and 2 ; that is to say, the garden in Fig. 3 is not in two halves nor in four quarters, but one central whole, bounded by an enclosing border of flowers, shrubs, or trees.

Fig. 4 represents a most objectionable feature ; namely, an object in the centre of the view, cutting it into two equal parts.

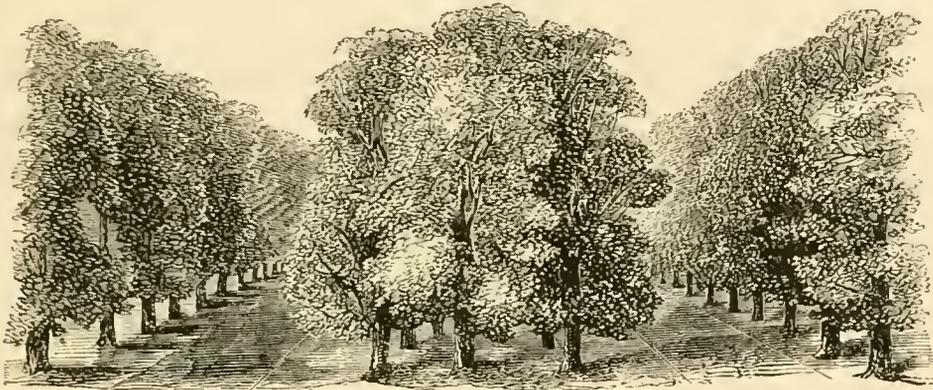


Fig. 4.

Fig. 5 is not so good as Fig. 3. It somewhat resembles Fig. 4 in having the object, namely, the central grass-flat, in the centre of the view. If the central grass-flat were treated differently from the rest by sinking a tolera-

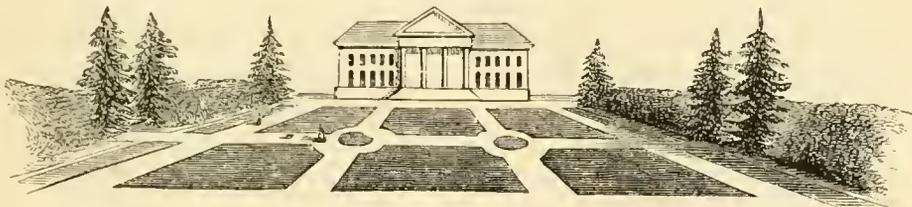


Fig. 5.

bly deep panel, or filling such a sunk panel with water, the effect would be pleasing.

As balustrades with flights of steps, vases, &c., form the chief part of the architectural decorations of a garden, this is the proper place to show that breadth of treatment applies to them in the same manner as to the main divisions of a garden or view. It will be seen, for instance, that the objectionable feature represented in Fig. 4 is reproduced in an architectural form in Fig. 7, — namely, the pier in the centre of the view ; not important enough to awake interest, but sufficiently obtrusive to produce confusion. It may be safely taken as a rule, that a pier should never occupy the centre of any wall, space, or balustrade, but invariably an opening, or void. We should either look *at* one object of sufficient importance, or *between* two at a third more distant.

Fig. 6 shows a balustrade properly divided, with a void in the centre.

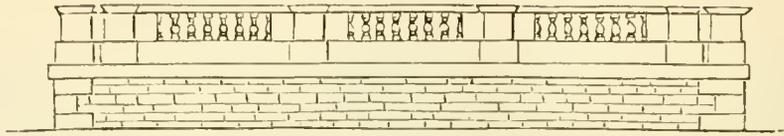


Fig. 6.

Fig. 7 shows the same improperly treated ; that is to say, with a pier in the centre.

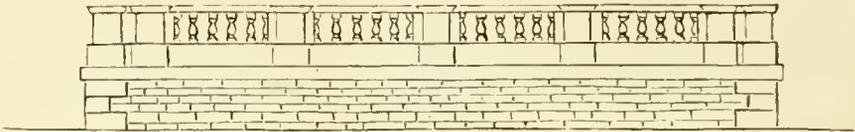


Fig. 7.

It is well known that the Greeks, while they never allowed a column in the centre of the fronts of their temples, did not scruple to use an unequal number of columns at the sides. It was supposed that the great difficulty of counting them would prevent any one from finding out whether there was an even or odd number. In balustrades, however, it is of vital importance, no matter how long they may be. Recollect the garden-walks

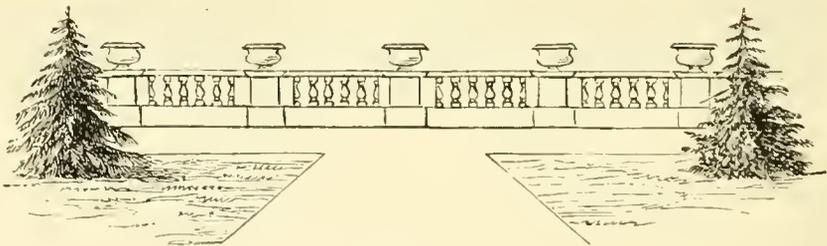


Fig. 8.

inside, and consider the ill effect of a pier in the centre. — See Fig. 8.

Fig. 9 shows the balustrade treated properly, with a void opposite the walk.

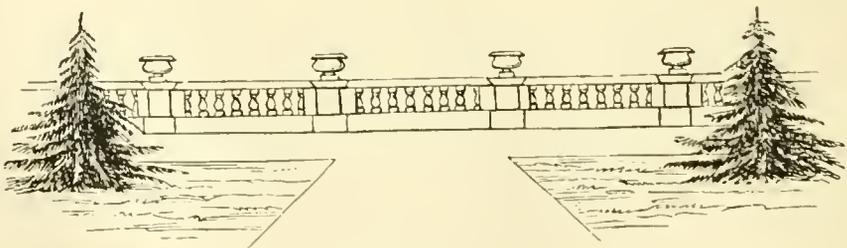


Fig. 9.

If a circular bay, as in Figs. 10 and 11, be made, it is quite allowable to

place in the centre an object superior in character to the ordinary vases or

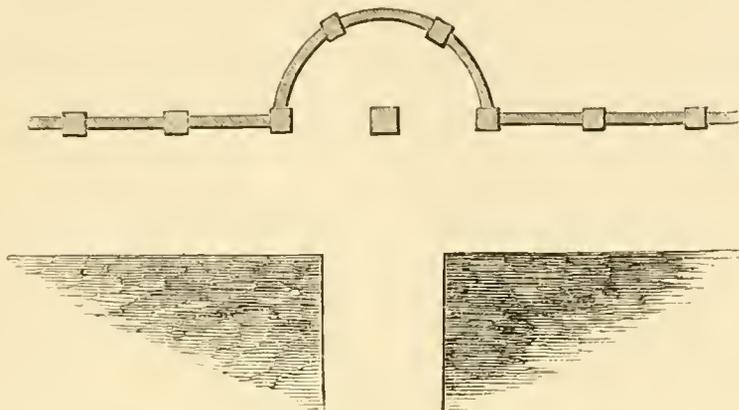


Fig. 10.

piers of the balustrade, though there is a still better treatment possible.

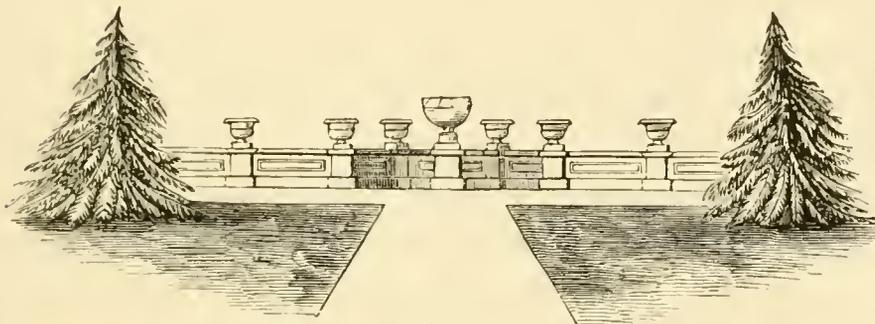


Fig. 11.

Fig. 12 is merely the outside elevation of Fig. 9, supposing it were desirable to continue the walk to the lower level by means of steps. It is, in all respects, a satisfactory composition.

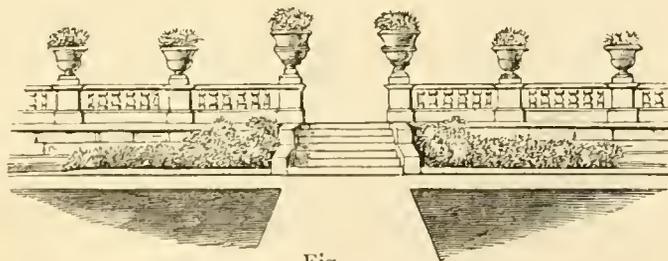


Fig. 12.

It is important, even in trifling details, such as individual balusters, to treat them as piers, and consequently not place one in the centre, no matter how great the distance between the piers. If they are immediately under the windows of the house, as they are most likely to be, they are

sure to be counted ; and, when the offending baluster is once discovered, it becomes an eye-sore ever afterwards.

It may seem superfluous to allude to the importance of using half-piers and half-balusters. It is sometimes very convenient to dispense with the half or quarter piers ; but it is a complete sacrifice of architectural propriety, and, when detected, is as offensive as the central baluster.

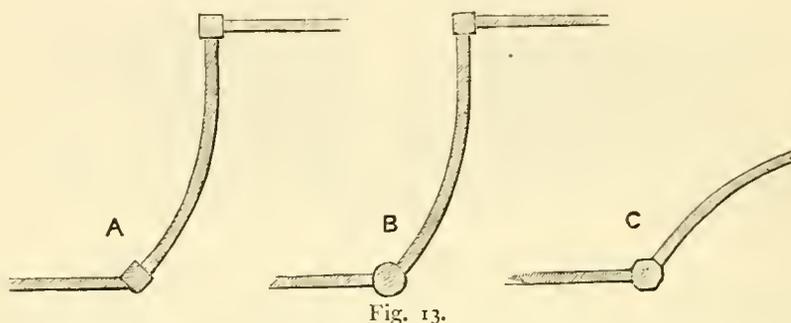


Fig. 13.

Fig. 13 shows the application of a cylindrical or octagonal pier to portions of a balustrade. The square form of the pier, A, would give much confusion in lines, none of which are either parallel to or at right angles with the building. Either B or C would be satisfactory.

Variety and *contrast* need no special illustrations, inasmuch as every one knows what is meant by those terms. *Variety* scarcely admits of explanation by means of diagrams : *contrast* is too simple to require them.— Adapted from “*Garden Architecture and Landscape Gardening*,” by John Arthur Hughes.

ON FRUIT-CRITICS.

THERE is a distinction between professional and popular judgment in regard to fruits, which is a great puzzle to some people. Thus the Bartlett, in popular estimation, is at the head of all the early autumn pears. In the great markets, where you find one bushel of another sort, you will very likely find ten bushels of Bartletts ; where you find one customer familiar with other varieties, whether Tyson or Sheldon or Rosteizer, you will find ten who are familiar with the Bartlett. Yet I think the pomologists proper are always disposed to speak rather apologetically of it : “A fair pear, to

be sure, but lacking a certain "—well, something which belongs to the less-known sorts. Nay, a very distinguished fruit-grower, into whose grounds I chanced to stroll upon a delightful September day, thought it necessary to excuse the appearance of a single Bartlett pear-tree in the midst of his beautiful pyramids of other growth: "It was an inadvertence; planted by error: he should regraft it."

The Concord holds nearly the same relative position among the newer grapes, in which I would include the Diana, Hartford Prolific, Delaware, Iona, Rogers's Hybrids, Israella, and Adirondac. The Concord does not, indeed, maintain the same kingship in the larger markets which belongs to the Bartlett among pears; yet it is the accepted type of a good grape, and a profitable one for the million.

The largest reason, perhaps, of this popular success, lies in the fact that both the Bartlett pear and the Concord grape can be easily grown; will bear all exposures, harsh treatment; and, without any thing more than the hap-hazard attention which the majority of fruit-growers bestow, will bear good crops, and come to full maturity. It would be idle to say that these considerations should not and do not count largely in their favor. And it is easily comprehensible how these same considerations should be made of little account by those assiduous cultivators who make it a matter of conscience to give extreme care and the nicest watchfulness to whatever they take in hand, and who count it a sin to treat any vine or tree with neglect. Ease of culture, however, and absolute hardiness, would not altogether account for the popularity of the fruits we have named. The public may be a buzzard, if you will, on the score of taste; but even buzzards have a taste. Pomologists must keep cool in their reckonings.

Professional and popular judgment vary in the matter of books as much as in the matter of fruits. Some author whose wares sell by thousands and tens of thousands this year and next, is, perhaps, the very one whom the astute critics of the recognized organs of literary taste pounce upon with a fury. The man of large and nice culture has no appetite for those grosser flavors, however new or however curiously composite, which may lie sweetly under the tongue of the multitude. All the world reads Mr. Trollope and Miss Braddon, though all the critics cry "*Cave!*" So, however much these latter gentlemen may praise the delicate touch and the artist-like achieve-

ment which belong to such a story as Miss Evans's "Romola," the bulk of the reading public is not won into either purchase or applause. The truth is, that all the finer tastes, whether in art, letters, or pomology, demand a very considerable culture for their establishment ; more cultivation and more leisure for its attainment than the majority of either readers or fruit-lovers possess. Education is, indeed, doing very much every year to supply this culture ; but when popular education shall have done its best, whether as regards books or fruits, there will remain a wide gap between the appreciative perceptions of those who devote themselves to special culture and those of the multitude. You or I may enjoy a good glass of any sound wine of Medoc, whereas the old connoisseur will smack his lips only over Lafitte or Château Margaux ; yet it will never do for this latter to say that we, therefore, have a corrupt or vitiated taste.

I, by no means, would declare against the good services of those pomologists who are the most difficult critics of flavor : they are indeed the obstetricians and the monthly nurses of the vegetable world, — presiding at the birth of new products, and tending them with rare care through a helpless infancy, and (it must be said), like most officials of their class, showing exaggerated favor always to the latest born. Let them not become irascible if outsiders sometimes set aside their decisions, and cleave with tenderness to some of the elder-born among vegetable triumphs.

I know it will be said by the advanced fruit-growers, that the taste of the multitude must be educated up to their level, and that it is quite as easy to grow a fine-flavored fruit as one badly flavored. With due respect, however, I shall venture to except to both propositions.

The common taste cannot be educated up to the level of that which is established by years of special study and culture. The bulk of people have corn and axes to grind, and children to feed, and pleas to make, and sermons to preach, which will not admit of this special culture. I am not sure that a severely critical taste, either in fruit-flavor or intellectual products, would be desirable, if it could be secured. Critics are most excellent people in their place ; but fill the world with them, and what a contentious, backbiting world it would become !

I think we may bless God that there is, and ever must be, a large appetite for common things ; a public maw, which says grace, and falls to

upon humble food, with gratitude ; which will make vigorous foray upon a well-ripened cluster of even the Concord grape, without wiping the tongue around critically in search of missing flavors. There is a wise saying of an old Latinist, *Nil sapientiæ odiosius acumine nimio* (which every forward school-girl in tilting hoops can translate).

Again : I doubt very much if the finest flavored fruits can be grown as easily as the grosser tasting ones. I am quite aware that this *dictum* may start an angry buzz about my ears ; but a good angry buzz in the matter of fruit discussion is often a very helpful thing.

Finest flavors seem to me to cost the finest labor, whether in fruit or speeches or poems or lives. Good things are aptest to come only by great care and task-work, no matter through whom or through what they come. Take the Delaware grape, for instance, whose flavor is, I think, admitted by all to be equal if not superior to that of any of our out-of-door grapes ; yet only extreme care will give it fair size. Its buds are specially reluctant to grow under any of the ordinary means of propagation ; it demands assiduous and delicate handling ; it invites the thrips and all manner of vine-disorders, just as a delicate though promising child invites the whole *curriculum* of child diseases. Again: take the Iona, whose rare flavor and signal beauty no one who has ever seen and tasted it can dispute ; yet the ordinary hap-hazard cultivator will very likely fail with it. It has grown up and developed under the best of nursing. It is offered to the public by one who does not believe in poor culture, scarcely in moderately good culture, but only in the best ; and, with the best, it is a most admirable grape. But what shall we do with our friends Seth and Nathan, who do not know what first-class culture is? Shall we commend to them what will very likely perish under their hands ?

In the pear line, it is quite possible, that with great nicety of treatment, both in garden-culture and in the ripening process (which last counts for a great deal), a higher and finer flavor may be given to the Beurré Diel, or the Flemish Beauty, or the Beurré d'Anjou, or even the Duchess, than belongs ordinarily to the Bartlett. But put the Bartlett in comparison with either under fair average treatment, and upon ordinary garden lands, and I think two luscious Bartletts will present themselves to one of either of the other names. Now, it is quite possible that the man who does not

practise the average hap-hazard culture should sneer at it, and refuse to recognize hap-hazard culture as any culture at all ; but he *must* recognize it. It will never do for him to ignore positive facts, — such as lack of general nicety in culture, and lack of assiduous watchfulness. There are a vast many men in the world who are not watchful and painstaking in fruit-culture, who yet love fruits, and will grow them for themselves ; just as there are a vast many men who are not critics or dilettanti, who will read average poems, and buy average pictures.

And why do I write in this strain ? Is it to encourage mediocrity ? Is it to disparage the efforts of advanced pomologists ? Is it to make a plea for popular taste, and against cultivated taste ? Not at all. It is simply to make clear the proper distinction between the two, and to secure its appropriate recognition.

This recognition once made, and the advisory horticultural committees could tell us more justly what is suited to common culture, and what to special culture. I plead only for the infiltration of the learned societies' reports with a little more of common sense, and an adaptation of their advice to the masses.

Donald G. Mitchell.

EDGEWOOD.

ATMOSPHERIC CHANGES.

EVERY one knows that our climate must be ranked among those termed excessive ; i.e., subject to great diurnal fluctuations, and a wide annual range of temperature. These unpleasant changes, characteristic of the whole area excepting parts of the Pacific coast, are dependent on natural causes, and, of course, entirely beyond our control. The wide extent of land in high latitudes condemned by cold to perpetual desolation, and the absence of lofty mountain-ranges running east and west, render us liable at all seasons to violent and frigid winds from the north ; while, on the other hand, we derive little benefit from the mitigating influences of the Gulf Stream, from the fact that the polar current flows between it and our eastern coast, and that the prevailing winds are from the west.

These points of climatology have been often discussed, and are well

understood ; indeed, they are impressed upon us by monthly experience. But there are other atmospheric changes of vastly more importance to the horticulturist, as influencing more directly the results of his labors. We refer to the rapid and often excessive fluctuations in the amount of aqueous vapor contained in the atmosphere ; that change from dampness to dryness, or *vice versâ*, so perceptible to the feelings, and accurately indicated by the wet-bulb thermometer. These fluctuations frequently occur during mid-summer, and, with their concomitant phenomena, exert an injurious influence on vegetation ; checking growth, and rendering plants liable to the attacks of disease. How these results are accomplished, we shall endeavor to explain farther on.

There is in "The Report of the Department of Agriculture" for 1865, quite recently published, a very instructive and important article headed "Observations on Atmospheric Humidity," by J. S. Lippincott of Haddonfield, N.J. Here we have these questions thoroughly discussed and scientifically explained, and various means suggested for the partial protection of growing plants from the results of sudden atmospheric changes. It is a paper which should be read and pondered by all who feel an interest in the fruits of the earth, whether they are the possessors of extensive plantations, or of only a few highly-prized trees and vines. It is principally in the hope of calling increased attention to this important subject, and with the purpose of suggesting a careful perusal of Mr. Lippincott's paper to the readers of this Magazine, that I have written these few notes.

From the narratives of travellers, and from meteorological observations, it has long been known that certain regions are subject to great depressions of temperature after sunset ; and that this refrigeration arrives at its maximum a little before sunrise, when the cold is often excessive (sufficient even for the formation of ice), though at noon of the same day the heat may be intense. This peculiarity of climate is especially developed in parts of the Sahara, and of what is called the "Great American Desert." It was also known, that, in all regions so characterized, a very dry atmosphere prevailed. Although generally accepted as a fact, that, the dryer the air of any country, the colder were its nights, this phenomenon remained unexplained until the laws governing it were discovered by John Tyndall, F.R.S., and demonstrated in the clearest manner in his well-known work "On Heat

considered as a Mode of Motion.” From long-continued and delicate experiments, Prof. Tyndall arrives at the conclusion, that aqueous vapor is opaque to the rays of heat of low intensity ; in other words, that the presence of a considerable amount of moisture in the air prevents the radiation into space of heat from the soil and plants of that locality, and consequently a low night-temperature : but if, by the action of drying winds or otherwise, the proportion of aqueous vapor in the air be much reduced, the barriers to radiation are removed, and considerable nocturnal refrigeration follows. “ The removal, for a single summer night, of the aqueous vapor from the atmosphere that covers England, would be attended by the destruction of every plant which a freezing temperature would kill.” In the paper cited, Mr. Lippincott gives at considerable length the results of personal observations made in Camden County, N.J., during 1864 and 1865, in which there are many notable instances of a low degree of atmospheric humidity followed by excessive cold, in accordance with the theory of Prof. Tyndall. “ On the 22d of July, at two, P.M., the force of vapor, or pressure, in inches on the barometer, was but .188 ; which is lower than we have ever observed it during summer and autumn, and lower than is sometimes noticed even at the freezing-point.” On the morning of July 23, the temperature was but “ 46° at six feet above the soil ; a narrow escape from frost.”

It may now be asked in what manner these fluctuations in the humidity of the atmosphere concern the horticulturist, and whether it is in his power to protect his plants from the evils following in their train. These questions are discussed at length in Mr. Lippincott’s paper. He mentions that the *first appearance of mildew and rot in vines almost immediately followed the low morning temperatures* consequent on the diminution of the quantity of aqueous vapor in the atmosphere of the locality.*

Why these sudden changes should cause mildew in the vine (and perhaps many other plant-diseases), may, I think, be thus explained. In a

* This agrees entirely with my own observations, although my experience with mildew has been limited to a few spots on odd leaves ; the close vicinity of sea-water in nearly all directions preventing those sudden changes so injurious to the vine. In the present season, 1866, my vines were entirely healthy during the very hot and rainy weather of July and the early part of August : but with the first low morning temperatures, about Aug. 9, a few spots of mildew appeared ; and, before Aug. 17, it had largely increased, and rot was discovered in a few clusters. Some of the worst cases were sulphured, and the disease checked. The last three weeks of August were cold, damp, and unfavorable.

plant growing under favorable conditions, both root and leaf action are well balanced, and regulate one another. Change these conditions, and functional disturbance is soon manifest. An instance of this is seen in the bad success attending plant-culture in the rooms of dwelling-houses. The air is too dry, and exhalation from the leaves is not compensated by absorption at the root. An extra supply of water does not remedy the evil; for the roots are not capable of pumping up the amount required. In short, the equilibrium necessary to health has been disturbed, and the plant languishes. In the case of our vines, we will suppose that a warm, moist atmosphere has excited the plant to vigorous growth. Suddenly the amount of moisture in the atmosphere is largely reduced; excessive reduction of temperature follows, and the leaves of our vine find themselves surrounded by cold, dry air: but, at the same time, the conditions at the roots remain unchanged; these are surrounded by moist earth at a temperature perhaps thirty degrees higher than that of the air. The conditions of healthy growth have now been reversed, the delicate tissues of the leaves and fruit become disorganized, and the floating spores of mildew find speedy opportunities for their ravages.

As a remedy for these evils, the planting of belts of trees is suggested as barriers to the sweep of drying winds, and as condensers and retainers of moisture; and also the use of a peculiar covered trellis, described and figured by William Saunders, Superintendent of the Public Garden at Washington, in the Agricultural Report for 1861.*

With regard to tree-planting, we hope the subject will be agitated until practical results follow. By the wholesale destruction of the forests, we, or rather our ancestors, have changed essentially the climate of the country, and for the worse. The disastrous effects of our improvidence are now very apparent. Prolonged droughts, and an extreme range of temperature, are not uncommon in all parts of the country. Many fruits, once easily produced, now fail, or are uncertain, with us. Many years ago, when the country was thinly settled, the orange was a sure crop along the coast, in Georgia, Alabama, Mississippi, and other States; and the trees attained

* Mr. Saunders has had this trellis in use for many years, and has always found it effectual. It is very simple in construction, and well worthy of a trial; and, moreover, we can now pretty well understand *why* it should tend to preserve the health of the vines.

considerable size and age, as their decayed trunks testify. The extensive forests then existing were sufficient to break the force of northers before they reached the latitude of the Gulf States ; and, of course, the moist atmosphere maintained by these forests tended to equalize temperatures. How great an influence these northers may exert on a southern climate, even in the partially-wooded districts of the East, is plainly exhibited in the devastation by frost at St. Augustine, Fla., on Feb. 9, 1835, when orange-trees two feet in diameter, and a century old, fell victims. Now this fruit is not considered sure above latitude 29° , though cultivated much farther north in protected localities. The planting of forest-trees cannot be too strongly advised : the subject is one of not merely local, but of national importance. It is, moreover, quite easy to prove it a profitable operation. But we Americans are at present very nomadic in our habits : we occupy land for its immediate advantages, and are rarely inclined to commence improvements that require half a century or more for their accomplishment.

With regard to vegetable nosology, we can only say that too little is known of the nature of vegetable life for a systematic and theoretical treatment of the diseases to which plants are liable. It may be that they possess the faint foreshadowings of a nervous system, and are liable to other than mere mechanical injuries. The microscope gives us, I believe, no direct indications that such is the fact ; but the curious action of certain so-called narcotic gases, which cannot injure the tissues, and the effects produced by vegetable poisons, are difficult of explanation without admitting a degree of nervous excitability. However this may be, we should remember that most of the curatives recommended are the results of blind experiment, and that much difference of opinion exists as to their value, and mode of application ; and, finally, that the old adage, "Prevention is better than cure," is worth as much now as it ever was ; and that we shall do well to *protect* our plants in every manner possible from all injurious influences that may generate or develop disease.

D. M. Balch.

THE WESTERN PRAIRIES : THEIR COMPOSITION, CLIMATE, PRODUCTS, AND PROSPECTIVE CONDITION.

IN considering the capacity of the prairie-soil for the growth of arborescent and horticultural products, we must first learn its constituent elements, and ascertain wherein it differs from other soil-formations. The conflicting opinions must be made to harmonize, or we shall fail in presenting any thing like a uniform rule for its general culture.

We talk of prairie-drift, of the glacial epoch, of submersions and upheavals ; of treeless plains fringed with forest-belts, where the rivers, like great dead furrows, drain the land ; of island-groves that stand like gems in the great sea of prairie-verdure ; of jutting points of arborescent growth that break the monotony of the prairie, that, swell after swell, stretches beyond the range of vision.

Is this prairie-formation of one uniform texture, a homogeneous mass laid down by the waves of the old silurian seas ? or have some of them been formed at different epochs and of various material ? The answer to this question will tend to throw light upon the subject, and to account for what some people please to call vagaries of the prairie-soil.

At the East, we have a general classification of soil, with its system of culture ; but here on the prairie we have a general idea that the prairie-formation is due to one cause, and that it must be of a pretty general character. People begin to admit that there are peculiarities in regard to it that need further investigation, and are less disposed to trust to luck for a crop than formerly.

The first step in the way of the successful culture of horticultural products is to classify the soils, and study their relative value for particular products. Of course, climate will have more or less to do with this when we take in the whole range of the State, which is varied from semi-tropical products to those of the north temperate zone.

The lead-region of Galena contains no drift ; its highest peaks being capped with Niagara limestone, and the valleys cut and carved into their present shape by the erosion of ocean and river currents.

Northern Illinois is covered with a thick band of blue clay, resting in some

cases on the lower and in others on the upper silurian strata, over which is spread the drift of the glacial epoch, with its beds of gravel, and boulders of granite, from the copper-regions of Lake Superior. As we proceed south over the coal-fields, this band of blue clay thins out, and the drift becomes a friable clay-loam of considerable depth, interspersed in places with thin sheets of sand, in which is found an abundant supply of water, at a depth of ten to thirty feet. In other places, the drift is homogeneous, and wells must be sunk to a great depth. In fact, so variable are these prairies, that each location must be carefully examined before we can determine its relative value.

At one time, this drift may have been of a uniform character ; but by erosion from ocean-currents, and the refilling of these ocean-grooves at a later period, many account for the marked variation in the character of the present surface within short distances.

We have, along the rivers, alluvium, loess, and drift ; while the great inland prairies are composed of drift from fifty to one hundred and fifty feet in depth. The timber-lands of the small streams are of the same general character. The underlying rock, therefore, has nothing to do with the surface-soil, otherwise than in its deep subterranean drainage.

The emigrant from the East has little idea of the difficulties that he must encounter, and looks upon this formation as he would upon the alluvium of his native rivers, that is composed of the *débris* of rich rock-soil washed from the hillsides and cultivated fields of the adjacent country.

In the distribution of rain, different parts of the prairie receive unequal quantities ; and this, too, must be taken into consideration. Add to this, currents of air from the north-west, sweeping down from the polar plains without warning, and the almost steady presence of the damp air-currents coming up from the Gulf of Mexico, which cause new complications that must be taken into account.

This is the skeleton or framework, the vascular system, upon which we have to build.

The surface-soil, composed of the remains of plants and insects, is from one to four feet in depth, and almost practically inexhaustible when under very indifferent management.

While the timber-lands of the East have had their climate changed by

stripping the hills of their forest-growth, and exposing the country to sudden changes of temperature and to long-continued droughts, we of the prairies have begun at the bottom round of the ladder, and must perforce ascend. We have forests to build up, not to cut down. Every tree we grow, every shelter-belt which we plant to shelter our stock, our crops, or our orchards, has its influence in modifying the climate, and in giving us a more generous supply and equable distribution of rain. We find the loess soil of the large rivers eminently adapted to the grape, the pear, the peach, and certain varieties of the apple ; while the peach, the pear, a few varieties of the early apples, the strawberry, the raspberry, and the blackberry, flourish on the hills of the grand chain, in the south part of the State, by the side of cotton and other semi-tropical plants, fruits, and nuts. Central Illinois is the great plateau or corn zone of the West, and also well adapted to the culture of the whole range of small fruits, apples, pears, with fair crops of the peach, say, in three out of four years. Vegetables do very well in most parts of this section, but, on the whole, are not as sure a crop as in the soils of the north part of the State.

In variety of products in soil and in climate, this State can challenge any State in the Union.

The immense water-power in the north part of the State, the extensive coal measures of the centre and south, the belt of navigable rivers that girt her round and penetrate the interior, the lines of railroad that radiate from her great centre, all point to the fact, that, at no distant day, she will have to supply a dense population engaged in manufactures, in commerce, and in mining ; that all points to the north will demand at her hands early fruits, early vegetables, and the long-keeping apples. These demands will and are already stimulating her industry in the productions of the garden and the orchard, and will give her a commanding position in the higher departments of rural pursuits.

M. L. Dunlap.

THE MAGNOLIACEÆ.

(Continued.)

As the production of new and improved varieties of fruits and flowers has become a systematized art, capable of unlimited extension, it is probable that the time is not distant when the *Magnoliaceæ* will be submitted to its operations. The certainty with which the *glauca* matures every seed of the germs adapts it as a pistillate parent for that purpose. An application of the pollen of the *purpurea* might develop a progeny with red or variegated flowers. Increased size of flowers and foliage might be secured by the pollen of the *macrophylla*, as has already been effected by a cross with the *tripetala*, resulting in the production of the *Thompsoniana*. Interesting results might follow the fertilization of the *glauca* by the *acuminata*, and the latter by the *macrophylla*.

While pursuing this subject, it would be well to test by experiment the effect of crossing the tender *grandiflora* with both the *glauca* and *acuminata*. The progeny between the tender rhododendrons of the Himalaya Mountains and the hardy American species are in some instances sufficiently hardy to bear the climate of Cleveland. One of them has stood fifteen years on the north side of my residence, overlooking Lake Erie, and has never received any protection during winter. It not only survives, but is thrifty and healthy. May we not expect some of the progeny from the crosses above suggested to be endowed with an equal degree of hardiness with those hybrid rhododendrons?

4. M. LONGIFOLIA. — This is a mere variety, resulting from breaking the natural habit of the *glauca*, its parent. It originated in Belgium, and was supposed to be an accidental cross between the *glauca* and *tripetala*. None of the features of the latter are exhibited in its habit; and it differs from the former only by its larger flowers and leaves, — differences capable of perpetuation by seed, which it produces in equal abundance with its parent. It is also improved by propagation on the stock of the *acuminata*.

5. M. THOMPSONIANA. — A doubt can hardly be entertained that this is a true hybrid between the *glauca* and *tripetala*: though Loudon considers it a variety only of the *glauca*, “the aboriginal species enlarged in all its

parts ;" a conclusion more applicable to the *longifolia*. A specimen imported from France, and now in my ground, was ingrafted on the stock of the *purpurea*. It forms a neat and healthy shrub of a dwarfish habit, and yields many fine flowers. Another, on a stock of the *acuminata*, is rapidly expanding into a tree, and furnishing blossoms in numbers proportioned to its size. Neither specimen has ever matured a seed ; a defect arising, perhaps, from its hybrid character.

6. *M. TRIPETALA* (*Umbrella-tree*). — This species is distinguished for the size of its leaves and flowers. In this latitude, it is not inclined to send up one main trunk like the *acuminata*, but usually rises from the roots in several spreading branches. This habit can, however, be corrected by careful training and pruning. Two trees thus managed stood in the grounds of the late Dr. Hildreth, in Marietta, O., twenty years since. They were straight-bodied, and symmetrical in form. When young, they were removed from their native locality in Western Virginia.

Another tendency is manifested by this species. The more central shoot is prone to perish by the laterals robbing it of nutrition ; and they, in turn, will attempt to supply its place as leading shoots. This tendency would doubtless be corrected by propagation on the *acuminata* stock, and shortening from time to time all laterals assuming too rapid growth.

The odor of its flowers is never pleasant, and is repulsive when much concentrated.

It requires a tenacious clay-soil, thoroughly underdrained, and enriched with decayed vegetable matter. The cold of our severest winters it resists with impunity, but soon perishes under the impression of the sun in summer, unless partially shaded, and unless the roots are preserved in a uniformly moist condition. Careful attention to the latter precaution has, in some instances, enabled it to flourish in open grounds.

Seeds are occasionally matured, from which young plants can be raised.

It was formerly found native near Grave Creek, in Western Virginia ; which was probably its most northern locality. Michaux indicated the "Western District" of New York as such ; but no other botanist has ever found it in that region.

In November, 1824, while travelling the Ridge Road, a few miles east of Lewiston, on the Niagara frontier, several clumps of the *M. acuminata* and

of the papaw-bush (*Asimina*) were observed. Not expecting to meet with either so far north, they became subjects of attention and remark among my companions. The leaves having fallen, the bushy habit of the former, caused probably by climate, gave it the appearance rather of the *tripetala* than the stately *acuminata* of Ohio. This appearance doubtless involved Michaux in error.

7. M. MACROPHYLLA (*Large-leaved Magnolia*). — The flora of the North can furnish no rival to this magnificent species. Its leaves and flowers are larger than those of any other magnolia; which, with its habit of growth, give it a tropical appearance. On its own roots it makes a rapid growth for a few years, and until it attains to the size of a small tree; but three or four years are previously required for seedlings to develop the roots. During that period, it is expedient to protect the young plants against cold and rabbits. It is as hardy when well established as the *acuminata*, provided it receive the requisite attention, but soon dwindles and dies under neglect. Old trees require as good cultivation as young plants, and thereby their existence can be preserved for a long time.

It produces a limited supply of seed in this vicinity, and seedlings can be reared by a due share of skill and patience. Loudon observes that “neither this species nor the *tripetala* can be readily ingrafted or inarched on each other, or on any other species, so far as experience has gone in Great Britain.” Such authority is not to be disregarded; but it is equally true that half a dozen buds of this species, inserted into *acuminata* stocks in my garden early in the month,* took without one failure, and now look plump and promising. What the ultimate result will be, another season will determine. This experiment demonstrated that a rapid adhesion will form between the bark and wood of an inoculate cut from the *macrophylla* and the sap-wood of the *acuminata* stock. Whether the chit or centre of the bud will survive the operation, is the only undecided point. Perhaps British cultivators have not discovered the necessity of forcing an extra-luxuriant growth of the stock, by means of high cultivation, before attempting the budding and ingrafting of the magnolias.

8. M. AURICULATA (*Ear-leaved Magnolia*). — From some unexplained cause, this is, perhaps, the least cultivated and most rare of all the species. If plates and descriptions are reliable, it is entitled to more attention. It

* July.

has long been known. As early as 1786, it was sent to Great Britain by Bartram, who discovered it in Georgia; and it was also found by him on the mountains of North Carolina. It has never been introduced into Northern Ohio. For more than twenty years, I have repeatedly sent orders for it whenever I have seen it included in nurserymen's catalogues in France and this country. In response, I have either received nothing, or more likely some kind already in my possession. Meehan states that "the best Bartram specimen is seventy feet high, and five and a half feet in diameter." Other specimens are said to be growing in the lawn of a gentleman near Boston, and also on the banks of the Hudson River. Whether in either of these localities it matures seed, I am not informed; but, with the ready communication now open with the southern sections of the Union, cultivators might obtain supplies of seed, and stock their grounds with this species.

9. M. CONSPICUA (*Yulan-tree, Chandelier Magnolia*). — A native of China, which proves hardy on the shore of Lake Erie. In warm exposures, it suddenly puts forth its blossoms before the approach of spring is hardly anticipated. A few crocuses and hepaticas are appearing; but the deciduous trees and shrubs are leafless. For a day or two, a southerly wind, with a warm sun, has cleared the blue waters of the lake from ice, when suddenly the naked limbs of the yulan-tree become shrouded with an investiture of flowers. Each floret is of the size, form, and color of the common white. At this juncture, they present an imposing contrast with several large evergreen trees in the immediate vicinity.

It would be a useless attempt to count the flowers on each of my large trees. They are estimated at thousands. Their odor is slightly fragrant and aromatic; and the anthers abound with pollen, which is collected in large quantities for bee-bread by the honey-bees. As it is the first supply furnished at this season, it is collected with great avidity. In this locality, the cool weather seems to blast the germs; and no seed has been known to mature, though, according to Meehan, it occasionally ripens at Philadelphia.

It is reported on good authority that the pollen of the lily has been preserved in dry papers for a long time, and afterwards employed successfully in fecundating other species. If in that instance it was practicable, the same plan would probably succeed with magnolias.

The *conspicua* is a promising kind to cross with the *purpurea*, *glauca*, and *acuminata*. By resorting to this method, the pollen might be preserved till these later blooming kinds are fitted for its reception.

For the same purpose, and in the same manner, the pollen of the *grandiflora* might be collected at the South, and conveyed to the North.

Who among our ingenious young people will test these suggestions?

10. M. SOULANGEANA. — This is a very distinct variety, raised, it is said, by Loudon, from a seed of a *conspicua* which stood near a *purpurea*; but, according to Meehan, it is a cross between the *purpurea* and *acuminata*. If either be correct, the fact is established that Nature has produced *one* hybrid in the vegetable kingdom; and it may be received as an assurance by the phytologist, that, by the appliances of art and science, he may produce others in unlimited numbers.

The leaves and flowers of this variety appear coincidentally about ten days after the *conspicua* ceases its bloom; and, in favorable seasons, a succession of smaller and less perfect flowers are put forth even as late as the month of September.

Seeds in small quantities are produced, especially by trees exposed in open grounds. Several seedlings have been raised in this vicinity. They vary slightly from their parent and from each other.

Loudon says that the *Soulangeana* “can hardly rank as a tree, though of much stronger growth than the *purpurea*.” Had he seen the sturdy specimens of both the *Soulangeana* and *conspicua* growing in my grounds, he would have considered them entitled to the appellation of trees. They are on *acuminata* stocks.

Dr. Jared P. Kirtland.

CLEVELAND, O.

(To be continued.)

Glyptostrobus pendulus. — A plant cultivated at Kew, side by side with *Taxodium distichum*. Was considered to be merely a variety of that species, to which it is strikingly similar; but Professor Oliver, having examined the flowers last year, observed some points of difference, by which he has succeeded in referring it to the Chinese *Glyptostrobus pendulus*. It forms an elegant, straight-stemmed, slender tree, forty feet high, with horizontal or slightly pendulous branches, which are deciduous in autumn. — *Botanical Magazine.*

SELECT VARIETIES OF PEAS.

WE find in seedsmen's catalogues for the present season nearly one hundred varieties of peas. Of this numerous list, some are described as being the earliest known; others are recommended for their great productiveness; some are said to be of superior quality for the table; and, again, others are represented as being particularly valuable for the length of time the plants continue in bearing. Now, as four or five sorts are all that will be generally required for a home-garden, which shall we select?

In the first place, many of the kinds exist only in name; and, with many of the others, the marks of variation are trifling and unimportant. Of two hundred and thirty-five reputed sorts, carefully tested a few years since in the gardens of the London Horticultural Society, only twenty-seven proved to be well marked and truly useful; and this reduction, — great as it seems to be, — it was thought at the time, might safely have been brought down to scarcely more than half a dozen.

It would be difficult, and perhaps impossible, to prepare from our catalogue of a hundred kinds a list proportionally small and select; and we shall not attempt to do so. We only propose to give the names of a few, which, in our experience, have proved distinct and valuable.

As "first early," or "extra early," the *Dan O'Rourke*, and *Carter's First Crop*, are desirable varieties. The former has been the longer known, and is, we think, the better pea. *Dillistone's Early*, originally sent out as being a week earlier than the *Dan O'Rourke*, has no merit over other early sorts, and is being dropped from catalogues.

Tom Thumb is a genuine dwarf. If the variety is true, the plants will not average more than ten inches high. By some it is considered as early as the *Dan O'Rourke*, though our experience proves it a few days later. The pods should be plucked while quite young, as the peas harden quickly, and soon become unfit for the table. *Beck's Gem* is another of the class termed "dwarfs," and has been grown to some extent as a substitute for the *Tom Thumb*, not, it should be stated, because of its superiority, but on account of the limited supply, and consequent high price, of the seeds of the latter variety. *McLean's Little Gem* is one of the most promising

of all the dwarfs. It is about twelve inches high, yields abundantly, is of fine quality, and appears to be highly prized wherever it has been cultivated. Most of the seed of *Beck's Gem* and *McLean's Little Gem* has been obtained by seedsmen from abroad ; while that of *Tom Thumb* has been principally of American growth.

McLean's Advancer is another fine new pea. It belongs to the class known as "Wrinkled Marrows," and possesses the excellent qualities for which those peas are so justly prized. Of the large peas it has proved to be decidedly one of the earliest and best, and is recommended for cultivation.

Few peas have been more widely disseminated, and few are more esteemed, than the *Champion of England*. As an intermediate variety, or for the general crop, it has few if any superiors. Another fine pea, less generally known or cultivated, is the *Paradise Marrow*, sometimes known as the *Champion of Paris*. It is very prolific ; long-continued in its yield ; and the peas harden so slowly, that its season of use is prolonged much beyond the average. To this we would add the *British Queen* and the *Eugénie*, both of which, in a trial-growth, proved hardy and prolific, and were nearly as tender and sugary as the *Champion of England*.

Drew's New Dwarf is another intermediate variety worthy of trial ; but, to secure its greatest perfection, the sowing should be made quite early in the season, and the seeds dropped singly, nine or ten inches apart, in rows two feet asunder. The plant makes a bushy growth, and is quite dwarf, attaining a height of twelve or fifteen inches.

One of the best of the very late peas is the *Competitor*. It is of large size, sweet and tender, and remarkable for the length of time the plants continue in bearing. In an experimental growth of this variety, pods were first plucked July 20 ; and from this time the plants continued to yield abundantly till the last of August, or for a period of more than five weeks.

These varieties will give a good succession for the season, and we think will not disappoint the cultivator, either with regard to quality or productiveness.

It may be proper to add, that, as most of our new peas are received from abroad, the descriptions found upon our catalogues must at first, necessarily, be based on foreign representations. Now, as the pea rarely, if ever,

in our climate, reaches that degree of perfection it attains in many parts of Europe, each newly-introduced variety may be expected to fall somewhat below the foreign standard. Extravagant statements with regard to earliness, productiveness, or quality, should, therefore, be received with some caution. There may be varieties seven days earlier than *Carter's First Crop* or the *Dan O'Rourke*; and there may be those that yield from thirty to forty pods to a plant, or that will produce pods containing on the average from ten to twelve peas each: but, if any such exist, we are obliged to confess they have not as yet come under our notice. *Fearing Burr, Jun.*

HINGHAM, MASS.

BEURRÉ FROMENTEL.

THIS pear was produced some years ago from a seedling by M. Fontaine de Ghélin, near Mons, Belgium; to whom, also, we are indebted for many new varieties. It is the general opinion of those who have tasted it, that it is the most delicious of pears.

The fruit is large, exactly pyriform; the stem short; the calyx slightly depressed; the skin is glossy, very delicate, of a beautiful yellow at maturity, and almost entirely free from spots; the pulp is whitish, mellow, and of a fine flavor; the juice abundant, and very sweet. It ripens from the end of October to the middle of November.

In regard to thriftiness and fruitfulness, this tree leaves nothing to be desired.

It has been asked why the name *Butter* has been applied to this pear. If any one will consider the color and the nature of the pulp, an answer to this question will be found.

It would be almost impossible to give a complete catalogue of the numberless varieties of pears, so many new ones are constantly making their appearance, some excellent, others mediocre or entirely worthless. A pear which may be excellent under favorable conditions of growth, under other circumstances deteriorates rapidly. Whoever wishes to raise good pears must plant those varieties only which will retain their qualities

in the climate and soil in which they are to grow. Time and experience are the only safe guides for the fruit-grower.

We might fill a volume were we to indicate the precise varieties of pears adapted to such and such a soil, situation, &c.; but that is not our present object. The experimenter in pear-growing must decide these points for himself; and it is not necessary that one should have any great amount of experience to understand that a pear which would be delicious grown in the south, or even centre, of France, for instance, would lose greatly in flavor, if not become entirely worthless, in the north, or in Belgium; and *vice versâ*. And this is true in every country, in pear-culture.

On the subject of names, we will say only this, that we have seen a committee of horticulturists, very skilful on other subjects, unable to agree on the correct name of some variety of pear, although many specimens had been submitted to them for examination. We would say, then, to the amateur fruit-grower, trust not to names, but select those varieties only (having been careful to taste the fruit before buying) which grew in a soil and climate similar to that in which your own garden is situated.

L'Illustration Horticole.

Elais Guineensis.—The oil palm of Western Africa, an ornamental species, which has been known for considerably more than a century. It is the tree from the fruit of which is obtained the palm-oil of commerce, annually imported into this country to the value of about £1,750,000. The tree grows from twenty to thirty feet high, and has a stem from twelve to sixteen inches in diameter, and naked for one-third or two-thirds of its height, though deeply marked with the scars resulting from the old leaf-stalks dropping off; and above this point it bristles with their remains, terminating in a crown of pinnate leaves, from twelve to twenty in number, and varying from ten to fifteen feet in length. The species also occurs in Tropical America, whither it is supposed to have been introduced, but at what date is uncertain. — *Ibid.*

RED SPIDER.

RED SPIDER is, perhaps, the most destructive of all the insects which the horticulturist has to combat. Being small, and confining its first attacks to the under side of the leaves, it is not easy of recognition in its early stages of development : but, in a very short time, foliage attacked by it assumes a sickly, yellowish appearance on the upper surface, and the parts immediately over the spots where the insect is at work become dotted with a number of minute whitish specks if the leaves are those of the peach or fig tree ; but, if they are those of the vine, the specks are of a yellowish hue. These specks or dots increase in size until the whole leaf acquires a yellow and mature appearance ; and, its powers of exhalation and inhalation being destroyed, it falls off. The small specks or dots on the upper surface of the leaves are the best evidence of the presence of red spider ; and, if the under side of such leaves be examined, there will be observed between the principal nerves a number of minute specks or dots. These, on being touched with the point of a pin, will be seen to move about at a rapid rate ; and, if observed with the aid of a lens, they will be found to be in constant motion, busy on that part of the leaf, which they have, for greater security, enveloped in a network of the finest threads conceivable. If measures be not taken to check the spread of the insect on its first appearance, it will rapidly wrap the leaf in a fine network, and will not cease its work of destruction until the juices of the leaf have been so completely exhausted, that it becomes totally incapable of performing any of its functions, and falls off.

It is well to remember that the leaf of a vine or other plant may have every appearance of being attacked by red spider, and yet that the insect may not be present ; for the upper surface of a partly-scorched leaf has much the same aspect as one suffering from red spider ; but, instead of specks or dots, scorched leaves usually exhibit blotches : besides, in addition to the dots on the upper surface, there are others corresponding to them on the under surface ; and when there are both, and those on the under side move when touched, it is certain that the leaves are not scorched, but infested with red spider.

Though the insect is termed the red spider, scarcely one upon a leaf will be found of that color ; most of them being of a gray, inclining to a reddish-brown, and having whitish heads and legs. The color and size of the insects vary in the case of different plants ; for on some they are much brighter in color and larger than on others.

The red spider attacks a great variety of plants, but chiefly those which have large glossy leaves, and require a large supply of water ; and yet it does not exclusively confine itself to the smooth-leaved plants, but is as partial to the egg-plant as to the violet or strawberry. It appears to be constant in nothing but in showing the same tokens of its presence ; and in this respect it varies but slightly, if at all. Not being an entomologist, I must leave a full description of the insect to those more qualified for the task. And here I may observe, that a text-book on insects injurious to garden-crops, published at a moderate price, would be a boon to many, who, like myself, are willing to learn, and yet cannot obtain a work on the subject, except at a cost totally disproportionate to their means.

Of red spider I am only acquainted with two kinds or species. First, The small and very active one that attacks vines, melons, and most cultivated plants grown under glass or in warm situations out doors. Second, A comparatively large one, which I have found only on the gooseberry and ivy. I have known the latter attack gooseberry-bushes with such severity as to make them look as if they had been scorched. This is very commonly the case on light, gravelly soils.

Red spider destroys the vitality of the leaves, checks growth, and, when its attacks are severe, altogether arrests it. It prevents the flowers expanding, or attaining their perfection, as well as the swelling and maturation of the fruit ; and impairs the well-doing of the plant. It likewise, by stopping growth, limits the action of the roots, converting a vigorous plant into one which is sickly.

Predisposing causes innumerable have been assigned for its attacks ; but the principal appear to be a dry atmosphere and a high temperature, with too little air at night. Some entertain the opinion, that no plant would be attacked by insects if it were healthy ; but I have not yet seen a plant, however healthy to all appearance, that did not become infested with some insect. The green aphid is equally partial to a strong shoot of the rose as

to a weak, drawn shoot of the pelargonium ; and it is the same with most insects : come they do, and whatever they attack is checked in growth, and more or less reduced in health, vigor, and fertility. In whatever state a plant may be attacked, whether weak or strong, the effects are the same : it becomes impaired in strength and vigor ; and, when freed from insects, it regains both. Surely this does not show that constitutional ill health and impaired vigor are essentials to insect attacks. I believe that they are not induced so much by any peculiar condition of the plant as by the atmosphere being favorable to the development and increase of the insects. Make a plant as unhealthy as we may, it will not be attacked by the insect peculiar to it until we also produce an atmosphere favorable to that insect.

That the red spider delights in and is encouraged by a dry atmosphere, none having experience of it will doubt ; and it is most abundant where the heat in houses is artificially derived from flues or hot-water pipes. I can also affirm, from many years' daily observations, that where there is a plentiful supply of atmospheric moisture, a temperature from fire or natural heat no more than the plant requires, and thorough ventilation, that the attacks of red spider are not grievous. Any one having experience in forcing vines, melons, &c., knows how much more liable to the attacks of red spider are the crops obtained by employing great artificial heat than those to which less artificial heat and more air are given ; nor can those who wash or syringe their peach-trees have failed to find how free of red spider such trees are, while others not syringed are literally eaten up if dry weather prevail. A dry atmosphere, too high a temperature, especially at night, and insufficient ventilation, are the conditions under which red spider presents itself ; but there are cases in which it will appear when none of the conditions favorable to its existence are present. Still the fact of the insect's existing may be taken as evidence that the air is too dry, too hot, or imperfectly ventilated.

(To be continued.)

A COUNTRY HOUSE.

The present design is for a one-and-a-half story wooden cottage; and, even at present prices, can probably be built for \$1,000.

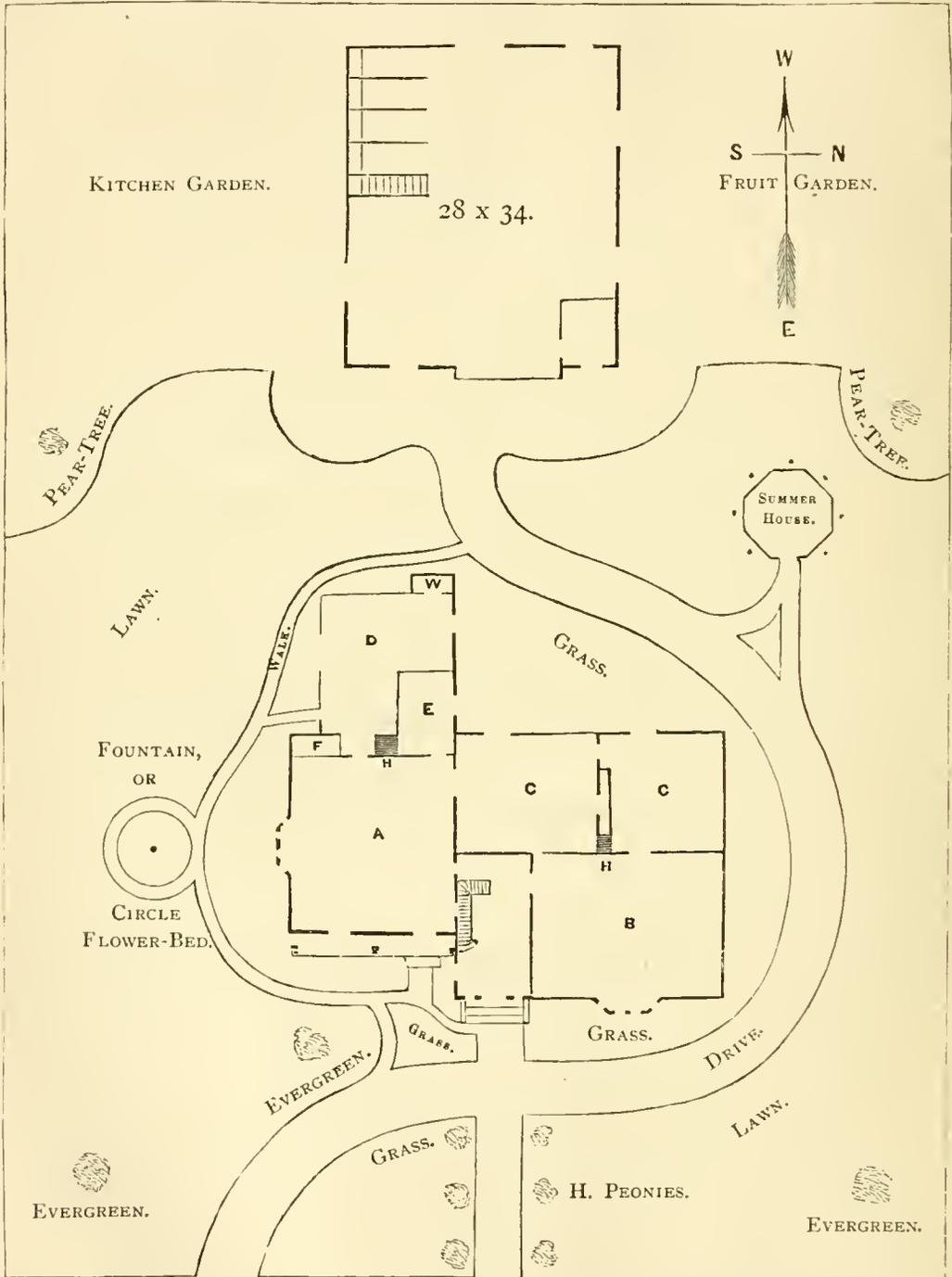
It should face the east, that the living-room may receive the sun from the south in winter.

The arrangement of the grounds may be varied as desired. The barn may be very plain and unexpensive.

For convenience of communication between the different rooms of the house, this plan will be most desirable.

EAST JAFFREY, N.H.

L. L. Pierce.



PLAN.—The upright part is 22 x 24; Kitchen L, 16 x 18; Wood-shed, 14 x 16; A, Living-room; B, Parlor and Sitting-room; C, C, Bed-rooms; H, H, Chimneys; F, Sink; E, Pantry; D, Wood-shed; Barn, 28 x 34; W, Water-closet.

Scale 1-16 inch to the foot.

NOTES AND GLEANINGS.

CATTLEYA DOWIANA.—The genus *Cattleya* contains some of the most beautiful orchids, many being unsurpassed in color and size. All are, however, excelled in both respects by the subject of our notice, which is one of the most magnificent of recent acquisitions. It was originally discovered in Costa Rica by Warszewicz; but the plants forwarded to England were in bad condition, and were lost. It was rediscovered in 1864 by M. Arce, a zealous naturalist, who was collecting specimens of natural history in Costa Rica. The plants sent home by him were purchased by Messrs. Veitch & Son, and flowered in 1865.

The flowers resemble in shape *C. Mossia*; but the nankeen and purple colors are utterly unlike any known cattleya. They are about seven inches in diameter, and produce five or six on a stem. They are nankeen-colored, except the lip, which is dark velvet-purple, uniformly streaked with golden threads, radiating from the centre, where they meet three other golden lines, passing longitudinally. It is named for Capt. J. M. Dow, of the American packet service, and is figured in Curtis's "Botanical Magazine," tab. 5,618.

AQUILEGIA PYRENIACA.—This pretty little dwarf columbine does not exceed nine inches in height. It is by no means a new plant, but has for years met with unmerited neglect. The foliage is small; but the pale lavender flowers are large, and freely produced. It delights in a warm, sheltered situation, and grows in the sandy detritus of the rocks; facts which must be studied in the cultivation of the plant. Its hardiness in New England must be proved by experience.

Besides this species, *Aquilegia alpina*, with large purplish-blue flowers with white centre, growing about fifteen inches high; *A. glandulosa*, described and figured in our February number; *A. fragrans*, with pale lemon-colored flowers; and *A. Vervænana*, with variegated foliage,—are well worthy of cultivation. The subject of our notice is figured in "Floral Magazine," plate 322.

RAISING CURRANTS FROM CUTTINGS.—In raising from cuttings, the first object to be attained is a clear stem about six or eight inches high, and free from suckers. The cuttings are procured from the growth of the previous year; and for them the strongest, straightest, and best-ripened shoots should be chosen. All the buds on the portion to be inserted in the ground should be carefully picked out, leaving three or four of the terminal ones, and reducing the cutting to about a foot in length by taking off the unripened points. By removing the buds, or eyes, the trees are prevented from throwing up suckers, which are injurious, besides being unsightly, and troublesome to displace. The cuttings may be planted in a shady situation, in rows about eighteen inches apart, and about nine or ten inches asunder in the row. They will generally, in the first season, produce about three shoots each; all of which may be allowed to grow during the summer, in order to assist in the production of roots. If it is intended that

the trees shall be grown in the open quarters, in the usual bush form,—open in the centre,—then, when the leaves have fallen in the autumn, two out of the three may be cut away, leaving the third, the most upright, for the future stem, and shortening it down to about three buds. The lowest bud below the cut must be about eight inches above the ground. Three shoots will usually be produced in the following year ; and, in the autumn, the trees will be ready for their final planting. — *Cottage Gardener.*

MATHIOLA BICORNIS. — “An evening-scented stock of unrivalled fragrance, from the mountains of Greece. No annual in cultivation, even including mignonne, surpasses or perhaps equals this in the powerful and yet delicate perfume of its flowers. At a hundred yards’ distance, the scent of a bed of this annual, on a summer’s evening, is often so strong as to arrest special attention. The plant grows one foot or more in height ; the upper half or two-thirds being a branching spike of pink and lilac blossoms, partially closed during the daytime (when the scent is feeble), but expanding fully towards evening, and remaining so during the night and early morning. Unlike some ‘night-scented’ flowers, this is pleasing in color, and, especially when grown in a mass, forms quite a pretty effect. The perfume resembles that of the stock and sweet-scented clematis combined. It must be treated as a common hardy annual.”

STOCKS FOR CAMELLIAS. — PROPAGATING AZALEAS. — The best kind of stock is the single-flowering camellia. The stocks are raised by sowing the seed, or from cuttings ; but the latter are not nearly so free-growing. The beginning of April is a good time to graft camellias. The varieties of *Azalea indica* are propagated by cuttings taken from the shoots of the current year when about half ripe. Inserted in very sandy peat and silver sand under a bell-glass on a gentle heat, they root freely.

CONSERVATORY GLAZING. — Those of our readers who have rooms and conservatories with a north aspect, or which are overshadowed by other buildings, will be aided by the following note of a suggestion by Sir David Brewster : “If, in a very narrow street or lane, we look out of a window, with the eye in the same plane as the outer face of the wall in which the window is placed, we shall see the whole of the sky by which the apartment can be illuminated. If we now withdraw the eye inwards, we shall gradually lose sight of the sky till it wholly disappears, which may take place when the eye is only six or eight inches from its first position. In such a case, the apartment is illuminated only by the light reflected from the opposite wall, or the sides of the stones which form the window ; because, if the glass of the window is six or eight inches from the wall, as it generally is, not a ray of light can fall upon it. If we now remove our window, and substitute another in which all the panes of glass are roughly ground on the outside, and flush with the outer wall, the light from the whole of the visible sky, and from the remotest parts of the opposite wall, will be introduced into the apartment, reflected from the innumerable faces, or facets, which the rough grinding of the glass has produced. The whole window will

appear as if the sky were beyond it; and, from every point of this luminous surface, light will radiate into all parts of the room."

PRIMULA-SEED SOWING. — To have good primulas, seed from good flowers must be sown; and, to secure this, the purchaser must give rather a high price. Good primula-seed is dear. Our plan is this: The seed is sown in the first week in March, in pans one-third filled with broken pots, an inch of moss, cocoa-nut fibre, or the siftings of the compost, being placed thereon; and the pans are filled to the rim with turfy loam, sandy peat, leaf-mould, and silver sand, in equal parts, passed through a half-inch sieve. The surface is made smooth, the seeds scattered thinly over it, and just covered with the same compost. A gentle watering is then given, and the pan is placed in gentle heat, such as that of a cucumber-frame. Care is taken to keep the soil moist, but by no means wet; and, when the plants appear, the pan is brought near the glass, so that they may have abundance of air, and all the light possible. Here they remain until they are of sufficient size to pot off. They are gradually hardened off, and removed to a vinery or other house, and in June, or early in July, transferred to a cold-frame, where they are shifted as occasion may require.

USE OF INDIA-RUBBER BANDS FOR GRAFTING ROSES. — First, the Manetti stocks were taken out of the ground previously to being grafted, their roots trimmed, and their heads cut back. I also gave them a good washing before taking them in doors, in order to keep all clean and tidy. The Indian-rubber bands used were such as are commonly sold for the purpose of holding papers together, and may be had at any stationer's. The length and breadth depend altogether on the size of the stocks. Those I grafted being small, I found a ring a little over two and a half inches in diameter, and not quite half an inch broad in the band, sufficient for two. The operation is performed in this way: Take the stock in your left hand, and place the thumb, with one end of the band under it, on the lower end of the scion, when you have it properly fitted, pressing it firmly to keep it in its place; then, with the band considerably stretched, bind upwards to half an inch or so on the graft, and return; taking care, in binding backwards, to close every opening in order to prevent the admission of air, which, on account of the elastic nature of the material employed, can be done most effectually. At the bottom, — that is, a little below the junction, — fasten the end with a piece of soft thread or bast, to prevent it springing back. This finishes the operation.

In planting out, it is not necessary to slacken or remove the binding. The bast or thread, being under the surface of the soil, will soon rot, and set the Indian-rubber free, which will unwind itself or expand as the stock increases in size. — L. N, in *Cottage Gardener*.

LILIUM AURATUM. — This new and beautiful species seems to grow to an immense size under good culture. We clip the following description from an English journal: The bulb is now in a fifteen-inch pot, with three stems. The largest two are each nine feet six inches high from the surface of the soil, — one

with fourteen flowers, the other with thirteen. The smallest stem is two feet high, with one flower, making a total of twenty-eight. The largest of the flowers are about one foot in diameter; not so large, in proportion to the strength of the plant, as in previous years: but perhaps this may be accounted for by the fact that I was anxious to bring the plant into flower, and subjected it to the temperature of the East-Indian house (orchid-house) from the time the buds were half matured until several of them were expanded. In this way, I had it in flower in less than half the time I should in an ordinary greenhouse. The girth of the largest stem near the bottom is three and three-eighths, that of the other three and one-quarter, inches.

THE THEORY OF SILVER SAND. — Silver sand, when mixed with the soil in potting, acts a little chemically on other constituents of the soil; but, to a great extent, the action is mechanical. In using it for striking cuttings, it is chiefly valued for its purity, its freedom from iron and other minerals, and clay, earth, and calcareous matters, which are often the accompaniments of other pit and river sands. The nearest to silver sand in usefulness is that collected on public roads after heavy rains; which sand, when well washed, is about as pure silex as silver sand. What in practice makes it such a good covering for pots of cuttings is its freedom from other substances; its porosity, which allows the water freely to pass without lodging about and rotting the cuttings; and, notwithstanding this porosity, the closeness with which it clings round the cuttings, preventing the access of air to their base, which, if permitted to any extent, would rob them of their juices and vitality.

A BLUE BEDDING GERANIUM. — We have been asked as to the probabilities of success in fertilizing bedding geraniums or pelargoniums with our wild species. We know of the experiment having been tried without success, and find in an exchange the following record of failure by an English gardener: —

“In the years 1857 and 1858, I endeavored to fertilize pelargoniums — *Boule de Neige*, *Queen*, *Kingsbury Pet*, and *Prince of Orange* — with the pollen of *Geranium pratense*. I repeated the experiment several times and under different circumstances, but succeeded only in obtaining two or three seeds, which produced plants bearing no resemblance whatever to *pratense*. These seeds were doubtless the result of pollen from some of the bedding varieties having accidentally gained access to the flowers experimented on. I also tried to cross-fertilize the flowers of a potted plant of *G. pratense* with some of the bedding pelargoniums, but did not succeed in obtaining a single seed. I made similar futile attempts with the spotted (show) varieties. I do not recollect ever having tried *Geranium sylvaticum*; but I endeavored on one occasion to intercross both the bedding and spotted pelargoniums with *Geranium Robertianum*; and the results, I regret to say, only added to my long list of failures.

“I tried these experiments eight or nine years ago; but further experience and consideration satisfy me that it will be utterly useless to expect a cross between these varieties, or, as I ought perhaps rather to say, a hybrid between the bedding and show varieties of pelargoniums and the indigenous geraniums.”

HOP-PLANT PROPAGATING. — The hop is propagated by division, or parting the roots in autumn or spring; the latter being the better time. The divisions, which should have some eyes at the crown, and a portion of root, may be planted a foot apart. The hop may also be increased by cuttings of the shoots of the previous year, taking them off at the crown, with a heel; and this is best done in May. Plant them in the same way as the divisions, in rich, deep, loamy soil.

BOHEMIAN BLACK BIGARREAU. — This is “one of the largest and finest of our black-heart class of cherries. It is a variety that was introduced by Mr. Rivers of Sawbridgeworth, under the name of *Bigarreau Radowesnitzer*, — a name, the correct pronunciation of which must in no small degree prove a stumbling-block to gardeners; and we have therefore rendered it into English by calling it Bohemian Black Bigarreau, in allusion to the country whence it is said to have its origin. Whether we regard this variety as to its size, flavor, or earliness, it is equally valuable. It ripens early in July, and is of the largest size, of a roundish heart-shape, very even and regular in its outline; skin shining, and jet black. The characteristically short stalk is very stout, and dark green. Flesh quite black, firm, but not so firm and crackling as Bigarreaux generally are, but juicy, richly flavored, and delicious. We would recommend this to be grown in every collection.” — *Florist and Pomologist*.

PROPAGATING GLOXINIAS FROM LEAVES. — The gloxinea propagates freely from the leaves. The easiest way is to cut off a leaf with a good piece of the leaf-stalk, and plant the latter in pots just as you would cuttings. The leaf, if thus kept in a shady, moist place, will soon form a tuber at the base of the stalk. Another plan is to take the leaf, notch it at the back where all the smaller nervures meet the midrib, fix the leaf by small pins flat on a damp surface, and small tubers will form at all the notched parts. Another simple plan is to take a leaf, split it up at the midrib, and then cut outwards to the outside in strips, say one-quarter of an inch wide: plant these thickly in a pot, the part with the midrib being lowest; and almost every one of these slips of leaves will form a tuber at the base. It is thus easy to multiply any kind of gloxinia, or of fine-leaved begonia, which may be propagated in the same way. By these modes, you do not obtain so large a tuber as when you use a leaf for a single tuber instead of a score or more. A moist, warm, shady place is necessary for success when the leaves are thus cut up into shreds.

CYNOSURUS CRISTATUS (*Crested Dog's-tail Grass*). — This grass, which is very valuable for lawns, is thus described: “The roots are tufted, with long, unbranched fibres. Stems several, varying in height from twelve to eighteen inches, unbranched, very stiff, hard, round, smooth, with three or four joints, most leafy in the lower part, remaining brown, withered, and wiry, with their dry, empty spikes through the latter part of the summer; leaves bright green, short, narrow, flat, smooth on both sides, edge scarcely rough, with long, smooth, streaked sheaths; abrupt or ragged-ended and rather short stipules; the head, or spike of flowers, about two inches long, erect, stiff, straight and narrow, green;

florets all turning to one side, sometimes purple, with a wavy rough stalk (*rachis*); floral leaves divided deeply into awl-shaped segments; husks, or glumes, usually containing three florets; smaller valve of the blossom ending in two points, larger valve ending in a short awn; anthers prominent, pendulous, purple; stigmas white, feathered; seed longish, oval, pointed, reddish yellow, covered with the valves of the corolla."

The crested dog's-tail grass is a perennial, and succeeds well on dry gravelly soils and in hilly situations. It is valuable for parks and lawns on account of its dwarf, slender growth: and is likewise admirably adapted for croquet-grounds; for it bears treading well, and is not liable to become brown in summer. It is one of the best of all grasses for resisting dry weather.

GESNERA ZEBRINA AND SPLENDIDISSIMA. — The dry parched atmosphere of dwelling-rooms is very injurious to plants, particularly during the autumn and winter months when strong fires are kept up. Valuable plants that would suffer by being kept a few days in such an atmosphere should on no account be used for this purpose. Plants that do not suffer by this treatment should be as much as possible employed for in-door decoration. There are numerous plants well adapted for this purpose. I find these gesneras very useful. The roots are all fresh potted in April, and then placed in one of the vineries at work. I put one root into a small pot, three into larger pots, five into larger still, and as many as a dozen roots into very large pots. By this plan, I have plants of all sizes. I have the pots well drained; and I use a compost of nearly equal portions of loam, peat, and leaf-mould, mixed up with plenty of coarse river-sand.

The plants soon begin to grow when put into heat. As soon as they are a few inches high, they should be tied up neatly to stakes, and kept tied up from time to time as they advance in growth. I never shift them after they are potted. *Gesnera splendidissima* comes soonest into flower, generally in September, and lasts till December. *G. zebrina* begins to flower in October, and lasts till January. They both withstand the dry atmosphere of rooms for weeks; and, as the roots are generally full grown by the time they are in flower, they can be dried off when they are out of bloom on any shelf in the coolest part of the stove, and can remain there until the time for potting in April comes round again. — M. SAUL, in "*Florist*."

TROPÆOLUMS. — These constitute a most useful tribe of bedding plants: I allude to the dwarf varieties. Their growth is close and compact; they bloom very freely, and are easily propagated and preserved. King of Tom Thumbs has proved a great acquisition to this useful class, as the flowers are freely produced, and of an intense dark scarlet: the foliage also, being of a very dark green, is a pleasing contrast to the brilliancy of the flowers. *Elegans* is so well known as to need no description. It has gained a wide notoriety from being so largely employed at the Crystal Palace. The habit is very dwarf, and it is a free and continuous bloomer. *Eclipse* is of the same habit as *Elegans*, but is of an intense scarlet color, and has a telling effect in a mass, having a vividness not possessed by its more sober colleague *Elegans*. *Garibaldi* is also a good bedder:

it is of a dark orange-scarlet color, and blooms very freely. Meteor produces a profusion of rich dark-crimson flowers, and is of good habit. The old Cattell's Crimson, Cattell's Scarlet, Scarlet Tom Thumb, and the Yellow Tom Thumb, are also very useful indeed; but the last will never make a good, much less a sufficient, substitute for the Yellow Calceolaria.

Of varieties for basket and trellis work, I may instance Brilliant, a strong-growing, deep scarlet; Atrococcineum, known also as Splendens, very free-blooming, and having plenty of small, deep scarlet flowers; and Ball of Fire, very bright scarlet, a free bloomer, and a good climber. — *Florist*.

Those who, in consequence of the article in our February number translated from "L'illustration Horticole," are disposed to give the *Jerusalem artichoke* a place in their gardens, ought fairly to know that it may not be so easy to get rid of it when it has once taken possession of the soil. By the way, could we not, while we keep the thing as a garden vegetable (for which it is not to be despised), contrive to get rid of its unfortunate *name* by calling it *artichoke-root*? The plant, as is well known, is a species of sunflower; and *Jerusalem artichoke* is merely *sunflower artichoke*, an English corruption of the French *girasol*, the Italian *girasola*, changed in England, through a linguistic process in which an unmeaning word is made to mean something, into Jerusalem.

While, from this name, some have imagined the plant to have come from Palestine, we are bound to add that neither is it "indigenous to Brazil" nor "to Chili." Although it is nowhere known as an indigenous plant, the whole evidence on the subject points to the Valley of the Mississippi as its birthplace, and to a wild sunflower of that region, with usually slender tubers, as its parent. While we write, we recall an *experience* related to us by a benevolent officer of our army, who, when stationed in New Mexico some dozen years ago, and noting that the Indians of the district were at times on the verge of famine, proposed to his superiors in the War Department to introduce and naturalize this prolific tuber in the valleys and bottoms, where it could hardly fail to thrive. He sent, accordingly, a requisition for a sufficient quantity of artichokes. This was allowed, and the order duly filled; but when at length, with much expense and long transportation, the precious supply reached the distant post, the artichokes were found to be *pickled*.

GRAPE-CULTURE IN MINNESOTA. — The assertion that grapes may be successfully cultivated in the high northern latitude of Minnesota will seem incredible to many. From a residence of sixteen years in Minnesota, and an experience of some twelve years with vines, I am decidedly of the opinion that grapes can be more successfully produced here than in the States farther south or at the East. This we know is claiming much for our State; yet the facts seem to bear us out in the assertion.

Grapes have been grown, to some extent, for about fifteen years; and, thus far, we have not heard of either vine or fruit having been injured by disease to an extent that would be considered worthy of notice. *Mildew and rot, which cause*

such destruction in other parts of the country, are almost unknown here. This, all will admit, is a matter of no small importance, and especially those who talked of giving up the business. There is something about our invigorating atmosphere that seems to suit the fastidious vine, as well as the lungs of the consumptive who flees to our State for health. Our autumns are proverbially dry, with an abundance of sunny days to mature the fruit.

We have the most natural sites for the vine, extending along our noble Mississippi and its tributaries for hundreds of miles. A large proportion of the lakes for which our State is so much celebrated affords sites for vineyards, even more desirable than any to be found on the rivers, from the fact that the late and early frosts are quite unknown. Our Minnetonka, we venture to predict, will some day outdo your famous Crooked lake of New York. In these favored localities, the uncertain Catawba seldom fails; while the Concord, Delaware, Hartford, and other popular sorts, ripen usually some time before hard frosts.

As a matter of course, it is necessary to cover the vines in the fall, which is now generally recommended in States south and east. L. M. FORD.

ST. PAUL, January, 1867.

A correspondent in Southern Illinois writes that Scot's early peach promises to be one of the best for that locality.

The yellow bell-flower apple is also mentioned as a most desirable variety. Instead of being an autumn apple, as is generally supposed, it will, with proper care, keep till March. While young, the trees are not great bearers; but, with age, they produce an abundance of fine fruit.

As a market-apple, it is unsurpassed; its handsome appearance always making it sell well.

In Curtis's "Botanical Magazine" for February, we find the following stove-plants figured:—

Tapeinotes Carolinae. — A native of Brazil, discovered in 1860, and flowered in England in 1866. A succulent, low shrub; leaves glaucous-green above, bright red-purple below; flowers white, with curved, inflated tube.

Angræcum citratum. — An orchid from Madagascar, with a long spike of pale-yellow, scentless flowers.

Impatiens latifolia. — Another of the vast family of Indian perennial balsams, of which only two or three are in cultivation, though all are very ornamental. A succulent shrub, with pale-purple flowers about an inch and a half in diameter.

Claviga fulgens. — A small stove-tree; leaves long, dark-green, coriaceous; flowers deep orange-red, in long, erect racemes. Of easy culture, free-flowering, and a very ornamental plant.

Mesospinideum sanguineum. — A South-American orchid, introduced in 1866 from Ecuador. Flowers rosy-pink, in long, branching spikes. The genus is nearly allied to *Odontoglossum*, and the plant requires similar treatment.

Barleria Gibsoni. — A small Indian winter-blooming shrub, with lilac, white-centred flowers in terminal spike.

GLADIOLUS. — A writer in "The Florist," speaking of the planting gladiolus, says, "If you drive them, that is, grow them in very rich soil, you obtain grand spikes of bloom, some deaths, a fair increase of bulbs, and few or no young bulblets. If you adopt the opposite system, and use light, rich, sandy soil, you obtain moderate blooms, no deaths, and an immense progeny of juveniles."

Of new varieties, Eurydice and Shakspeare are especially recommended as fine flowers and vigorous growers. Madame Furtado is fine as a light flower; Mayerbeer is very rich as a dark-shaded red; Madame de Sévigné is decidedly superior to La Poussin; Fulton is a splendid shaded scarlet, but thin in petal.

THE ROMAN HYACINTH. — I want to say a word in favor of a little bulb which I do not think meets with the attention that it ought, — I mean the pretty little Roman hyacinth, — believing that, in another season, some of your readers who are situated as I am will be very glad to make further acquaintance with it.

I have no means of forcing plants; my object being, as far as greenhouse plants are concerned, to keep them safe from frost. Those who can force, will, therefore, probably think little of a hyacinth like this, which is much inferior in size and beauty to the Dutch varieties; but to me it is a matter of no little pleasure to be able to have at Christmas a pot of hyacinths in full bloom, distributing their fragrance through the room, and that without any extra trouble. By forcing, they can be had, I know, in November; but I think they are not nearly so pretty when forced as when grown naturally. It is a mistake, too, to plant them too thinly: they should be placed with the bulbs almost touching one another. I put six into a 32-sized pot, and have had them now for some weeks in bloom in my sitting-room; their little snowy bells standing well up above the dwarf, stiff, glaucous foliage, and diffusing a pleasant but not overpowering odor throughout the room. Doubtless, if they came in in March and April along with the other bulbs, we should not think a great deal of them: it is the fact of their blooming when they do that really gives them their value; and it is because of this I recommend them to those, who, like myself, are obliged to study what is economical as well as pretty. — D., *Deal*.

[We are well pleased that our correspondent has noticed this fragrant little flower. It is a very old tenant of our gardens, being introduced in 1596. Formerly it was called *Hyacinthus Romanus*; but Le Peyrouse has founded on it a new genus, and it is named *Bellevalia operculata*.] — *Cottage Gardener*.

PROPAGATING CAMELLIAS. — Camellias may be propagated from cuttings, and indeed are largely propagated in that manner; but it is only the single red for stocks. The double kinds grow very indifferently from cuttings: hence they are grafted on stocks of the single red, which is the only eligible mode of propagation to secure a free-growing plant.

NOMENCLATURE OF ROSES. — It is quite reasonable that the raiser of any new variety of flower should assign to it such a distinctive name as his fancy or interest inclines. Generally, the appellatives given to English flowers are well

selected and short ; for, undoubtedly, short names are the best, and easiest to be remembered. When we turn to the nomenclature of French roses, we often find the opposite of brevity ; in some instances, no less than six words being used to designate a single variety. We cannot complain of the grand array of princes, dukes, duchesses, marshals, generals, and other high and mighty personages, when they represent known and distinguished individuals : but we do stumble over such appellations as *Souvenir de la Reine d'Angleterre*, *Triomphe de la Terre des Roses*, *Souvenir de Bernardin de St. Pierre*, *La Baronne Pelletan de Kinkelin*, and which, when uttered by those unacquainted with the French language, have a very odd and even ludicrous effect ; still more so, the contractions very often and naturally applied to those lengthy designations for which our French neighbors appear to have an especial aptitude. I know of an instance which afforded me much amusement when it occurred. An honest, hard-working, but somewhat illiterate gardener in this neighborhood, whose ideas of orthography are rather misty when any departure from the strictly phonetic principle is observed, labels his roses for his own and others' recognition. When the name is copied from a catalogue, all goes on rightly enough ; but, a catalogue not being always at hand, our friend is left to the resources of his own memory. Some very curious derangements are the consequence. The instance that amused me was the well-known *Général Jacqueminot*, which was marked *General Jack-me-not*, the syllables being distinctly separated. It is very usual to recognize that rose about here as "General Jack," Charles Lefebvre as "Charley," and Jules Margottin as "Old Jewels." Mr. Radclyffe knows similar cases, I believe. What Xavier Olibo will become it is not easy to guess, unless "Holybones."

These cases are simply absurd, but not altogether unnatural nor inexcusable. Much more deserving of notice, in my opinion, is the abuse of a term that has now been many years applied ; I mean the term "perpetual," as used to designate what is now the most important section of roses as distinguished from Bourbons, Noisettes, and other hybrids. It has been more than once correctly remarked that this term is an abused one : then why perpetuate it ? The word "perpetual" not only does not express what the rose is, but also it is not the equivalent for the word the French use ; viz., *rémontant*. Now, the word *rémontant* does express, as nearly as it is possible to find any word, the idea intended to be conveyed ; but, as we have no equivalent English expression for it, it is worse than ridiculous to make a floundering attempt at translating a word which admits of no translation. The usual procedure in such cases is to adopt it. There can be, therefore, no more impropriety in designating this particular section of roses *rémontant* hybrids than in calling a fiddle a violin. The French themselves make no attempt to translate such words as "jockey," "wagon," "milord," &c., although these words contain letters and sounds the very opposite of their adopted orthography and pronunciation. In the same way, we accept such phrases as *sang-froid*, *aide-de-camp*, *beau-monde*, &c., in their original signification, without essaying to render them into English.

Upon the ground of common usage, then, I venture to suggest that the term "rémontant hybrids" should be substituted for the incorrect "hybrid perpetuals."
— *English Journal of Horticulture.*

TYDÆA AND ACHIMENES. — All the species of each genus are so closely allied, and so very much alike, that they are separated on account of differences which only a botanist would detect. The most noticeable differences are, Achimenes has a two-lobed stigma, the ovary bordered by a ring-formed glandular disk. Tydæa has a stigma two-cleft, and the ring-formed disk composed of five distinct glands.

LABELS FOR FRUIT-TREES. — The most enduring labels are those formed of lead, with the names of the kinds of fruit-trees impressed or indented with an iron stamp about half-way through the lead. The labels should be three inches long, one and a half wide, and have a hole through a shoulder left in the middle or one side of the label. The label should be fastened to the tree with stout, flexible lead wire, allowing room for the tree to grow. You will require punch letters of the alphabet, and the figures corresponding to that of the year in which the trees were planted, if you care to date their planting. Labels of this kind only perish with the lead. These are the most durable labels we know. Zinc labels are also good, and last a long time, if the names of the trees be written on them with proper ink, which may be made of one drachm each of verdigris and sal-ammoniac powder, half a drachm of lampblack, mixed with ten drachms of water. The labels should be made bright by rubbing them with sand-paper; then write the names upon them immediately in a clear, bold hand, with a quill pen.

BEGONIA PEARCEI. — This very beautiful species is botanically allied to *B. cinnabarina*, and it was introduced from La Paz by Mr. Pearce. It possesses the double quality of having both beautiful leaves, and large, showy flowers: the plant has also a very desirable habit. The foliage is very pretty, the upper surface being of a dark velvety green, traversed by pale straw-colored veins, and the under side of a dull red color. The flowers are large, bright yellow, and borne on slender stalks in clusters of two or three. Sometimes only one flower is borne on a peduncle. When this is the case, the flower is much larger: some which I have seen were as large as a five-shilling piece.

I have no doubt that this beautiful begonia may be had in bloom all the year round, if care be taken in propagating and resting the plants at the proper time; and as the flower-trusses are produced in large numbers, and the color of the flowers is rich, it will be found invaluable both for summer and winter decoration. The plant thrives well in a mixture of peat, leaf-soil, loam, and silver-sand, and is easily propagated by cuttings or leaves.

To have it in bloom throughout the year, it will be necessary to propagate plants every two months. The young plants should be grown in a brisk temperature, and as near a glass as possible. As soon as they have become well established in their pots, a little weak manure-water will assist them very much if given once or twice a week. A well-grown plant in a 48-sized pot will afford a constant succession of bloom for three months. After the plants have done flowering, water should be withheld for a period of three or four weeks; when they may be gradually started into growth again, so that, after two or three

dozen plants have been propagated, there may be a constant succession of beautiful flowering specimens.

For drawing-room decoration, I know of no more useful plant, as the flowers do not fade very soon ; and, if small examples are used for this purpose, they will be found invaluable. I have great pleasure in recommending this beautiful plant for all purposes. — I. WILLS, in "*Cottage Gardener*."

RED SPIDER ON WALL-TREES. — I have long used a wash with soft-soap in it to paint the trees ; and it answers admirably, though it does not prevent red spider. Can I not, by mixing with the lime and soot for washing the wall some small proportion of coal-tar, or, if that be injurious, say of some other stuff as disagreeable to insects, form a poisonous wash, which would deter even red spider from laying eggs on the wall, and at the same time be innocuous to the trees ? — H. H.

[It will not do to mix even the smallest portion of coal-tar in your wash for the walls. It would be injurious until so thoroughly dried that it would give off no deleterious fumes ; and, when it came to that condition, it would not deter red spider and other insects from depositing their eggs. We know of no material, poisonous or otherwise, that will keep insects from doing so ; as the substances which would deter insects, would, we fear, also hurt vegetation. You rightly judge that red spider is deterred by sulphur ; but that is chiefly by the fumes sent off by heat, as the red spider will be as merry as possible, will make its webs, and deposit its eggs, amongst nodules of pure sulphur. If a strong heat played on the sulphur, the insects would then be rendered uncomfortable ; but even then we have found them seemingly enjoying themselves on it about three feet from the glass. When a wall is plastered with sulphur, and a strong sun plays on it, the fumes then given off are disagreeable to them.]—*English Journal of Horticulture*.

THE GRIFFINIA. — One species of this plant, *G. hyacinthina*, is an old and well-known inhabitant of our greenhouses, albeit somewhat difficult to flower, and more apt to grow smaller than larger year by year.

The flowers are very beautiful, of a delicate blue and white, and delightfully fragrant.

Another species, *G. parviflora*, much resembles the last in habit and flower, but is smaller. It probably is only a variety.

G. intermedia has pale lilac-blue flowers, and differs botanically from the two last. *G. Liboniana* seems to be a garden variety, and has variegated leaves.

In addition to these, *G. Blumenavia* has lately been introduced from St. Catharine, with flowers of a delicate rosy flesh-color very freely produced.

All these are natives of Brazil, and should be grown in pots in sandy loam, with the usual culture of amaryllis. — *Adapted from Revue Horticole*.

THUNBERGIA FRAGRANS. — A lovely plant, quite distinct from the other thunbergias, and invaluable as a pot-plant, or for covering pillars or trellis-work ; being of free growth, with ample dark-green foliage of great substance. It con-

tinues flowering throughout the year ; but its principal period is during the winter months, a time when white flowers are scarce. Even when grown in a warm stove, it has never shown signs of red spider, to the attacks of which the family are so subject.

The flower is pure white, with yellow eye ; and is a most desirable acquisition. — *Floral Magazine*.

PROTECTING SEEDLING STRAWBERRIES.

To those amateur growers of seedling strawberries, who, having planted seed as soon as it is ripe, by the end of October, get only weak, unthrifty plants, it may be said, that such weak vines can easily be made to live over winter, and thus the loss of a year in experimenting may be avoided. It is only necessary to put a frame over them in November, fill it with leaves at least four inches in depth, lay on a piece of old carpet or a mat, and put the sash on over all. On taking off the glass and leaves in April, the smallest plants, with only a rough leaf or two, will be found fresh and healthy.

Plants which would be suffered to perish on account of their insignificant size, by nine beginners out of ten, may thus be saved, and ultimately made to fruit.

J. M. M., Jun.

EDITORS' LETTER-BOX.

THE Editors would extend a cordial greeting to all interested in the dissemination of horticultural knowledge, and invite practical contributions from such upon general horticulture, or in the special departments of pomology, floriculture, landscape-gardening, and architecture, the culture of the grape and small fruits, and the raising and forcing of vegetables.

Every communication received is carefully read by those conversant with the subject treated.

While, as to the time of the appearance of any accepted article, the Editors must reserve the right of decision, their policy will be to publish communications as soon as possible. Short articles coming directly to the point, telling just what to do in a practical manner, are what they prefer to present. Of flowery, verbose communications, in which ten lines are consumed in saying what could be well said in one, we have a large supply ; and such, if used at all, must be pruned and condensed by us into readable, instructive matter. Experiments, and the results of experiments, are particularly valuable. Our pages are open to all : they will not be used to further private ends, or as a means of advertisement ; but it will ever be our object to show what is the best and how to do the best thing in the best way.

G. H., South Weymouth, Mass. — Silver sand is the purest sand known, and may be obtained at any glass-works. An article on the subject will soon appear in our columns.

The reception which has attended the issue of the first three numbers of "The American Journal of Horticulture" has been such as to insure its complete success. Letters pour in upon us from every section of the country, congratulating us on our success in making an AMERICAN MAGAZINE free from localism or sectionalism. We are daily flattered by congratulations at the increasing excellence of each number we issue; although in this respect we can only say, that we but fulfil the promise made by us in our prospectus, — that each number should prove superior to the last. Of our intention to thus continue, we ask no further proof than an inspection of the March number and that of the present month.

We trust that our attempts to make our magazine a companion for the parlor, the greenhouse, and the garden, thus far so successful, may be more than realized in the future, until "The American Journal of Horticulture" shall become an indispensable requisite for both amateurs and gardeners. So, with the balmy breezes of spring, we again say welcome to our readers, as we lead them beneath the budding spray onward towards the flowery fields and exuberant life of May, and still onward to the roses of June and the luscious fruitage of summer.

R. B. WERDEN. — The question as to how much cold the rhododendron will stand is somewhat too general. There are many species and varieties of rhododendron, some of which will stand a Canadian winter; others are strictly greenhouse plants. Those indigenous to India, or their hybrids, are by far the finest, but will not stand the winter in our country, and but few are perfectly hardy in England. This class are usually known as Sikkim rhododendrons, from the range of the Himalaya Mountains, where they are indigenous.

The varieties of *Rhododendron Ponticum* are not hardy in New England, but stand the winter on the Hudson and in the Middle States.

R. Catawbiense and *maximum* are hardy, and will stand about fifty degrees of frost without injury. Many of the hybrids and seedlings from these species are hardy, and some are very beautiful. In general, the plants suffer more from the winter's sun than from the cold.

The best winter protection is to stick evergreen boughs around the plants about the middle of November, removing them about the 10th of April.

They do well in pots; but the outside of the pot should not be exposed to the heat of the sun. Like all plants of the family, the roots should be always damp, but never very wet or dry.

The best soil is turfy-peat, leaf-mould, and sharp sand, in equal proportions. The bed should be so deep as never to dry in summer.

Everestianum, *Brayanum*, *Barclayanum*, *Chancellor*, *Roseum elegans*, and *pictum*, *Delicatissimum*, *Album grandiflorum*, are fine hardy varieties. Write to Waterer & Godfrey, Knap-hill Nursery, near Woking, Surrey, England, for catalogues.

We owe an apology to some of our readers who failed to receive the March number as early as usual. The full number of copies was printed; but, owing to increased demands, our supply fell short, and we were at once obliged to put an extra edition to press. This, however, will not occur again, as we have largely increased our edition, and we trust to supply promptly every demand.

Japan Lilies. — The best soil is rich loam with leaf-mould and sharp sand: they bear higher culture than most lilies. They do not degenerate, but increase rapidly, with good culture. They are hardy, and require no winter protection, but are benefited by a covering of manure in the fall, to be forked into the bed in the spring. Grown in pots, they are very ornamental, and can be successfully forced.

E. I. F. — A correspondent in Painesville, O., informs us that he cultivates the trailing arbutus (*Epigæa repens*) successfully. As a spring flowering-plant for earliness, beauty, and fragrance, it has no rival. Other early spring-flowers of that region of Northern Ohio are Spring Beauty (*Claytonia Virginica*), Harbinger of Spring (*Erigenia bulbosa*), *Corydalis aurea*, Moss Pink (*Phlox subulata*).

At a meeting of the Warsaw Horticultural Society (Hancock County, Ill.), President A. C. Hammond exhibited six varieties of apples, on which he took a premium as the best six varieties of winter apples, every thing considered. At the request of Mr. Gregg, he numbered them from one to six, in the order they come, in his judgment, as to profit, and time of ripening.

	Profit.	Ripening.	Bears.
Ben Davis	No. 1	5 early,	regular, abundant.
Wine Sap	" 2	5 "	" "
Rawles Janet	" 3	4 "	alternate years.
Hubbardston Nonesuch	" 4	1 "	regular "
Rome Beauty	" 5	3 "	well.
Peck's Pleasant	" 6	2 "	" abundant.

Mr. Hammond said there were no other winter apples that would class with the above six varieties for general good qualities.

The society was much exercised upon the question of birds *versus* fruit; and, in spite of many eloquent pleas made for the birds, the general opinion seemed to be, that some kinds of birds were especially destructive to the fruit crop, and that their destruction was a necessity. While protection to all birds indiscriminately is unwise legislation, those species which are really beneficial should be encouraged, and protected by the most stringent laws. While wrens, sparrows, linnets, and most small birds, are eminently useful, we imagine few fruit-growers are enthusiastically favorable to robins and cat-birds.

We again call the attention of our readers to our offer to answer any questions through our columns upon subjects connected with our province. Our facilities for this are very large, as our editorial staff comprises gentlemen fully conversant with horticultural operations in all the various branches. Our wish is to communicate information; and for this we shall ever endeavor to offer every facility.

Among the many catalogues received by the Editors, many of which are well arranged, and show great variety of trees and plants, we have been particularly pleased with the arrangement of that of Samuel Moulson of Rochester, N.Y., where just the stock on hand, the size of each kind, and the number for sale, are each carefully stated, the prices varying according to age and size. This feature is, we believe, peculiar to this catalogue; but from the many advantages it possesses, both as to the convenience of the buyer and seller, it cannot be long before it is universally adopted.

Parlor Plant. — The flower sent is *Azalea amœna*; a very pretty and easily-grown plant, especially suited for parlor-culture. The flower is purplish-red, in what the English gardeners call "hose-in-hose" style; that is, one flower inside another. The foliage is small, glossy, and hairy. The plant blooms from January to March, and always flowers freely. It is easily propagated by cuttings of the young shoots like any azalea. With a slight protection of evergreen boughs, the plant is hardy enough to stand a New-England winter, and blooms in the open air in the latter part of May.

A SUBSCRIBER. — We cannot undertake in our columns to recommend one nurseryman or seedsman above another. Our advertising columns are open to all; but we insert advertisements from those only whom we believe to be perfectly trustworthy. If, however, it is in our power to tell where some rare plant or particularly fine specimens of any tree may be found, we will cheerfully do so. Seeds of the double zinnias for which you inquire can be obtained of any seedsman (Bliss, Breck, Vick, Thorburn, Washburn, &c.); or any florist will have young plants for sale in May.

Advertisements of gardeners wanting places will be inserted in our advertising columns free of charge.

While we wish to become a medium of communication between the gardener and the employer, we cannot be at all responsible for any advertisements of this nature.

In addition to the many letters which we received last month complimenting us upon the March issue, we have received quite a number from friends offering suggestions, for which the writers have our thanks. Many of the ideas are new and good, and will be acted upon as early as practicable. We will say in this connection, that, as our aim is to make "The American Journal of Horticulture" of interest and value in every part of the country, such hints and suggestions will always be thankfully received.

A SUBSCRIBER, Plymouth, Mass. — "The golden russets in this town are badly affected, as you will see by the specimens sent. Can you inform me, through the Journal, what is the cause of the disease? — if insects, what are their names and habits?"

I have carefully examined the apples. One is sound, bearing no marks of having been attacked, excepting on the surface, where it may have been nibbled

by ants. The others are filled with the traces of past borings by a dipterous larva ; two specimens, dead and decayed, being found *in situ*. Enough is left of them, however, to convince me of their identity with specimens received from various parts of Eastern Massachusetts within the past two years. Never having seen the insect in its imago stage, I cannot, of course, pronounce upon its place, even generically. Dr. A. Fitch, of New York, describes, on page 252 of his Second Report, an insect of similar habits, under the name of *Molobrus mali*, the apple-midge. The length of the fly is about .15 inch ; wings dull hyaline, tinged with smoky color ; body and legs black ; abdomen ringed with yellow.

If you find any small flies in the barrels or upon the windows of the room in which the fruit is kept, and will preserve them for me in a dry vial, I can perhaps discover the author of the ravages.

Experiments will be necessary to discover the best means of prevention.

F. G. S., for Editors.

NOTES ON THE MARCH NUMBER.

MR. HUNNEWELL'S notes upon "The New Conifers" is a very valuable contribution, for which every lover of evergreens will feel grateful. I imported several of the species he names, in 1862 ; and my experience with two of them has been somewhat different from his. These are *Retinospora ericoides* and *Cupressus Lawsoniana*. He says of the first, "It changes its color somewhat in winter." With me, both of these species have every winter changed their color so completely, that it is difficult to believe they are not entirely dead : yet they have invariably recovered, and grown well the following season ; so that I now regard them as perfectly hardy. I have now about two dozen *Cupressus Lawsoniana*, averaging five feet in height ; and I agree entirely with all that Mr. Hunnewell says of their beauty.

Mr. Ridgely's remarks upon "The Culture of Grape-vines in Cities" reminds me of a vine I used often to see in Philadelphia many years ago, which illustrates a mode in which the citizen may secure a crop of this delicious fruit even under less favorable circumstances than Mr. Ridgely supposes. This vine grew in a very small yard all paved with brick, and entirely hidden from sunlight except for an hour or two in the morning. It had been trained up in the angle between the house and the L, like a lightning-rod, a distance of sixty feet, without a branch, and then covered an arbor built on top of the house, where, remote from dust or thieves, it annually ripened a luxurious crop of fruit.

Finally, touching squirrels. I have quite a number of red squirrels about my premises, and have always protected them so far as lay in my power, as their graceful movements and apparent exuberance of life are always attractive. An incident which occurred a year or two since, however, revealed to me an unexpected trait in their character, which tended to impair my confidence in the innocence of their habits. I saw one run across a road and up an apple-tree within a few rods of me, and the next moment was startled by the fearful cries

and frantic evolutions of a robin in the same tree ; and, on running up, I saw Mr. Squirrel coming down the tree with a half-fledged young robin in his mouth, the old bird darting at and about him in an agony of distress. On seeing me, he dropped his game, and made off ; and on picking up the young bird, which seemed to be uninjured, and replacing it in the nest, I found it was the only one left : which fact, joined with the readiness with which he had made his way to the nest, afforded strong circumstantial evidence that he had called upon the same family before. It was found necessary, several years since, to banish the gray squirrels from the squares of Philadelphia, on account of their destroying the birds ; but I did not know till the above evidence was given me that the red squirrel was chargeable with the same habit.

H. W. S. C.

DANVERS, MASS.

VINEYARD CULTURE ON THE SOUTH SHORE OF LAKE ERIE.

THE LAKE-SHORE GRAPE-GROWERS' ASSOCIATION.

MUCH has been said within a few years past of the success of grape cultivation on Kelley's Island and a few points adjacent, owing to the favorable influence of the lake atmosphere on the climate ; but few people are aware of the extent and rapid progress of vineyard-planting along nearly the entire range of the South Shore of Lake Erie.

The grape district may be regarded as commencing at Dunkirk and Fredonia, near the eastern end of the lake, and extending westward to Port Clinton, including the peninsula and the islands off Sandusky Bay, — a belt of territory, say, two hundred miles in length, and about five in width. In this district, grape-planting has been going on for the past five or six years, at the rate of one thousand to twelve hundred acres per year, till there are now found to be not less than eight thousand acres planted. Of this, about one-half may be counted of bearing age. The oldest vineyards are mostly on Kelley's Island ; but a few are found at different points along the shore in Ohio, Pennsylvania, and New York.

Much of this planting has been done by persons who had no previous knowledge of grape-culture ; and many mistakes were made in the selection of soils and localities, as well as in cultivation, so that some failures have occurred : still the general results have been so satisfactory, that it is the general belief we have seen but the beginning of grape-planting in this region, especially when we take into account the benefits likely to result from the more general diffusion of intelligence, and the adoption of superior varieties of grapes like the Delaware and the Iona, which seem to be quite at home here, and are being planted extensively.

The Lake-shore Grape-growers' Association has been organized only two years. It numbers over two hundred members, most of whom are directly engaged in grape-growing ; and many, having been formerly engaged in professional or mercantile life, have minds trained to the calculations affecting profit and loss,

and are willing to wait a few years for the reward of their labor. The meetings and exhibitions of the association have been quite spirited and instructive. They have also had very pleasant summer excursions among the islands, and points of interest, inspecting vineyards and discussing summer-pruning, &c. These have been participated in by many visitors of horticultural distinction, who have expressed much gratification.

The annual meeting of the association was held at Cleveland, Feb. 21 and 22, 1867; and, although the past season was quite unfavorable for the grape-crops, the attendance was large, and the confidence expressed in the business was as great as ever. It was determined to repeat the summer excursion, the coming season, on a grander scale than before; chartering a large steamboat, if possible, for the occasion, so as to accommodate the families or friends of the members, two or three hundred in all, with *hotel* conveniences on board for four or five days; starting, perhaps, from Dunkirk or Erie, and stopping at Cleveland, Sandusky, and any other points desirable; then inspecting the grape-islands, and having a grand picnic in the beautiful grove at Put-in-Bay; and afterwards taking a pleasure trip to Detroit, and back to Sandusky or Cleveland, as the company may desire.

President. — Dr. J. W. Dunham, Collamer, O. *Vice-President.* — Capt. John Brown, jun., Put-in-Bay. *Secretary.* — M. B. Bateham, Painesville, O. *Treasurer.* — Rev. R. H. Leonard, Cleveland.

Directors. — L. D. Griswold, Elyria; S. B. Marshall, Cleveland; J. E. Motier, North East, Penn.; J. H. Tryon, Willoughby; G. E. Ryckman, Brocton, N. Y.; M. H. Lewis, Sandusky; Addison Kelley, Kelley's Island.

The ditching-machine recently patented by Moon & Doan of Wilmington, O., was exhibited by a working model in the hall, and excited much interest, and a general expression in its favor. The patentees will soon be prepared to introduce the machine in the Lake-shore region, where it is expected to prove of much advantage to grape-planters.

Discussion was had on a variety of topics designated at a former meeting. The first was, "Soils, and their Preparation for Vineyards." Quite a variety of opinions was expressed on the question, *What kind of soil is the best for grapes?* most of the speakers being influenced by their own individual experience. Some were in favor of stiff clay, others clayey loam, and some gravelly and sandy loam, and a few had done well on real sandy soil; but the majority expressed a decided preference for clayey or strong soils over sandy or light ones, though gravelly and shaly soils, if not too sandy, were not objectionable. It had been found that the Catawba grape, especially, produced finer fruit and ripened better on clay than other soils.

Thorough drainage of clayey soils, and others too if not based on porous subsoil, was deemed quite essential. Neglect of this had been the cause of much loss to beginners the past season.

Enriching the soil has not been found advantageous to vineyards in this region; but Dr. Spalding of Missouri said it was practised in that State with advantage after the vines have been in bearing for twelve or fifteen years, repeat-

ing the manuring every three or four years. Dr. Kirtland thinks our clay soils contain sufficient potash to keep up their fertility; but sandy soils may require an occasional dressing of ashes or plaster.

Trenching the soil by hand, as formerly practised, is not now deemed necessary, but simply deep ploughing, followed with the subsoil plough, mellowing the whole to the depth of eighteen or twenty inches.

Depth of planting was a point considerably discussed, as heavy losses of young vines had occurred the previous winter, owing to shallow planting. Setting the crown of the roots from six to eight inches below the surface was the rule urged by the majority.

The style of plants preferred by most present was "No. 1, single eye," as grown by Messrs. Griffith, Dr. Grant, and others; but these should have the stem left on, of sufficient length for the upper bud to be even with the surface of the ground when planted.

Pruning and training were discussed at much length, especially summer pruning. This was advocated and explained lucidly by Dr. J. A. Warder; but some doubted the propriety of the practice, except in a very modified and limited way.

Stakes and trellises had each their advocates; but the preponderance of opinion was in favor of the post-and-wire trellis as generally used on the islands, consisting of three wires of "No. 9" size, supported by strong posts about twenty-four feet apart. Dr. Dunham, Mr. Griffith, and several others, thought simple stakes cheaper and as good.

Quality of grape-must for wine was the subject of much interesting discussion, together with a report of tests of a variety of samples of grapes the past fall by a committee appointed for the purpose. This will have to be the text for a subsequent article in this Journal.

On the different varieties of grapes very little was said directly, as the subject had been so fully discussed at the meeting in October and previously: but, in connection with the report on *must*, it was claimed that grapes of the highest excellence for the table will be found to have the highest grade of *must* by the scale; and for making good wine, as well as for eating, it was indispensable that grapes should be *fully ripe*. The samples of Catawba grapes tested when *fully ripe* (in November) gave *must* ranging from ninety-three to ninety-nine degrees, and Delawares (in October) about the same. In regard to the *must* of the Iona, Mr. Griffith and Dr. Grant stated that they had tested it repeatedly by the scale, and found its weight (in October) from ninety-three to ninety-four. Some testimony was given respecting the *must* of Concord and Ives grapes which was not deemed very flattering to their reputation for wine-making.

The tariff on imported wines was considered, and a memorial to Congress adopted, asking for an increase of duty, suggesting a uniform rate of one dollar per gallon.

M. B. Bateham.

MAY.



CITY GARDENS.

IN a previous article, we have given some directions for the laying-out and planting of city gardens: in the present number, we propose to continue the subject.

Where the gardens face the south, there is great opportunity for display; but, where there is only a northern exposure, there are few plants that will thrive.

In many places, owing to constant dampness, and want of sun, it is almost impossible to keep even grass alive; and the bare ground is not ornamental. There are, however, some plants that will thrive in these northern exposures, and which, though they produce few flowers, will render the front-yard attractive.

First the common periwinkle, — often called, though erroneously, myrtle, botanically *Vinca major* and *minor*, — in its many varieties of single and double, blue and white, and with dark-green and variegated leaves. Of all these, however, the common variety, with dark-green evergreen leaves and blue flowers, is the best for our purpose; all the others being of rather delicate growth, and the variegated kinds a little tender in New England.

Any nurseryman can furnish large clumps of this plant, which, being set out two feet apart every way, will soon cover the ground, and always present a carpet of green leaves, studded in spring with light-blue blossoms.

Dutch bulbs, such as crocus and tulips, will often make a rich spring show; but, without sun, they soon dwindle, and have to be annually replanted.

Lily of the valley (*Convallaria majalis*) will cover the ground with pretty foliage, and occasionally produce a few flowers. The clumps should be set about a foot apart, and they will soon run together.

Many of the ferns will thrive in such an exposure. Of these we may especially mention *Dicksonia punctilobula*, a common but very delicate and pretty fern. The root-stalks are slender and creeping; and, once planted, it will soon cover the ground. It is easily obtained, being very common in moist, shady places.

If not too moist, the common *Polypodium vulgare* will thrive. As, however, it does best on rocks, a mixture of stones in the soil would conduce to the success of the experiment. Some other ferns, natives of cold, damp situations, might succeed; and the experiment is recommended to those interested.

Of shrubs there are many that will live, but few that will bloom.

Some of the hardier species of rhododendrons, such as *Catawbiense* hybrids, *Dauricum atrovirens*, *hirsutum*, and *ferrugineum*, would give a mass of foliage and occasional blooms. The same may be said of the varieties of mountain laurel (*Kalmia latifolia*) and of *Andromeda floribunda*. Box, in its varieties, does well; and, farther south, *Acuba Japonica*, and *Skimmia Japonica* and *oblata*, are very valuable, but not hardy with us in New England. The mahonia (*M. aquifolia*), or holly-leaved barberry, does well if it can have a little sun, and is ornamental in foliage, flower, and fruit.

Evergreens (conifers) are not to be recommended for such a situation, as they soon grow ragged.

The only climber which does well in a northern exposure is the common woodbine, or Virginia creeper (*Ampelopsis Virginica*). This plant will soon cover a trellis; but, without sun, fails to so ripen its leaves as to exhibit the gorgeous autumnal coloring.

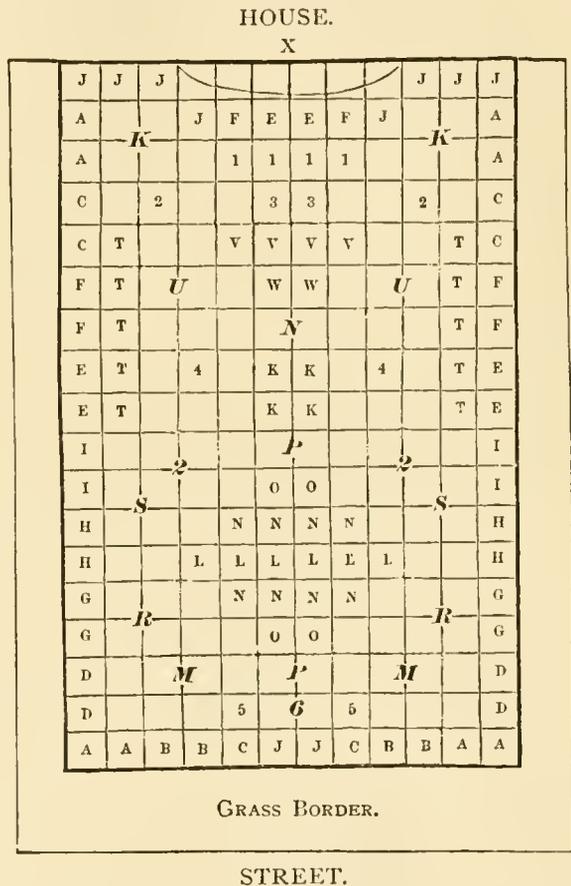
If the yard is to be used for flowers, care must be taken in winter not to make it a receptacle for superfluous snow, and to keep shrubs from

being broken by avalanches from the houses: only the snow naturally falling should be allowed to remain, or enough to protect the roots of the plants.

We would also add, that occasionally a few annuals may be planted. *Tropæolums* often do well, and give abundance of bloom.

Where there is sun a portion of the day, *Dioscorea batatas*, the Chinese yam, and a fine morning-glory (*Convolvulus panduratus*), will succeed. These are herbaceous climbers, with fleshy, perennial roots; perfectly hardy. The flowers of the former, though small, have a delicious cinnamon fragrance; and the latter gives a profusion of white flowers in July and August. Both are ornamental in foliage, and like a rich, sandy loam.

Outside measure, 16 by 20.
 Inside measure, 12 by 18.
 X. Trellis for vine.



- | | |
|--|--|
| <p>A. 12 Crocus, large yellow.
 B. 12 Crocus, Queen Victoria (white).
 C. 12 Crocus, David Rizzio (purple).
 D. 12 Crocus, La Majesteuse (striped).
 E. 12 Crocus, Scotch (white and purple).
 F. 12 Crocus, Cloth-of-Gold (yellow).
 G. 12 Crocus, Queen Victoria (white).
 H. 12 Crocus, Prince Albert (blue).
 I. 12 Crocus, Caroline Chisholm (white).
 J. 24 Snowdrops.
 K. 2 Crown Imperials, silver and golden striped on the outside, and red and yellow in middle clumps.</p> | <p>L. 6 Hyacinth, Norma (red).
 M. 12 Narcissus, pseudo-narcissus (daffodil).
 N. Hyacinth, Grand Vainquer (white).
 O. Hyacinth, Charles Dickens (blue).
 P. Hyacinth, Elfrida (creamy-blush).
 Q. 12 Large Jonquils.
 R. 6 Tulip, Canary Bird.
 S. 6 Tulip, Pottebakker (white).
 T. Tulips, Duc Van Thol (yellow, red, and rose).
 U. Fritillaria meleagris (guinea-hen flower).
 V. Hyacinth, Groot Voorst (double pink).
 W. Hyacinth, Bouquet Tendre (double red).</p> |
|--|--|

The above arrangement is very effective for a southern front exposure for early bloom. We will suppose the bed to be sixteen feet by twenty,

and a grass border (two feet wide) to run round the outside. This size can easily be modified as the bed to be planted may be larger or smaller.

The plants represented by letters are bulbs; the figures denoting perennial herbaceous plants. Both classes may be allowed to remain many years without being disturbed.

All the plants flower during April and May.

This bed of bulbs will make a very gay appearance from April to the middle of May.

As the flowers of the bulbs fade, there will be a time when the bed will be rather bare unless a few herbaceous plants are interspersed.

These should be, generally, low growers, and such as will be out of bloom before the bedding-plants and annuals come into flower, — which will be by the middle of June.

This same garden may, about the middle of May, be planted with annuals, &c., as directed in our last.

The following spring-blooming herbaceous plants are very ornamental. They should, generally, be planted about a foot every way from each other : —

- | | |
|--|---|
| 1. <i>Hepatica triloba</i> flore pleno rubra et cœrulea
(double blue and red hepatica). | 4. <i>Trollius Europæus</i> (globe-flower). |
| 2. <i>Sanguinaria Canadensis</i> (bloodroot). | 5. <i>Phlox divaricata</i> . |
| 3. <i>Trillium grandiflorum</i> . | 6. <i>Caltha palustris</i> flore pleno (double marsh-marigold). |

The following arrangement is pretty for a narrow border under a south window ; and, where the underpinning of the house is of stone, the snow-drops will often be in bloom in February.

The border is represented three feet wide by eighteen feet long, — each square representing one foot by two feet : —

HOUSE.

A	B	A	B	C	B	A	B	A
D	E	J	G	H	I	I	E	D
L	M	K	I	O	I	K	M	N

- | | |
|--|---|
| A. Snowdrops. | I. Tulip, Duc Van Thol. |
| B. Crocus, Scotch (striped). | J. Tulip, Canary Bird. |
| C. Crocus, Cloth-of-Gold. | K. Tulip, Jagt Van Delft (white). |
| D. Crocus, Queen Victoria (white). | L. Iris Persica. |
| E. Crocus, David Rizzio (purple). | M. Jonquil, Single. |
| F. Hyacinth, Mad. Van de Hoop (white). | N. Erythronium Dens Canis (dog-tooth violet). |
| G. Hyacinth, Waterloo (red). | O. Scilla Siberica (blue). |
| H. Hyacinth, Argus (blue). | |

These arrangements are equally effective from the house and the street.

If only a general mass of color is wanted, after the bulbs have bloomed, the beds may be sown with portulaca early in the spring. The plants will begin to bloom in early summer, will soon cover the bed, and, until November, give a brilliant carpet of rose, red, yellow, orange, scarlet, and white, with an infinity of shades.

The roots do not strike deep enough to injure the bulbs; and, when the plants are killed by frost, the bed will be ready for a top-dressing of manure, to insure fine bloom upon the bulbs the next spring.

No further sowing of portulaca will be required, as it will come up freely every year.

For climbers for the trellis against the window, we have few plants well adapted.

The object must be to find a plant with fine foliage, which is also ornamental in flower and fruit. The common Virginia creeper, or woodbine (*Ampelopsis Virginica*), answers well our purpose, and is very showy when autumn changes the foliage.

The Dutchman's pipe (*Aristolochia siphon*) has broad, light-green leaves, and curious flowers, and, when once established, is a rampant grower.

The Chinese wistaria (*W. sinensis*) is always pretty; and the drooping spikes of papilionaceous flowers are very ornamental.

The trumpet-flower (*Bignonia radicans* and *grandiflora*) is showy, and climbs to a great height.

Canadian moonseed (*Menispermum Canadense*) is very pretty, and profuse in foliage. Where both male and female plants are obtained, the berry is ornamental.

For low climbers, we cannot too highly recommend various species of clematis, of which *C. flammula*, *montana*, *Virginica*, and *azurea grandiflora*, are the best. Should the new English varieties so recently obtained prove hardy in our latitude, they will give a variety of color and habit very rarely found in one family.

Roses and honeysuckles are too ragged, and last too short a time in perfection, to find room where there is so little space as in a city garden. The Japanese evergreen twining honeysuckle is, perhaps, an exception to this remark.

Ivy is generally not hardy in New England. Where it will stand the winter, it is a beautiful climber.

In a future number, we propose to treat of the improvement of the backyard.

Edward Sprague Rand, Jun.

GLEN RIDGE, 1866.

THE PAWPAW.

WE propose a brief discussion of a subject which has never had full justice, — characteristic American fruits. Think not to pass in review a horticultural catalogue. The apple, alas! grew in the Garden of Eden. The peach betrays its origin in its specific designation, “*Persica*.” The Romans named for us the cherry and the plum. Our most luscious strawberry is the “*Triumph of Ghent*.” A well-grown Antwerp raspberry fears no comparisons. No grapery of ordinary pretension is without the Black Hamburg and the Muscat; while of pears, alas! foreign varieties are the finest.

But these, and the thousand others which they represent, however kindly they grow on American soil, are in no proper sense American fruits. Their names unmistakably declare their lineage. They have been gathered from the East and the West, from the North and the South. Certain fruits there are, however, which deserve the name “*American*,” our right to which there is none to dispute; and, as is eminently fit, they are known only by native American names. Pawpaws and persimmons make no suggestions of Europe or Asia. Their quaint and homely designations are thoroughly in keeping with their history. Indeed, the pawpaw hints in its reduplicated form at the paucity of words in a barbarous dialect.

Of this fruit, the pawpaw, we wish to speak. We do not remember to have seen, in book, pamphlet, or newspaper, the mention of its name, except in technical botanical treatises, where, as for instance in Gray’s, it receives but a very cursory and ungracious notice; and yet we deliberately set it down as the most delicious fruit that ever touched our palate. We know very well, both in Latin and the vernacular, the motto about tastes; and we are willing to confess that we speak with the zeal of a neophyte,

and that, to many, this fruit is exceedingly distasteful: but still there are enough on every hand, in the region where the pawpaw perfects itself, to sanction our own most extravagant estimates.

The pawpaw comes of a good lineage. It is the only North-American representative of the *Anonaceæ*, the famous custard-apple family of the tropics. How this solitary genus should have been so widely parted from its allies, we leave the Darwinians to explain. We have heard the eminent professor of botany in Harvard descant upon the luscious richness of the tropical custard-apple; and, when we found our own pawpaw worthy of all his praise, we felt almost indignant over this curt description (Gray's "Manual," page 17),—"yellowish, sweet, and edible in autumn:" but our indignation was turned into compassion when we concluded, from the dimensions of the fruit that accompany this description, that he knew no other specimens than those which had struggled through a dying life in the Cambridge Botanic Garden. It would be but little farther from justice to characterize the orange from specimens ripened in the bay-window of a New-England farm-house.

Follow the thirty-eighth parallel of latitude, from the Alleghanies to the Mississippi, and you will traverse the home of the pawpaw. Within a degree or two on each side, almost all its chosen haunts will be found. There are outlying groves east of the mountains (a post-office in Michigan rejoices in its euphonious name); but in the southern portions of Ohio, Indiana, and Illinois, and in Virginia, Kentucky, and Tennessee, it occurs in the greatest abundance and perfection.

The tree itself is very attractive. Its clean, well-kept bark, its wealth of foliage, its soldierly bearing, all conspire to make it in itself a most desirable addition to the horticulturist's resources. But, of the fruit, what worthy account can be given? At the last Ohio State Fair, a painting in oil, of a bunch of pawpaws, was exhibited, admirable alike for fidelity and execution. With the aid of engravings drawn from such or more direct sources, a description might have some chance of success; but we must venture without any such extraneous assistance.

From one to seven fruits in a cluster, each measuring four, five, six, or even seven inches in length, and from two to three inches in diameter, and very like to a banana in shape, depending (in their ripened state) from a leaf-

less branch, so small that its burden surprises you ; of the most delicate imaginable shade of green, with a bloom as sensitive as that upon a white grape or a plum ; as yellow within as the richest of cream, and softer than the ripest of peaches ; with a fruity odor that leads you as true if not as far as a blossoming orange-tree ; with a flavor, which, if it were not all its own, you would liken to nectar, to ambrosia, to your highest ideal in the realm of tastes, — this is the pawpaw. “ I have eaten the lotus, and don't want to go back,” wrote a college president who was transported from Massachusetts to Southern Ohio. Like the cardinal-bird and the scarlet tanager, which gleam and burn amid its branches, it reminds us of the tropics. Indeed, in its own character, as well as in its botanical relations, it is the most genuine representative of the fruits which a vertical sun can ripen, that this corner of the world produces. As such, it will be sure, with the increase of horticultural zeal and knowledge, to come to a wider recognition and welcome. Had Thoreau wandered West instead of North, and found an Ohio pawpaw-grove in some calm October day, our gardens and our literature would certainly have been the richer.

YELLOW SPRINGS, O.

FLOWERS OF MAY.

(Concluded.)

As May advances, flowers succeed each other in such profusion, that to describe them all would be an endless task. As brevity above all other virtues is indispensable in magazine articles, nothing remains for us but to choose a few of the most conspicuous from among the floral array, and, for the time, leave the rest in a neglect which very many of them are far from deserving. But first we must observe, that, from the middle of May to the middle of June, a judicious choice and arrangement of hardy perennials alone will enliven the garden with colors as rich and as various as those of the bedding-plants at the middle and end of summer. No color will be wanting. For masses of blue, we have veronicas, lupines, dwarf iris, and, a little later, *Delphinium sinense* in its varieties ; for yellow, trollius, *Doronicum Caucasium*, *Achillea tomentosa*, and *Alyssum saxatile* ; for red.

the early dwarf phloxes, many species and varieties of *lychnis*, *dicentra* for those who like it, and several early varieties of *dianthus* ; for white, the *iberis*, and, above all, the *cerastiums*. Many other plants might be named as suited for early massing. As soon as their bloom begins to fade, they may be taken up, divided, and planted out of sight in a reserve-garden. Annuals or bulbs, grown in pots, may then be turned out into their place ; and thus, with no great trouble, a bed may be kept in constant bloom from April to the end of October. The perennials planted in the reserve-garden will be benefited by the removal ; and in the autumn they may be replanted in their old place, in order to bloom again in the following spring.

Among the names mentioned above, we forgot to include an extremely pretty native plant, akin to the cowslip and the primrose ; both of which, by the way, are excellently adapted for spring-bedding. The plant we mean is *Dodecatheon Meadia*, or the American cowslip, which grows wild in the Middle and South-western States, and, when transplanted to the garden, takes to its new position very kindly. The flowers, at first sight, resemble those of the Persian cyclamen ; for the petals are thrown back in the same manner, but the yellow anthers protrude from them in the form of a long pointed cone, or beak ; and, as the flowers grow together in a cluster at the top of the stem, they suggest the idea of a flock of birds on the wing. The flower-stems are rarely more than a foot high, rising from a tuft of smooth green leaves close to the ground. The petals are generally of a bright purple, sometimes white ; and the flower is one of the prettiest and most interesting of our natives.

The dodecatheon is perfectly hardy ; but, as the leaves always die immediately after the flowering, those unacquainted with it often suppose that the plant itself is dead. The root, however, remains in full life, and, after lying dormant in the earth for about ten months, grows and blossoms vigorously again in the next spring.

The best way to raise a bed of dodecatheons is from the seed. This should be sown in boxes of light, peaty soil, immediately after it ripens. It comes up the following spring, makes two small seed-leaves, and then apparently dies. In the succeeding spring it shows life again, and makes a vigorous tuft of leaves, though it rarely blossoms till the third spring. The seedlings vary a good deal in size and color ; and the varieties sold under

the high-sounding names of *Dodecatheon elegans*, *Dodecatheon gigantea*, and so forth, are merely seedling varieties of our native species.

The dodecatheon is not so well fitted to produce a mass of color as many other spring-flowers ; and, when it is used for this purpose, the plants should be set not more than four or five inches apart. Its more appropriate position is that of a simple border-flower.

The family of the lychnis supplies some of the brightest decorations of the garden in spring and early summer. *Lychnis fulgens*, and the new hybrid from it called *L. Haageana*, will make, when planted closely in beds, a mass of color as vivid as that of the scarlet geranium. In some localities, they have not proved perfectly hardy in New England ; but, where the ground is light and well drained, they may be safely trusted. There is a white species known as *Lychnis Sieboldii* ; and *L. Haageana* is said to be a hybrid between this and *L. fulgens*. They are all raised very easily from the seed, which, if planted early, produces blossoms the first year. *L. Haageana* sports into a great number of varieties, differing greatly both in size and color, and exhibiting every shade from the most vivid scarlet to light pink. Another lychnis of the same type has lately been introduced from Japan. It is called *Lychnis Senno*. As we have only tried it one season, we cannot speak of it with confidence, but are disposed to think it less hardy, and more liable to disease, than *L. Haageana*. It is sometimes of a vivid red, and sometimes very prettily striped with red and white. All the above-mentioned species of lychnis bloom in large clusters when well grown, and bear flowers from one to two inches in diameter. They also have the virtue of remaining a long time in bloom.

Lychnis Viscaria is a native of Britain, of very little beauty in its single state ; but there is a double variety, which may justly be called one of the most splendid of perennials. It bears dense spikes of flowers of a deep red, rising about eighteen inches from the ground, and, when the plants are properly arranged, forming a mass of vivid color. Nothing is easier than the cultivation of this species. It is perfectly hardy, and very readily multiplied by pulling the plant to pieces when the bloom is over, and planting out the separated parts in a light border. By shading them for a few days, they will not fail to grow, whether they had roots at the time of planting or not. The foliage is a tuft of bright-green leaves, somewhat like those of the pink in form. This lychnis has lately been christened the "Ragged

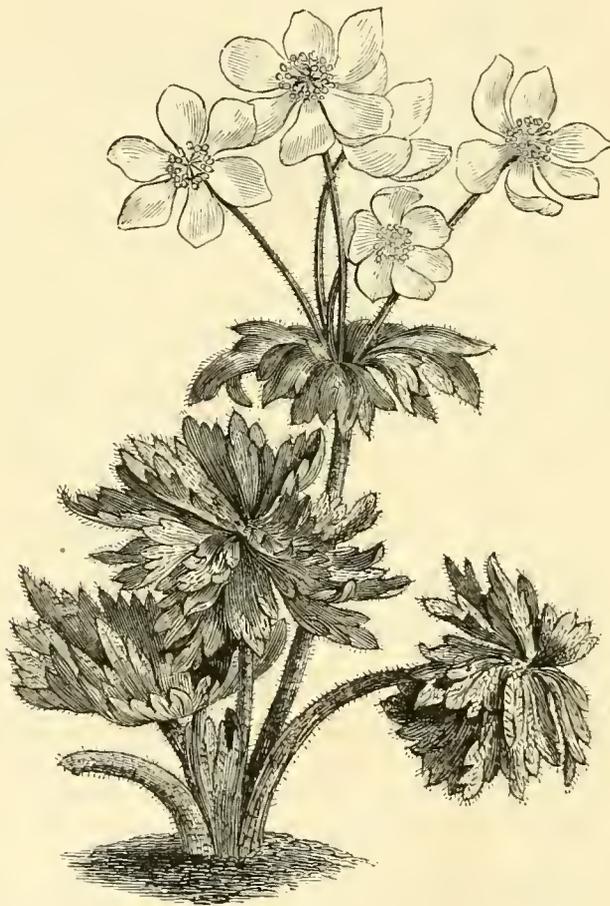
Robin ;” but the plant to which that name rightfully belongs is *Lychnis flos-cuculi*, a species inferior in beauty.



Most of those familiar with New-England woods know the *Cypripedium*, or lady's-slipper. Some varieties of it are perfectly manageable in the garden. Among these, one of the prettiest, and certainly the easiest of cultivation, is *Cypripedium parviflorum*. Its color is bright yellow. It is hardy, may be increased rapidly enough by dividing the roots, and grows in a good garden loam, though it much prefers a soil of peat or well-rotted leaves mixed with loam. It will be prudent to put a covering of leaves, or, what is better, short pieces of boards, over it in winter. The most beautiful of the genus *Cypripedium spectabile* bears large white flowers tinged with reddish purple. Its appropriate place is in a deep moist bed of peat, and it is impatient of any other soil.

Two species of *Cerastium* have lately been introduced, which, for supplying masses of white early in the season, will scarcely find their equals.

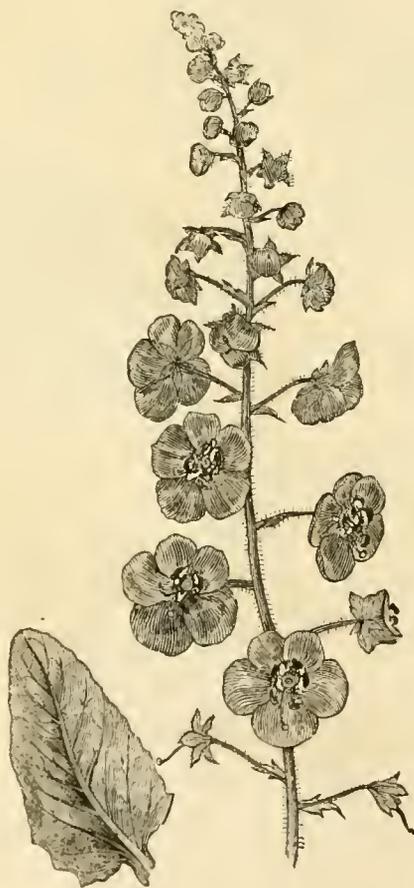
Cerastium tomentosum grows about six inches high, and, in the course of one or two seasons, spreads into a broad circular bed or cushion, which, towards the end of May, seems transformed into a patch of snow by its thousands of white blossoms. It is hardy, easy of culture in common garden-soil, and readily increased by dividing the roots. *Cerastium Biebersteini* has been more recently introduced, and is remarkable for the silvery tint of its foliage. The flowers are said to be larger than those of *C. tomentosum*, equally numerous, and of the purest white. It has stood two winters here without protection, and will no doubt blossom next month, when we shall be able to report with more assurance of its quality.



Anemone narcissiflora, a native of the Alps, is pretty enough to deserve a place in every herbaceous garden. Paradoxical as it may appear, many plants which are of an uncertain hardiness in our climate would bear the winter better if it were more severe; that is, if there were more snow. Many herbaceous plants which bear the climate of Canada uninjured are

apt to perish in our less rigorous but more capricious winters. A deep covering of snow, without a January thaw, is an excellent protection against the frosts, the wind, and the sun, which, by their alternate action, often prove so deadly. Alpine plants, as a rule, need this protection. *Anemone narcissiflora*, however, usually escapes uninjured; though, in one or two cases, we have known it to succumb.

The veronicas form a very numerous family, of which some of the members are among the best of hardy flowering-plants. Among them all, there is no one more to our liking than the dwarf species *Veronica pulchella*, which, after a year or two of culture, will form a mass of bloom half-spherical in form, and of the deepest sky-blue color. Its utmost height does not exceed eighteen inches. It is easily increased by seed or division, and we never knew it to suffer in the hardest winter.



Verbascum Phœniceum, *Lupinus polyphyllus*, *Dianthus cruentus*, *Ranunculus aconitifolius*, and countless other flowering perennials, make this season gay with a brilliant and varied bloom. We must pass them all over in silence;

for our limits are already exceeded. We are tempted, nevertheless, to pause a moment more, to notice a fine hardy plant introduced within a few years. This is a variety of mule-pink, known in France as *Œillet Flon*, from the name of its originator, and set down in English catalogues under the barbarous name of *Dianthus hybridus multiflorus*. It blooms in large clusters of brilliant rosy red ; and a large well-grown plant is a splendid object in early June. It is increased by cuttings, or layers, and blossoms on the growth formed in the preceding year. A cutting struck in spring, and planted out, will make a large plant before the season is over, and bloom superbly in the following spring, and for several successive seasons. It is excellent, too, for forcing in the greenhouse. There is a striped variety, and also a white one.



CERCIS CANADENSIS.

Here you have an outline, and nothing more, of what may be done towards filling the dreary gap between the crocuses and hyacinths of spring and the annuals and bedding-plants of July and August. May and June

are the months when the appetite for floral beauty is apt to be most active. If we should set forth in full the means by which it may be gratified, we should be compelled to convert our article into a descriptive list, so numerous, though so little known, are the plants available to this end. We allude now to perennials.

A large number of flowering shrubs, better known to the general cultivator, should also be included,—tree pæonies, halesias, viburnums, cytissus, hardy rhododendrons and azaleas, hawthorns, Wistarias, Philadelphus, lilacs, and many more ; not forgetting the beautiful *Cercis Canadensis*, blushing with its innumerable rosy blossoms.

Francis Parkman.

JAMAICA PLAIN, MASS.

CESTRUM AURANTIACUM. — This plant will flower most freely if it be planted in a compost of turfy loam two-thirds, leaf-mould one-third, and sharp sand one-sixth, either in a greenhouse border or in a pot. It may be trained to a pillar, roof, or wall, its shoots being thinned so as to have plenty of air and light ; and no creepers or other plants should shade it. If thus treated, it will flower freely in autumn and winter. It is one of the sweetest and handsomest plants for the pillars of greenhouses or conservatories ; but it will not flower without plenty of air and light, and its roots being rather cramped or confined. Do not stop the shoots ; for it blooms from their points : keep it well supplied with water ; and afford occasional applications of manure-water at intervals, especially if the root-room be small, not only when it is growing, but flowering. After blooming, keep the plant dry for a month or six weeks ; then prune it rather closely ; and, when the new shoots appear, thin out the weakest ; top-dressing with rich soil if in a border, or repotting if it is in a pot. Afterwards keep rather close and moist, also shaded for a few days, until the roots are working in the fresh soil. Keep it well supplied with water, and encourage growth by frequent syringing ; then lessen the supply of water, but not so as to cause the leaves to turn yellow, and fall ; expose fully to air and light, and you will find the shoots thicken at their points. When the shoots commence to show bloom, water freely, and afford a supply of liquid manure once a week. — *Cottage Gardener.*

SUMMER-PRUNING OF THE GRAPE.

AT the winter-meeting of the Lake-shore Grape-growers' Association, at Cleveland, O., there were present some of the most intelligent men of the country who are engaged in this interesting branch of cultivation. The discussions were directed to the practical questions which are constantly arising in a new line of business ; and were of value to those present, as will appear in the report of the society, soon to be published.

Among the topics discussed, one of the most important was that of *summer-pruning*. Many of the members were loud in their denunciations of the practice as it is often pursued in the vineyards, particularly where these are managed by European vine-dressers. Some went so far as to say that they preferred to let their vines go without any pruning at all, rather than to have them subjected to such a terrible "summer slaughtering" as was occasionally to be seen. They pleaded for the leaves, claiming that they were necessary to elaborate the sap, to perfect the crop of fruit, and to ripen the wood and the roots for the future healthiness of the plant.

After a full expression of similar views by these tender-hearted vine-dressers, who adopted the motto, "*Laissez faire*," in regard to summer treatment, a member, who has long had extensive opportunities for practice and observation in the vineyard, stated that he should advise a middle course, consisting of judicious and systematic, but perhaps some would think *severe summer-pruning*, as the best method of directing the sap into the proper channels, and of increasing the production of large leaves, good fruit, and of healthy, vigorous shoots, where they were needed for the renewal of the vine. These results he preferred to the extremes that had been alluded to, — the sacrificing of the growth and foliage on the one hand, such as had been styled "summer slaughtering ;" or, on the other extreme, allowing an indiscriminate and profuse production of shoots and leaves, that must interfere with the perfect development of the vine and the proper ripening of the fruit.

He claimed, that, by a proper performance of the different operations which make up the summer-pruning of the vine, in our attempts to furnish

a renewal of wood suitable to produce the next crop, these several objects should be kept clearly in view :—

First, That we should prune in such a way as to avoid that very common evil, the over-production of fruit.

Second, That we should prune so as to provide for the largest development of the foliage, and for a renewal of the leaves upon the fruit-bearing branches.

Third, That we should so direct the growth of the vine as to insure the production of vigorous, healthy canes to bear the next year's crop.

And, *lastly*, That we might, under certain circumstances, find it necessary to prune or to *train* in such a way as to check the growth by extension, and endeavor to develop the buds on the lower part of the canes that are to be appropriated to the production of the next crop. These topics were considered *seriatim*.

The first operation of summer-pruning is, therefore, a process for thinning the fruit as well as for diminishing the number of shoots : but it does not follow that there will be any less wood produced ; on the contrary, it will be found, at the end of the season, that there is more available and useful wood upon a vine that has had this important operation well carried out than upon one which had been so neglected that all its shoots had been allowed to remain and contend with one another to their mutual injury.

This first process consists in what is called *rubbing-out*. It should be performed early in the season of growth, — very early, — so soon as the young shoots have made their appearance, and have developed themselves sufficiently to show their little bunches of embryo fruit : this will be when the largest have grown five or six inches long. It is evident, that, if delayed longer, there must be a greater loss to the vine.

The vine-dresser removes the weaker shoots by rubbing them off with his thumb. When there are twins, he should take away the weaker. Where the joints of the old wood are short, if the buds all break, the branches will be too close : in this case, alternate shoots must be removed, or even more than this, so as to leave the fruit-branches not nearer than six inches ; in many vines, ten inches would be still better. If this work be well done, the after-labors of summer-pruning will be very much lightened.

This process of rubbing-out is very useful for correcting the evils of insufficient winter-pruning ; as the surplus buds may be removed, and the

amount of growth reduced to what the plant is capable of sustaining to advantage. A vine which may have been wholly neglected in the winter can still be thoroughly pruned for all the practical purposes of pruning by thus removing the surplus shoots, rubbing them out as they appear.

Some vine-dressers depend upon this plan of reducing their crop, instead of severe winter-pruning, which is the more direct method usually adopted. Sometimes, indeed, it may be advisable to trim the canes long, when there is apprehension that a portion of the buds have been winter-killed. Now, if they still break regularly, the excess can thus be reduced to the proper standard. In some vineyards the whole summer-pruning is done at once by the systematic and severe removal of a large portion of the shoots by rubbing them out, so as to thin the crop, which is afterward left to take care of itself.

Certain insects are busily at work at the time of this rubbing-out, doing a similar work by eating a portion of the buds ; but we cannot depend upon their judgment in the matter, and should kill the beautiful *Haltica chalybea* while we are disbudding our vines.

The second division of the subject, or pruning to effect the greatest development of the foliage, and to produce new leaves during the season upon the fruit-bearing branches, is accomplished by systematic, judicious, and early pinching-in of the ends of the shoots. This operation should be done as soon as it is seen which are the best and strongest, and before the blossoming of the vine ; so soon, indeed, as the bunches can be seen : it is often practised at the same time as the rubbing-out, at least on the strongest shoots. This pinching is a very simple matter : it is done with the thumb-nail and the fore-finger. The point only should be removed. Sometimes one leaf, sometimes two, or even three, are left beyond the outer cluster of grape-buds ; but, to produce the best effect, the former point is advised.

It has been observed that an early and close pinching is always followed by a remarkable development of the thrift and size of the foliage. The leaves attain double the size of those on an unpinched shoot, and the aggregate of the evaporating surface presented by them will be greater than that of all the leaves that would have been produced by the shoot if left alone. But this is not all : at the base or axil of each of these enlarged leaves the new buds will become very prominent, and will soon burst, and produce laterals. These are again pinched at one or two leaves,

and with the same effect, — that of enlarging the foliage. We thus have a new crop of these valuable evaporating organs, or lungs as they have been fancifully called, and at a season when it may be very desirable to the health of the plant that a supply of fresh foliage should be on hand ; for the older leaves are often injured by storms, by insects, or by accident, and their renewal in this manner will be very opportune.

This treatment is very different from the practice of many of the European vine-dressers, who attempt to manage the free American vine by subjecting it to extremely harsh measures. They break off the ends of the shoots at the last bunch after they have made a considerable growth, and thus sacrifice a portion of the energy of the vine. They often defer this trimming until after the blossoming season, because of a prejudice that prevents any work being done among the vines during that delightfully fragrant period when it is a joy to be in the vineyard, almost equal to that experienced at the time of the vintage. Not satisfied with this sacrifice of growth, these tardy but now energetic pruners tear out all the laterals that may appear ; and thus, when provident arrangements have been made for renewing the foliage, they deprive the vine and its fruit of these valuable resources ; and it is no wonder, that, with all their efforts to expose their fruit to the burning rays of the sun, they often miserably fail in the desired result of well-ripened fruit.

This pinching cannot all be done at once. As already observed, its best effects can only be obtained by commencing very early, when only a portion of the shoots will be sufficiently developed : these should be pinched. The backward shoots will rapidly advance, and in a few days these must be subjected to the same treatment ; and very soon the laterals on the first will require pinching. In the course of the summer, other laterals will form, which will need shortening for the same purpose of developing the foliage ; but, toward the close of the season, they may be let alone.

Thus it will be seen that the vine-pincher has no sinecure office, but that his attentions will be pretty constantly required during the season of growth.

RASPBERRIES FOR THE NORTH-WEST.

IN the more favored regions, there are various candidates for public favor amongst the raspberry family; and lately some have been added to the list that are deemed quite an acquisition. But with the severe climate of the North-west, taking it as far north as extreme Northern Illinois, it is doubtful whether they will ever be cultivated to any extent. For this reason, the first requisite is hardiness; and, in this respect, the Philadelphia raspberry and Lawton blackberry, although standard varieties East, are lacking in hardiness, and consequently not valued. Perhaps it is not well to pass judgment on the Philadelphia, as it has not been very thoroughly tested yet; but the Lawton, with most in this locality, is considered nothing more or less than a weed, the roots hard to kill out, but the tops too tender to bear without winter protection, and too stiff and strong to be bent down for winter covering.

The American black-cap raspberry grows wild here, is perfectly hardy, and bears well. Any one who will take the trouble to transplant it from the woods, mulch with coarse manure, and cut back the canes to about two feet in height, need have no lack of a really good raspberry for home use or market. The better way to trim is to pinch back the growing canes when they are about two feet high, allowing only from four to six canes to grow to a hill. This will cause side-branches to be thrown out, which should be cut back in the winter or spring to one foot in length. The novice will be apt to be anxious for all the fruit possible, and will allow the canes to grow full length. These will blossom quite full, set well with fruit, and the proprietor will count on a full harvest until about the time he goes to gather his crop, when he will find, instead of juicy berries, nothing but the dried seeds, dead on the bushes just before ripening. If the pinching back of the canes is neglected during the growing season, do not fail to cut back in the winter or spring to two feet or thirty inches in height.

Doolittle's improved black-cap is much the same as the wild black-cap, and of larger size; and, in most cases, it will be found cheaper to buy it than to transplant the wild plants from the woods. As the canes bend over and

take root at the end, they are easily propagated, and can be bought at reasonable rates.

Another variety is the golden-cap, similar in its habits to the black-cap ; but the canes are of a yellowish color, as are the berries. To the taste of some, they are better than the black-cap ; but the majority prefer the latter. Last year being a wet season, about the time of ripening they were so much like the black-cap, that, if a handful were eaten without being seen, they could not be told from the black-cap. For a market berry they are considered most profitable, being very abundant bearers, and bearing handling well. One point decidedly in their favor is the fact that the birds will not touch them, probably owing to their color ; for, whilst the black-caps growing beside them are stripped from the bushes, they are left unharmed. Perhaps the birds are waiting until they show they are ripe by their dark color.

The purple-cane, a red or purplish raspberry, is excellent for family use, or for market where they need not be shipped long distances, as they will not bear handling so well as the cap varieties. They are propagated, by some, by division of the roots, and said not to root at the tips. This is a mistake, however, as the tips do root.

Although the raspberry will not bring so many dollars per acre as the strawberry, it is less expense, less trouble, and a surer crop.

C. C. Miller.

MARENGO, ILL.

THE LAWN.

IN the excellent article on "The Lawn," by Charles L. Flint, Esq., which appeared in your last number, it is recommended to sow some grain with the grass-seed, to protect it from the sun during dry weather, the first season. According to my observation and experience, this is too much like setting a lion to protect a lamb. The grain, being the stronger grower, robs the grass, and works positive injury to the young lawn.

If the grass is sown at the earliest moment the condition of the ground will admit, — that is, when it is dry enough to be finely pulverized with harrow and roller, — it will have made sufficient growth, before the dry season

comes, to endure any ordinary drought: indeed, a good lawn may be had in the month of June. As to the kind of grass, I find that pure clean red-top is good enough. White clover added, in about the proportion of one bushel to four, makes a good mixture, of which four bushels to the acre is not too much.

P. Barry.

ROCHESTER, April, 1867.

Musschia Wollastoni. — A Campanulaceous plant, introduced to Kew ten or twelve years ago, from Madeira. It forms a large-leaved undershrub, from two to six feet high, with oblong lanceolate leaves from one to two feet in length, often purplish in color; and has erect panicles, two feet in length, of large yellowish-green flowers. It requires a cool greenhouse. — *L'Illustration Horticole.*

Dipladenia amabilis. — A gorgeous stove-climber, raised by Mr. Henry Tuke, gardener to R. Nicholls, Esq., of Bramley near Leeds, and the result of a cross between *D. crassinoda* and *D. splendens*. The plant partakes somewhat of the habit of *D. crassinoda*; but it is of stronger growth, with larger foliage. The blossoms open of a pale-bluish pink, and gradually change to rose, until they finally attain to a richer and deeper hue than that of *D. crassinoda*. The lobes of the corolla are more rounded in form than in that plant; and the flowers are not only of larger size, but of a very showy character: they are, moreover, very freely produced. — *Floral Magazine.*

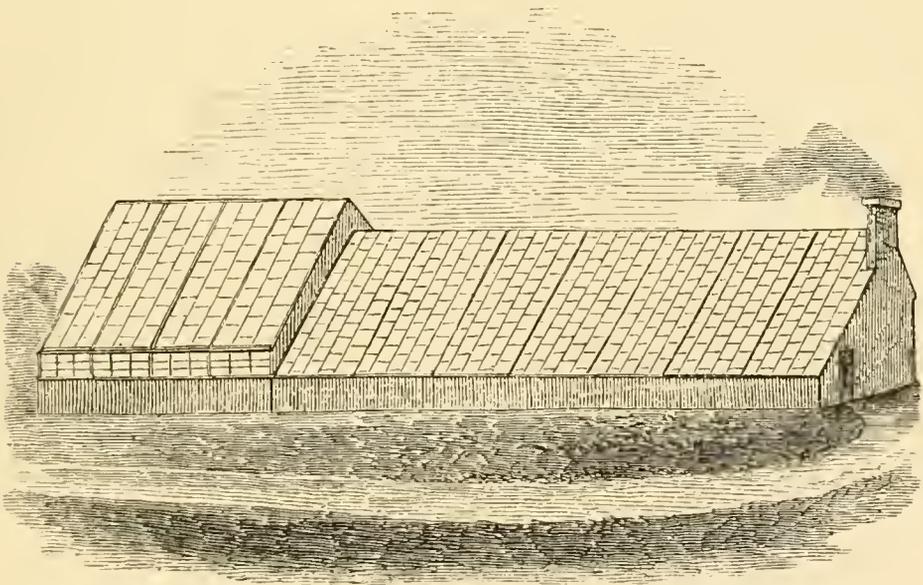
Ivy-leaved Pelargonium Silver Gem. — The leaves of this variety are bright green, heavily edged with white, and, while young, are prettily zoned with pink. The flowers are larger than in the common form, and of a lilac-rose, blotched in the upper petals with purplish-crimson. Its chief recommendation, however, is its foliage, which renders it peculiarly well adapted for the edgings of beds and for baskets. — *Ibid.*

Camellia Mrs. Dombraïn. — Flowers large, with very small petals, closely and regularly imbricated, of a delicate rose-color, becoming paler towards the edges, and finely veined with a somewhat deeper rose. The leaves are divided by the midrib in two unequal parts. — *L'Illustration Horticolc.*

A SMALL CHEAP PROPAGATING-HOUSE.

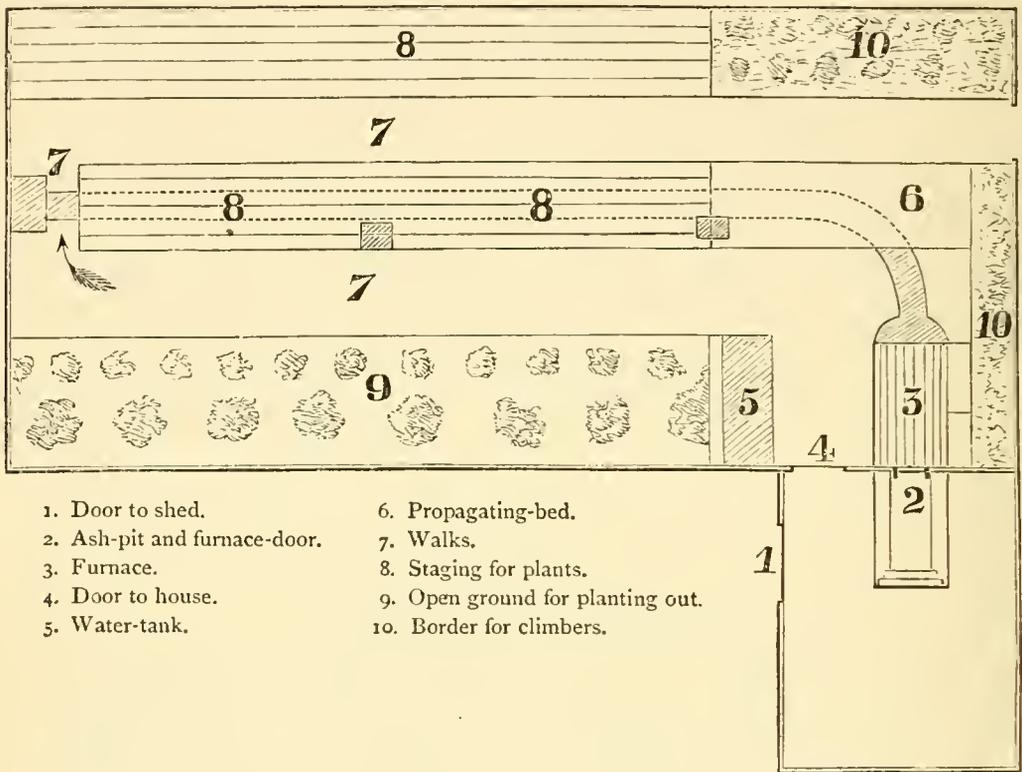
• A PROPAGATING-HOUSE, or pit, is one of the chief necessities of a country place. By its aid the garden can always be well supplied with bedding-plants in the summer, and the parlor may be made gay with flowers during the inclement winter months. It is also valuable as a place for preserving bulbs and tubers during the winter, and the ease and small expense of heating it render it attainable to all. The following plans show a cheap and pretty design which any carpenter and mason can construct :—

The propagating-bed is of brick, single width, and nine courses high ; size, three feet by ten. Common slate is laid on the top, supported by brick, laid up for the purpose from the top of the flue. A space of half an inch may be left between the slates. On the side, a few openings should be left for ventilation, so arranged as to be closed at pleasure.



Make a frame the size of the top of the bed, of plank, ten inches wide by one and a quarter thick : set this on the top of the bed, and run an iron through the centre to prevent the sides from spreading. In this frame, and on top of the slates, place three inches of pebbles about the size of hickory-nuts ; then one inch of fine gravel ; then, filling the bed with fine sand, it is ready for use.

Charcoal may be substituted for pebbles. The house should front south or south-east. The front glazing should be lower than the back, and may be within eighteen inches of the ground. An evaporator or large pan of zinc or boiler-iron should be placed upon the flue to render the air moist. Hang-



- | | |
|------------------------------|----------------------------------|
| 1. Door to shed. | 6. Propagating-bed. |
| 2. Ash-pit and furnace-door. | 7. Walks. |
| 3. Furnace. | 8. Staging for plants. |
| 4. Door to house. | 9. Open ground for planting out. |
| 5. Water-tank. | 10. Border for climbers. |

ing-shelves may be introduced if needed: they are very convenient for bringing your plants near the glass.

A. C. H.

DETROIT, MICH.

Orchis maculata superba. — A fine variety of the well-known spider orchis found in Ayrshire, and which this year received a first-class certificate from the Floral Committee of the Royal Horticultural Society when exhibited by Messrs. Osborn of the Fulham Nurseries. — *L'Illustration Horticole*.

Jacaranda digitaliflora albiflora. — A variety sent to M. Verschaffelt from Rio de Janeiro, and having white flowers with a yellow throat. — *Ibid.*

IONA AND DELAWARE.

THESE varieties of our native grape may be compared and classed with those grapes of Europe, such as the Pinot, sometimes called the Burgundy grape, and of which their most excellent Burgundy wines are made ; the Riessling, or Klammer, known also under many other local names, of which the fine German wines of the Hock class are made ; including Steinburg and Johannisberg, the most precious and costly wines of Europe. That the Iona and Delaware do compare favorably with those named, no one who has tasted the wine made from them, side by side with the best brands of the celebrated wines named, can doubt. The Delaware loses nothing in comparison, while the Iona gains ; for it undoubtedly has qualities superior to all, which are brought out and clearly proved to the mind of the most inexperienced wine-taster by this comparison.

It is difficult for one of us to believe, that, while yet grape-culture is in its infancy, we have already a grape fully equal, and in some respects superior, to the best known in the Old World,—the *must* of Iona made from grapes fairly ripe weighing 120 ; while that from fruit more perfectly ripened, slightly shrivelled, but yet taken directly from the vine to the press, weighed 140. Compare this *must* with that made from the most thoroughly ripened fruit of Catawba, Clinton, or Concord, and remember the Iona has no excess of acid, and also remembering the exquisite flavor of the grape, and who can doubt its making a wine equal to the best in the world? I have a bunch of Iona grapes now before me : it was put away last fall for the purpose of saving the seeds in best condition for planting this coming spring. Looking it up to-day, I found it as perfect a cluster of raisins as I have ever seen. It has been, since taken from the vine, in a cold, dark, damp room in which there has been no fire. I did not think it possible for any grape to dry into a raisin under such circumstances. A bunch each of several varieties was with it ; but all had decayed, except the Iona.

Concord and Clinton may be classed with that European family of grapes known as Gamai. This class of grapes is distinguished for its early and abundant productiveness, but of great inferiority of quality ; so that its

produce is unfit for commerce. It is sold very cheaply, and is emphatically a poor man's wine. It is produced mostly by those who rent their land for a term of years. Its early produce and wonderful productiveness, often yielding two thousand gallons to the acre, make it more desirable to them than the better kinds, which do not come into bearing before the seventh year; and then the produce is small, comparatively, — never more than two or three hundred gallons per acre. There is no such reason for making the planting of poor grapes desirable here in America. Any one able to plant a vineyard at all can be the owner of the land: besides, there is no such disparity between the early and abundant productiveness of our best kinds and those far inferior. With the care and attention given to the vineyards in other countries, we can get early, abundant, and regular crops from such varieties as Iona and Delaware; and in locations where it is not subject to disease, and the season is long enough to ripen its fruit, the *Catawba*.

A well-ripened *Catawba* is indeed a good grape; yet in my own location on the bluffs of the Mississippi River, where it always ripens, and only once in fifteen years has the crop been injured by rot or mildew or any other disease, even now many are planting Concord, because, though of poor quality, its produce is abundant, and it is believed to require less care in its cultivation.

Though, with good cultivation and management, the *Catawba* produces as large a crop as could be desired, and is even more certain than is a good crop of corn, yet it is thrown aside by many that they may plant varieties infinitely inferior, simply because they require, or are supposed to require, less care. It seems to be a constant study with some how they are to grow grapes with the least work and attention; caring nothing for quality, so that the vines produce grapes.

It is well known that those who own vineyards in France and Germany, whose wines have a world-wide reputation, make it the business of their lives to produce the best in quality, knowing well that the extra price will repay them tenfold for any loss in quantity. And thus must our vine-growers do before they meet with great success.

The introduction of the *Catawba* grape gave to grape-culture in America the first glimpse of success. Mr. Longworth proved that it would make a

real wine. This excited the masses among vine-growers that something yet better might be produced. Many varieties have been produced since then. The Iviana was the first that excelled the Catawba in quality; and earliness of ripening its fruit; and it is surprising that this grape, which has so many good qualities both for table and for wine, has not been more extensively planted.

C. F. May.

WARSAW, HANCOCK COUNTY, ILL.

(To be continued.)

LILIPUTIAN ENEMIES.

SOME of the most astonishing phenomena of Nature are the results of an aggregation of minute forces. So insignificant are these when examined singly, that it is scarcely credible, that, when indefinitely multiplied, they could become a beneficence or a terror. A single snow-flake floating in the air might be taken as an emblem of fragility and evanescence; yet myriads of them unite to stay the rush of a rolling engine as abruptly as a granite hill, and to build up a towering berg which crushes an oak-ribbed ship like an egg-shell. An atom of oxygen is scarcely appreciated in the chemist's nice scales; yet the immense numbers that mingle in the atmosphere give life to all breathing creatures, and feed the conflagration of cities. Should the farmer, when viewing some of his treasures through a powerful lens, discover an infinitesimally minute round body, so small as even under that magnifying influence to be scarcely apparent, he would hardly credit the fact, that in that little pellucid ball, so small that his unassisted eye would utterly fail to perceive it, lay the cause of his crop's failure and his own ruin. Yet such is the origin of the many pests which infest the farms and gardens of the world.

The various species of fungi which are grouped together under the general names of rust, smut, bunt, and mildew, belong to the lowest and simplest of all. Rust is the familiar term given to the yellow, brown, or reddish powdery masses which are found on the leaves or stems of a great variety of plants. Although mere coatings of adherent dust in appearance, they exhibit, under the microscope, a regular structure; and many of them are beautiful objects to behold. The genus *Uredo* infests the leaves of hosts

of plants, but is less destructive than some of its congeners. The old genus included the black-spored species, which have since been separated under distinct names. As now limited, *Uredo* includes the yellow-spored forms, more or less circumscribed in spots or blotches. On the under side of the leaves, generally, of many plants, may be seen these yellow spots, sometimes scattered irregularly, and sometimes confluent over the whole leaf. They germinate within its tissues, the fungus being then merely branching threads, termed *mycelium*, which, at a certain stage of growth, give off from their ends little globules, which are individual cells, that fall away at maturity, and constitute the reproductive germs. They burst through the epidermis, and appear on the surface; and, as the threads of the mycelium continue to give off these terminal cells, they soon cover the leaf with a dense mass which looks like dust. Under a high power of the microscope, they appear as little pellucid globules. Their germination consists in a protrusion of their inner membrane from different points of the surface, which grows into similar branching threads to those which first gave them birth. This is the whole plant, a branching thread, and a terminal cell for a germ. If any one will hunt among the leaves of the low wild blackberry, he will find the under surface covered with a splendid orange-colored felt. This is the mass of spores of *Uredo nitens*. The winter-green (*Pyrola rotundifolia*) is infested with another species, *Uredo Pyrolæ*, which appears in round spots. Another species is found on grasses and corn: in fact, these yellow rusts occur on a vast number of plants of all families.

Nearly identical with *Uredo* is the genus *Æcidium*, differing in having a surrounding membrane, distinct from the epidermis of the plant it infests, which breaks at the apex, and shows itself in a little lacerated margin which radiates irregularly around the mass of spores in the centre. It occurs on a great variety of plants. The common barberry will furnish specimens every summer. The leaves are spotted with a blistery pustule; which will be found, on close examination, to be dotted with little yellow points made up of a mass of yellow spores, contained in a membranous pocket, irregularly jagged at the edges. This is *Æcidium Berberidis*. Gooseberries are attacked by *A. Grossulariæ*. An allied genus, *Ræstelia*, is found on pomaceous plants. We have seen a young quince completely

covered with *R. lacerata*, its surrounding membrane prolonged into delicate lacerate teeth, which studded the whole fruit with soft white points, while the felty skin was tinted orange gold with its constantly dropping spores. Another closely-related genus is *Cystopus*, which has white spores. It appears in oblong or linear white blotches on the leaves, and attacks cruciferous plants; among them, cabbages. The *Polygona* are sometimes almost covered with *C. candidus*.

But the above-mentioned genera, though close allies, are far less injurious than the black-spored forms. These latter have been, for centuries, the pests of farmers. They are similar to *Uredo* in their general mode of growth; but their ravages are more extensive and fatal. The bunt of wheat (*Tilletia caries*) takes possession of the whole grain, turning it into a mass of black dust. It does not, like *Uredo*, simply grow beneath the epidermis in a superficial manner: it permeates the whole substance of the grain, producing its powdery spores with immense rapidity and profusion. *Ustilago Segetum*, the smut of all the cereals, infests the stems, leaves, rachis, and grain. It grows within the tissues of the plant; its spores finally bursting forth in such vast quantities as to cover it with their jet-black powder, which is simply an immense mass of black globules. The rapidity of growth which will allow of the production from the apices of minute filaments of this dense volume of cells is certainly amazing. The number of them contained in an ear of smutty corn is simply inconceivable. They utterly vitiate the plant they infest, turning it into a dust, which, when moistened, becomes a disgusting inky mass. *U. Mayidis*, a kindred species, infests Indian corn.

Another genus, containing some of the most beautiful objects under the microscope, but ugly enough in the farmer's eye, is *Puccinea*. Many of its species attack plants of all orders, appearing in little dark, rounded spots on their leaves. But the dreaded species is the wheat-mildew, *Puccinea graminis*. This infests all cereals, attacking their culms and leaves. The spores of this genus are larger than those of the other genera: they can be almost individualized by the naked eye. They are borne on slender, diaphanous, elongated cells, and are variously ornamented by surface corrugations. They burst, like the others, from beneath the epidermis of

the plants, in close masses, which become confluent lines in the grasses. The spores are double on the ends of the filaments, one above the other, looking like a single, oval spore, somewhat pointed at the top, which, by constriction and septation, had become resolved into two.

All of these fungi we have enumerated are of the simplest structure. Though the individual plants are so infinitesimally small, they reproduce with such wonderful rapidity, and in such amazing profusion, as to destroy whole crops by their ravages. Their mycelium penetrates the soft tissues of their prey, and, on reaching the surface, breaks forth in an eruption which allows of no cure. A piece of glass, on which lie spread thousands of their spores, would exhibit to the eye a faint mist; and yet this mist will increase into a black cloud which envelops and destroys a field of nodding grain.

Experiments of all sorts have been resorted to to prevent the attack of these omnipresent parasites. But their occurrence is mainly due to atmospheric influences. Their spores are everywhere, and can be called into germination by circumstances favorable to their growth, either moisture or drought. All fungi are more or less meteoric in occurrence. Season upon season may pass without a sign of them; and then, owing to favorable influence, often beyond our recognition, they spring broadcast into life and luxuriance. Dr. Berkeley says, "The surest remedy is to steep the seed-grain in some solution which at once washes off a portion of the spores, and poisons the rest. Many remedies have been proposed; as simple water, salt, lime, sulphate of copper, corrosive sublimate, arsenic. The best, perhaps, is sulphate of copper in solution (Glauber's salts), dried off with quicklime." These various parasites affect different localities with varying intensity. They are more or less common all over the world, and ravage the crops of England and Europe sometimes to a disastrous extent. The dry air of New England is not favorable to their propagation to an alarming degree.

Chas. F. Sprague.

HEPATICA ANGULOSA.

HEPATICA ANGULOSA is supposed to be a native of Hungary. It was introduced to cultivation in England by Messrs. Backhouse & Son of York, and is thus described in the Royal Horticultural Society's proceedings : —



“The leaves and flowers are about twice the size of the common *Hepatica triloba* ; the former three inches broad, three-lobed ; the lobes commonly

crenated, and again obscurely lobed ; the latter numerous, each upwards of an inch and a half across, consisting of nine or ten (the numbers seven and eight being also found) oblong sepals of a pale blue-lilac color, prettily relieved by the central tufts of yellow styles. One of the finest hardy plants of recent introduction, and of a sturdy, vigorous habit."

Rose Mrs. Ward.—A hybrid perpetual obtained by Mr. Ward of Ipswich, the raiser of John Hopper, from Jules Margottin crossed with Comtesse de Chabillant, and described as partaking of the qualities of both parents. "The outer petals have that brilliant rosy-pink color which the Countess possesses; while the centre of the flower has the color of Jules Margottin: the petals are of great substance, thicker almost than those of any rose with which we are acquainted. In shape, also, it is midway between the two; and we believe no better model for a rose exists. The wood is stout and thorny, the foliage large and ample; and the plant has the merit of being a good autumnal bloomer." — *Florist.*

Rhododendron Archiduc Étienne. — A hardy hybrid variety raised by M. A. Verschaffelt. The trusses, as well as the individual flowers, are large; the latter are white, densely covered in the upper petals with a multitude of small, dark, chestnut-brown spots, which at a little distance appear as if forming one large blotch; intersected lengthwise through the middle by a white vein. The spots do not extend so far as the margin of the petals; and, as they approach it, they are set farther apart: they also exist at the base of the lower petals. — *L'Illustration Horticole.*

Urcolina pendula. — Described many years ago by Dean Herbert, and figured in "The Botanical Magazine" for 1864. The plant from which the plate is taken was found by Messrs. Veitch's collector, Mr. Pearce, in the woods of the Andes of Peru. It bears large umbels of drooping golden-yellow flowers, likened in shape to an inverted pitcher, and having the limb green, edged with white. — *Ibid.*

ORCHARD-SITES IN THE NORTH-WEST.

THE belief that fruit cannot be raised on the prairie regions of the West is, happily, fast disappearing. Looking from the window at which I write, over an orchard of forty acres already in profitable bearing, located in the extreme northern part of Illinois, it is no difficult thing to say, that fruit-growing may be set down as a success in this region.

The many orchards that can be seen as one passes over the country, in which three-fourths of the trees are already dead, and the majority of the remainder in a dying condition, have done much to deter later settlers from planting as largely as they otherwise would; but each year gives greater evidence, in the success of other orchards, that these failures were the result of the ignorance and mistakes of the planters.

A few hints are here given with regard to orchard-sites, in the hope that they may be found useful. Scattered over our prairies are groves of timber of greater or less extent. These groves are generally found to be on higher ground than the surrounding prairie, and on that account are, to some extent, exempt from the frosts that are so destructive on the lower grounds. The soil, also, differs from the surrounding prairie; being much poorer in quality as a usual thing. The original growth of timber, when cleared away, leaves a mass of decaying roots in the ground, which serve for years as a natural under-drain. These reasons make these timbered spots eminently desirable for orchard-sites. Other things being equal, the higher the ground, the better. In an orchard planted by E. H. Skinner, one of the pioneer fruit-growers of Northern Illinois, which is two hundred feet above the level of the prairie, corn was not killed last fall until three or four weeks after it was killed on the prairie; and the late spring frosts are much lighter on this high ground. The poorer quality of soil is favorable, in that the wood is not stimulated to make a late fall growth, and is thus well ripened, and prepared to endure the rigors of a severe winter.

“Oak openings,” as they are called, being sparsely covered with trees, make good sites for orchards.

On the open prairie, the high or “rolling” ground is considered best; but with proper cultivation before planting, and judicious cultivation after,

no one need do without fruit, even on the lowest prairie. If no other alternative is presented but to plant on low prairie, or not at all, prepare the ground by throwing up into ridges for the tree-rows; then, with proper selection of sorts, and wisdom to know when to cultivate and when not to cultivate, you need not despair of raising fruit, particularly if you protect your orchard with belts of evergreen or other trees. This protection by surrounding timber is one reason of success in the timbered portions, as the forest-trees left standing serve to protect the orchard from the force of the winds.

The exposure of the land is of importance in selecting a site. That which lies to the north is regarded as most favorable. Southern exposures are objectionable, as they are more readily affected by the rays of the sun, causing the blossoms to open earlier in spring, and thus to suffer more from spring frosts. When the blossom-buds are frozen, those which lie directly to the sun, as in a southern or eastern exposure, are suddenly thawed and killed; whilst those on the north side of a hill thaw gradually, and remain uninjured.

The frequent thawing of the bark of the bodies and limbs of trees during winter and early spring is a prolific source of injury; and, in this respect, ground which lies to the south, or a little west of south, is the worst, and north best.

To any who purpose settling in the North-west, or, having done so already, are postponing indefinitely the planting of an orchard, we would say, Plant at once; plant for the health and enjoyment of your family; plant for market. Do not plant Eastern favorites; but inquire of your neighbors what kinds have succeeded well in your locality; post yourself up as to planting and cultivation; and you will find your money and labor very soon making handsome returns. If you want to raise fruit as a business, there are, in this region, hundreds of acres — which can be bought at a nominal price — of good orchard-lands. A very small capital, with a moderate allowance of labor and brains, will make a pleasant and comfortable living.

C. C. Miller.

NATIVE FRUITS.

ARE not horticulturists to blame, that, while Nature has spread out over our wide extent of territory such a variety of fruits in their wild state, they have not devoted more attention to their improvement and cultivation? The fruits of our forest open a wide field, asking their attention. Is the native crab less likely to produce a new race of apples than the foreign wild crab, from which it is said all our luscious apples have sprung? I have seen accidental sports from it that were four times as large as they grow ordinarily, and vastly improved in flavor. The peach is said to have been improved from the bitter almond, which is not only bitter and unpalatable, but is poisonous. Is it not possible that the black walnut (*Juglans nigra*) may yet produce a fruit superior in size and equal in flavor to the peach? The butternut (*J. cinerea*) and hickory-nut (*Carya alba*) may also be the parents of similar fruits.

As Utopian as this seems, it is not inconsistent with the theory of Van Mons, who devoted a long life to the amelioration of fruits. His theory, as stated by Downing, is, that "all fine fruits are artificial products; the aim of Nature, in a wild state, being only a healthy, vigorous state of the tree, and *perfect seeds* for continuing the species. It is the object of culture, therefore, to subdue or enfeeble this excess of vegetation, to lessen the coarseness of the tree, to diminish the size of the *seeds*, and to refine the quality and increase the size of the flesh or pulp."

There is scarcely any variety of wild fruit but what sports, or varies, from its natural state. It is only necessary, according to Van Mons, to take advantage of that state of variation to attain our object. He paid no attention to the quality of the fruit, so that it was in a state of variation; for "seeds taken from recent variations of bad fruit, and reproduced uninterruptedly for several generations, will certainly produce good fruit."

It is not my object now to give minutely the whole of his theory, but only to throw out such hints as may induce our horticulturists to take some steps towards domesticating our wild fruits, which will also lead them to investigate and study this theory.

The foreign plum has almost ceased to be planted, on account of disease, and the ravages of the curculio. The foreign or cultivated cherry is unsuited to our climate or soil; while we have the wild plum sporting in nearly every shape, size, and color, and the wild cherry doing the same thing, as if calling to us to rescue them from their savage state, and make civilized fruits of them. The foreign raspberry is tender and uncertain, while the native is hardy and prolific. The cultivated gooseberry is also a foreigner, unsuited to the United States in its finest varieties; while our native species is entirely neglected. The strawberry is an exception, and at the same time an example of what may be done with our native fruits. The most popular varieties are improvements on our native species.

There are other fruits besides these to which we should turn our attention,—the persimmon, the red haw, the black haw, cranberry, whortleberry, and a number of others, which, if taken in charge by our horticulturists, there is no doubt might each be made something of.

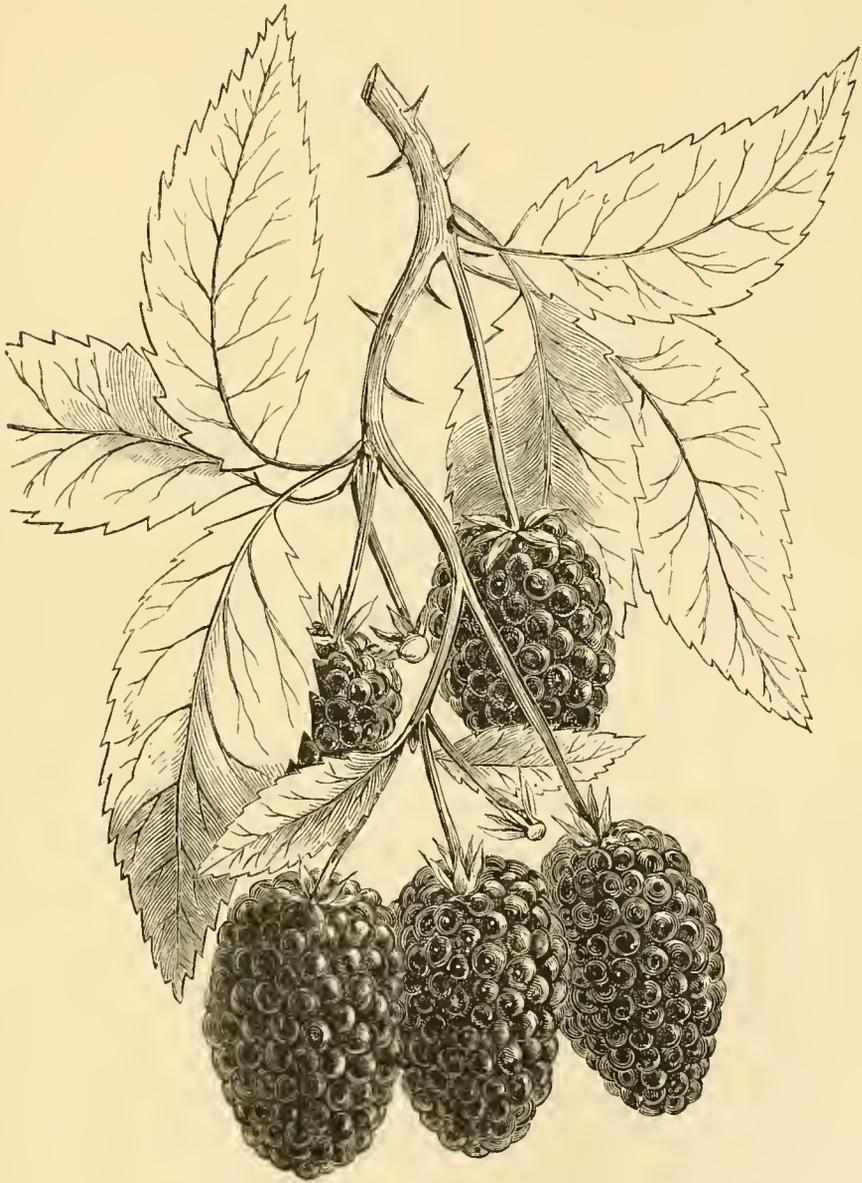
The blackberry, in spite of all this neglect, has forced itself into notice. The Lawton, Dorchester, Kittatinny, and Wilson's Early, have compelled us to take them up, but owe none of their fine qualities to our care or industry. I have also a variety, an accidental seedling, which I think an improvement on all of them. I herewith send you a drawing of a bunch of the fruit. It is nearly as large as the Lawton, a week or ten days earlier, and the most beautiful fruit I ever saw. It is first green, then white, then a light clear pink, then a beautiful glossy translucent claret color when it is fully ripe. If left on the bush until it is over-ripe, it assumes a glossy purple color, which fades out as the berry dries up, and becomes a dead yellow or brownish hue, like dried apples. It is delicious in flavor, perfectly sweet, with no trace of acidity. The juice is nearly as transparent and limpid as water, and, with one-half the sugar required for other blackberries, makes a *sweet* wine, better than nine-tenths of the grape-wine. It is very productive. The bushes grow erect, stout, and stocky, branch well, and are of a light-green color.

It originated here, and I have had it in cultivation about seven years. If accident accomplishes such results, what may we not expect, when, by careful cultivation and reproduction, we reach perfection?

I have not room, without making this article longer than I intended or you may desire, to say all I wish ; but, with your permission, I will finish at another time.

D. L. Adair.

HAWESVILLE, KY., January, 1867.



ADAIR'S CLARET BLACKBERRY.

CULTURE OF THE GRAPE IN CITIES.

(Concluded.)

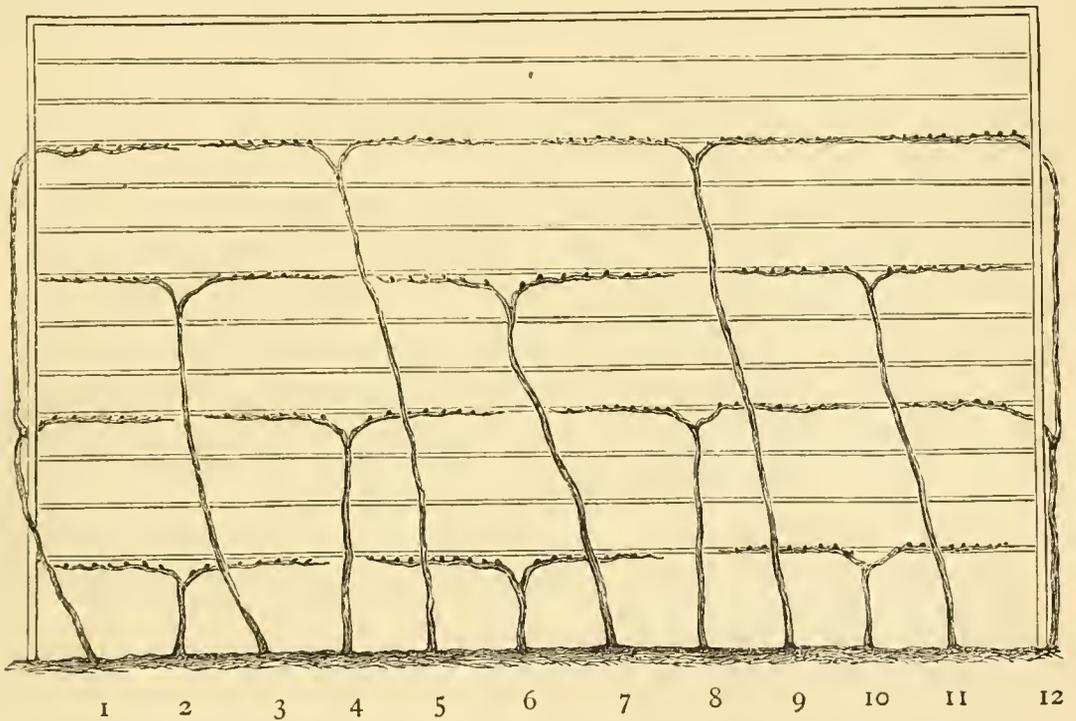
HAVING in the March number shown some of the advantages possessed by city lots in the cultivation of the grape, and sketched out a mode by which a few vines may be grown upon a trellis of very small dimensions, it was suggested that the plan, with some modification of detail, was applicable to spaces of greater extent.

The writer now proceeds to develop this branch of the subject, and to show how a dozen vines may be planted in a border thirty feet long, and from two to five feet wide, and trained to cover a trellis of equal length. Having put the ground in complete order, as previously suggested, and procured a supply of first-class vines, beginning at, say, the left-hand end, measure off two and a half feet, and plant a vine; and so proceed with the twelve, preserving an equal distance from vine to vine. These vines, arranged in four courses, are in due season to occupy portions of the trellis ten feet in length by two feet in height. The first and second seasons, their progress will be leisurely; and not until the third year can they take possession, even in part, of their destined spaces on the trellis, or give an earnest of the good things in store; nor, with all due regard to the anxious expectancy of the owner, can they under five years be judiciously permitted to assume their full proportions. But all these points, as well as the preparation of the border and the culture of the vines, have been discussed in the previous article, and need not be treated again.

The vines having been planted as directed, let us now turn to the illustration, and see how they are to be trained.

Vines numbered two, six, and ten, it will be seen, occupy the lowest course on the trellis. They grow perpendicularly from the ground, and divide, at the height of a foot, into what are sometimes inaccurately called bearing-arms, as these arms bear only the young canes on which the fruit is grown, and which are to be cut back every winter. About ten buds are the due allowance for each arm when fully developed; and these buds should severally expand into sturdy canes, attaining, unless *pinched in*, a height of five or ten feet, and yielding about three bunches of fruit each.

When trimmed back in the fall, what is left of these canes are called *spurs*; and they may be left with one fruit-bud on them, or more, so as to produce, on each, two bearing canes, or one and two alternately, or only one on each: and the variety thus afforded by intelligent trimming adds to the gracefulness and beauty of the vines. Till the vine has acquired its full size and vigor, it were better, however, to trim for one cane only; but the spurs must be left by two or three buds longer than above directed until the winter has passed, or the ends may be killed back by the intensity of the weather, and the buds destroyed.



Midway between the three vines of the first course, two others grow, numbered four and eight. These are carried perpendicularly to the second course, and occupy twenty feet of that, leaving five feet at each end uncovered. These five lower vines have the advantage of those designed for the upper courses, in being trained perpendicularly to the points where they part into the permanent arms; as, by this arrangement, the sap flows with equal facility into each of the arms, and neither obtains an undue share of the vitalizing fluid to the detriment of the other.

It is necessary, for several reasons, that the vines on the upper half of the trellis should be placed immediately over those on the lower; and we

effect this arrangement by training the standards obliquely to a point about a foot below the places which they are to assume, as is seen in the case of numbers three, seven, eleven, five, and nine. If the standards are so secured to the wires as to rise perpendicularly the last foot of their course, this will suffice ; but, if the obliquity be continued quite to the point of separation, the sap, unless retarded as suggested below, will enter one arm so much more freely than the other, as almost, of necessity, to involve a serious inequality of the size and strength of the arms, and ultimately the absorption of the entire vigor of the vine by the favored one.

Looking now at these vines as presented in the illustration, we see, that, while the first and third courses of the trellis have been fully occupied by the vines assigned to them, spaces of five feet remain uncovered at the extremities of the second and fourth courses. A special provision is requisite for these. Vine number one is made to extend one of its arms along the vacant space at the left of the second course ; while its other arm is sent four feet higher, to occupy the corresponding position in the fourth course ; and, at the other end of the row, number twelve performs a similar service. It is true that this arrangement ignores a law of the grape which causes a tendency of the sap to the higher portions of the vine ; and consequently the lower arms would, after a while, be robbed for the aggrandizement of the upper. This result will ultimately be reached, but may a long time be delayed. In the spring, we may attach the lower arms of numbers one and twelve to the trellis, and leave the upper ones hanging down until the buds on the lower have burst, and made a growth of four or five inches : the start thus gained will be maintained a good portion of the season ; and when the upper arms, in course of time, have become unduly developed, we can cut off the vines below the top of the standards, and in the second season thereafter have new arms burdened with fruit.

With plenty of space, the trellis may be continued indefinitely, in sections of ten feet or five ; all the interior vines extending their arms horizontally as above described (each being in fact a duplicate of the fourth vine preceding it), and the two vines at the extremities assuming the appearance of numbers one and twelve. But enough has been said on training, and I must hasten to a close.

Were I asked for a list of vines most appropriate for city culture, I should be governed in my selection principally by the quality of the fruit ; and while procuring specimens of certain varieties because of their prominency before the public, and the pending discussion respecting their merits, I should be careful to secure an abundant supply of such as met the requirements of my own taste, and were sure of gaining the favor of my friends. As, in my judgment, the most delicious of all hardy grapes, and above the criticism of the fastidious, the beautiful Iona should enter largely into the collection. I would have the sweet and vinous Delaware, Israella, Diana, Allen's Hybrid, and Rebecca. The Adirondack must worthily occupy a place. Some of Rogers's Hybrids, fifteen, nineteen, and thirty-three, should be procured ; and Salem, pronounced by Mr. Rogers to be the best of the family. One vigorous Concord should grace the collection, charming the eye amid a thousand vines by its rare beauty both of foliage and fruit, — a grape possessing every excellence *but one* ; and I suppose that elsewhere it must be a *palatable grape*, and *foxy* only in Maryland, or how could it have been installed in the post of honor by so many gentlemen of taste and standing ? And the Herbemont must not be forgotten : when all other vines have paid their grateful tribute, and composed themselves for their yearly sleep, it presents its tardy offering, a solid mass of the purest flavor, with a vinous, refreshing energy that is wonderful.

Among many vines of excellence, I have selected a few of my favorites. Some of them, in the country, may be classed as tender, or liable to disease. But a city yard is a favored spot : here they are sheltered from the cold, blighting dews of August ; and here, amid the destructive droughts of summer, by means of hose and hydrant, we invoke for them an impromptu shower, healthful alike to leaf and root ; and, when tales of mildew and rot are multiplied in the land, *here* every leaf is healthy, and every berry mature in its season.

While cultivating and enjoying in leisure hours these luscious fruits which a bounteous Providence has set before us, let us seek, ourselves, to become well-trained and fruitful branches of the Living and True Vine, whose clusters are hung so near the toiling children of earth, that all who need may gather, and whose fruit is so replete with vital energy, that he who eats thereof shall live forever.

Chas. W. Ridgely.

RED SPIDER.

THE great agent in the destruction of red spider is water, which may not inaptly be termed its natural enemy. Water forcibly driven against foliage infested with red spider will free it of the pest; and that is the best means to adopt in the case of plants which will not be injured by its application: syringing with soft water is the best remedy, as well as preventive, which I have tried. Whenever a plant shows unmistakable signs of the presence of red spider, it is well to syringe it forcibly, directing the water against the under side of the leaves: and this is best done in the evening, at the time of shutting up the house; or if the house is not closed, or the plants are exposed, after the sun has declined in power. Bear in mind, that syringing once or twice is not of any great avail; but it must be persisted in until the trees are cleared. The only cases in which the use of water for the destruction of red spider cannot be recommended are when the trees or plants are in flower; for then a dry atmosphere may be desirable for the setting of the fruit: and when a tree is ripening its fruit or wood, then a free use of the syringe may not be advisable. When syringing can be adopted, it will be found the very best means for the prevention and destruction of insect enemies. It is conducive to health and vigor, frees the leaves of dust, and lessens the evils of an artificial or dry atmosphere. It is objected to syringing, that it is not natural, and cannot be otherwise than injurious; it being sufficient if the atmosphere be kept moist by sprinkling the floors, walls, &c., and by the evaporation of water from troughs upon the hot-water pipes. Such may be the case; but I have failed to experience it, having seen the foliage of the vine brown, and ready to fall off, by the time the fruit was ripe, and peaches shedding their leaves before the wood was mature.

When the syringe cannot be used, then we must look elsewhere for the means of destroying the red spider. And here I would discriminate between plants which can, and others which cannot, bear an application destructive to the insect. I may instance the vine and melon as plants to which a solution of soft soap, at the rate of two ounces to the gallon, cannot be safely applied; and yet soft-soap water of this strength is effectual, and not injurious to the foliage of most trees and plants, when applied with a

syringe, so as to thoroughly wet every leaf on both sides. Three applications, on alternate evenings, will be sufficient to destroy a whole generation of red spider. The vine, melon, and cucumber are the only plants which I have found injured by it ; for it stains the fruit of the first, and disfigures the foliage of the other two.

Should it not be desirable to syringe, or if plants are attacked to which the soap-solution would be injurious, a good remedy is to make the floors, walls, &c., wet by syringing them without wetting the foliage of the plants or trees, — this should be done on shutting up the house, — half filling pots that will hold a peck and a half with fresh unslacked lime, and then filling up with water, and scattering on this one ounce of sulphur vivum. Two pots will be sufficient for a house thirty feet long, eighteen feet wide, and of an average height ; but, if high, three will be necessary. The heat of the lime will cause rapid evaporation, and the fumes of the sulphur are carried along with the water ; and, unless sulphur be volatilized, it is worse than useless as a destroyer of red spider. The plants should be syringed in the morning ; but in the case of grapes coloring, fruit ripening, or plants being in flower, doing so would prove disastrous. An application of this kind should be made once a week, or twice if the attack is severe. This remedy, it should be remembered, must not be used until the leaves have attained their full size, and become somewhat firm ; otherwise they will be disfigured. It is more effectual when a good syringing follows, as the insects, if not stifled, are so sick as to be easily washed off.

Another method in which it is not absolutely necessary to syringe the plants consists in making the hot-water pipes so hot, that the hand, when placed on them, cannot bear the heat more than a minute, and, after closing the house, to coat them with sulphur brought to the consistency of paint, with water in which soft-soap has been dissolved at the rate of four ounces to the gallon. The paint thus formed should be applied from end to end of the pipes or flues, and be lightly syringed until the house is full of steam ; and, unless the fumes of the sulphur are strong enough to drive the operator out of the house, they will not destroy red spider. This remedy, like the preceding, must not be employed unless the foliage is somewhat mature, as in the case of the fruit approaching maturity, or becoming ripe. Two applications will, in most cases, prove effectual.

The last remedy which I have to note is sprinkling the floors, walls, &c., morning and evening, with four ounces of Peruvian guano dissolved in a gallon of water, and especially at the time of shutting up the house. The atmosphere is thus largely impregnated with ammonia, and in such red spider cannot live.

Prevention is, in all cases, better than cure ; and to this end a dressing applied in winter to trees that are liable to be attacked will be found effectual, coating not only the stems and branches, but the walls. This dressing may be made of soft-soap, at the rate of four ounces to every gallon of water, with enough of this to equal parts of flowers of sulphur and fresh lime to bring them to the consistency of paint for the trees, and of whitewash for the walls. The application should be repeated on the walls and heated surface when the leaves attain their full size, and again when the fruit commences to ripen. Its action depends on the fumes of the sulphur being generated by artificial or sun heat ; and the soft-soap causes the mixture to adhere : the lime, too, is a powerful remedy against spider, and its more formidable rival, mildew. By thus dressing the stems and branches, the eggs are destroyed.

Lastly, daily sprinkling the floors and every available surface, from the time that growth commences, with soot-water,—made by placing in a cask a peck of dry soot, and pouring over it thirty gallons of water,—will produce an atmosphere in which red spider will rarely appear. Soot-water, with the addition of a peck of sheep's dung to thirty gallons of water, is excellent for filling evaporation-troughs ; and so, too, is guano, at the rate of four ounces to the gallon of water. For syringing, the soot-water should be clear, and it will not injure the most delicate foliage ; but guano-water for syringing should not only be clear, but strained, and not stronger than one ounce to the gallon. Dressing, with soot, borders in which are trees or plants liable to be attacked, is a very good preventive ; also watering overhead with guano-water in the evening : but the best of all preventives and remedies is to keep the plants moist, to give plenty of air, and to maintain as cool an atmosphere as is consistent with their healthy development.

G. Abbey, in "Cottage Gardener."

NOTES AND GLEANINGS.

BEURRÉ CLAIRGEAU PEAR. — Take it for all in all, the Beurré Clairgeau, though not first-class in all respects, is a pear which ought to have a place in every garden which is not of the most limited extent. It combines in itself so many of the qualifications that go to make a good fruit, that, wherever there is room, it ought to find a place. Its size is of the largest, and its color the brightest; its form is most graceful; and its quality, in certain situations, is excellent. For the dessert it has few rivals; and, as its season extends from the beginning of November till January, it is invaluable for keeping up a supply. The tree is of remarkable fertility, and of moderate size. It does not produce a very vigorous growth, and is, consequently, well adapted either for bush-culture or for pyramids. To have the fruit in the finest possible condition, it ought to be grown in one of these forms. We have seen dwarf bushes laden with fruit of immense size, where proper attention has been paid to thinning, and exposure to the sun's rays, and particularly so when it was so near the soil as to benefit from the radiation. On espaliers, or against an east or west wall, we have also seen it produced in high condition. When grown upon quince, the tree succeeds better if double worked.

This beautiful pear originated at Nantes, about the year 1838, in the garden of Pierre Clairgeau, a gardener in the Rue de la Bastille of that city. It first fruited in 1848; and that same year he exhibited it, on the 22d of October, at the Horticultural Society of Loire-Inférieur. It is believed to have been produced from a cross between the Brown Buerré and Duchesse d'Angoulême. The original tree was purchased by M. De Jonghe of Brussels, and formed part of his collection at St. Gilles in the suburbs of that city. — *Adapted from the Florist.*

LABELS FOR TREES. — At a recent meeting of the Institute of Technology, held in Boston, Hon. M. P. Wilder made a statement relative to a new method of labelling trees, accidentally discovered by him. In the use of zinc labels, which were the most durable in character, an indelible ink was used; but, not having the ink at hand on one occasion, he wrote upon the zinc with a lead pencil. This writing, although it could be rubbed off when first made, grew more distinct and durable with age, and, after several years, could not be erased, except by scraping.

CYPRIPEDIUM INSIGNE. — It is scarcely possible to overestimate the merits of this old winter-blooming orchid for decorative purposes. In December, I introduced into my sitting-room, which is not one of the warmest, a plant just on the point of expanding its chaste slipper-like flowers; and it has far exceeded my expectations regarding its suitability as a decorative plant for such purposes. The blossoms are scentless, and this is the only drawback to the plant; for, in every other respect, it is all that can be desired.

The cultivation of *Cypripedium insigne* is extremely simple, and propagation is readily effected by small offsets at almost any season; but February and March are, on the whole, the most suitable months. My plants are growing in common loam, leaf-mould, silver sand, and broken potsherds, and are well drained. Even in this common and generally-attainable compost, they thrive remarkably well. During the early part of the season, this *Cypripedium* requires plenty of heat and moisture, and shade from excessively bright sunshine: it grows well under the shade of vines, — as well as, if not better than, in an orchid-house. About the middle of October, the plants may be introduced into a warmer atmosphere, that of a warm sitting-room for instance; and, by the first or second week in December, they will reward the cultivator with the sight of their exquisitely-shaped blooms.

For the decoration of rooms I would not recommend too large plants to be grown, but rather to divide them more frequently. Large plants are not, in general, so suitable for the purpose as those of smaller size. — *J. L., in Florist.*

OLD PLANTS *versus* NEW. — “Have you any thing *new*?” is the question most frequently asked of florists, and always answered in the affirmative, though frequently the plants are *new* only in name. New plants in thumb-pots are as plenty as the stars of heaven, and every spring brings fresh discoveries. Florists are not to blame for this inundation of new plants; they only cater to the public taste, and strive to meet the demand: and so each year we have new carnations, new verbenas, up to the costly screw-pines (*Pandanus*) and rare stove-plants, which one year excite attention, only to be forgotten the next.

Old plants should not be neglected for new, — indeed, in many cases, should have the preference; as we value an old friend who has never failed us more than an untried fresh acquaintance. A good rule is, to always have an eye to novelty, but never to prefer it to quality. Were this adopted, how much disappointment would be saved with vaunted novelties which experience proves worthless!

True, there are good new plants in the classes of stove, greenhouse, bedding, and garden: but we probably have more good old ones; so *old*, indeed, that most persons consider them *new*.

Can we prove this better than by mentioning *Daphne cneorum*? — a very old plant, yet just coming into notice; possessing every requisite, — perfectly hardy, evergreen, free-flowering, brilliant in color, exceedingly fragrant, and of easy culture. *Iberis sempervirens*, *Sedum Siebodii*, *Spirea*, or *Hottya Japonica*, are all of the same class, yet were introduced twenty-five years ago; and the list might be increased tenfold.

The well-known fraxinella (*Dictamnus albus*, or *D. fraxinella*) is one of the best hardy perennials, of fine habit, brilliant and fragrant, and keeping in good foliage long after its season of bloom is past. A dwarf evergreen Alpine plant, which we seldom see, is *Saxifraga pyramidalis*, or *S. cotyledon*, suitable for edg-

ing, and bearing handsome pyramidal spikes of white flowers from eighteen inches to two feet and a half in height.

What can be prettier than our native butterfly-weed (*Asclepias tuberosa*), called also pleurisy-root, and the large lady's-slipper (*Cypripedium spectabile*), both easily grown, and two of the handsomest plants of the Northern States, yet rarely seen in cultivation?

In the greenhouse, what new plant can compare with *Arbutus andrachne*, introduced to cultivation a century and a half ago?

It is one of the best winter-blooming plants we have, coming into flower about Christmas, and lasting till March. All the acacias, of which the oldest are better than the newest, flower in winter, but can be retarded, if desired, until spring.

Of Ixoras, of which many species have been latterly introduced, there is nothing better than the old *Ixora coccinea*, which is one of the most brilliant and showy of hot-house plants. It bears large heads of phlox-like flowers of a brilliant orange-scarlet, which last several weeks in perfection; and the plant is of good habit, bushy, with large camellia-like leaves.

Contrast with this the well-known laurustinus (*Viburnum tinus*), with bunches of pure white flowers. This is, however, a hardier plant, and will bear twenty to twenty-five degrees of frost without injury. If well cared for, it may always be depended upon for flowers, and can be forced or retarded at pleasure. Though perhaps not so easy to grow as some of the new eupatoriums or stevias, in point of beauty it is inferior to no plant new or old.

Now, will some enthusiast for new plants show me any better plants in their class than those above mentioned? I am ever a learner, but cannot sacrifice quality to novelty, real excellence to uncertain worth. *Anthrophilus.*

TROY, N. Y.

PRUNING CONIFERS.—The pines require little or no pruning. When a specimen loses its lead, some attention is necessary to secure a fresh one without spoiling the form of the tree. All loose rambling branches should be kept within bounds by timely stopping.

The spruce-firs also require little or no pruning, save stopping straggling shoots, and attending to the leads. The hemlock-spruce, however, requires considerable attention in pruning to secure handsome specimens.

Some of the silver-firs require a good deal of pruning, especially *Picea Cephalonica* and *pinsapo*. The young growth of *P. Cephalonica*, like that of *P. Webbiana* and some others, owing to its early budding forth in spring, is sometimes killed by the late frosts; and the plants, in consequence, have a stunted appearance. One of our best specimens had all its young growth killed by a late frost ten years ago, except the leading bud, which escaped uninjured. That same season, all the energies of the plant being thrown into this single bud, it made a wonderful shoot; and the tree has ever since continued to flourish in a remarkable degree, not a single bud having been the least injured since. Since that time, I have freely used the knife on other plants of this kind. *P. pinsapo*

does not bud so early in spring as *P. Cephalonica*. The young growth is seldom or never injured by late spring frosts : but the trees, nevertheless, often grow very stunted and bushy, especially when young ; and, when left untouched or unpruned, they often remain so many years. There are several promising young specimens here, all now growing away freely ; but, when we got them, they were bushy, stunted plants, and for some years after they made little progress upwards, the growth of the leading shoots rarely exceeding a few inches in length, and in many cases not more than one or two inches. By a liberal use of the knife in well thinning the branches, and directing the energies of the plants into the leading shoots, I have now got the greater part of them into a free-growing state. This, of all conifers, requires the most liberal use of the knife ; for, unless the branches are kept well thinned out, the leading growth is poor, and the plants get a stunted, bushy growth.

There are many kinds of conifers that require little or no pruning with the knife. When properly attended to from a young state, stopping and pinching will effect all that is required.

I would advise all who have charge of extensive and valuable collections of conifers to examine every specimen as often as they can find time to do so : they will then see any little matter that needs attending to, such as the loss of leading bud or shoot from accident or otherwise,—a loss which by timely attention is soon repaired without any detriment to the specimen, but which, if overlooked for some time, may not be so easily rectified. — *M. Saul, in Florist.*

GRAFTING RHODODENDRONS.—The best time to graft rhododendrons is towards the end of August, or early in September, when the shoots have ripened. The shoots of stock and scion should be of equal thickness, or as nearly so as possible. It is best performed by what is known as side-grafting,—putting in the grafts near the soil. The head of the stock should be cut off six inches above the union, leaving some leaves on it. To this the graft may be tied. After grafting, place and keep in a close cold frame until the union is complete, which will be the case in six or eight weeks. Then give air, and harden off. In spring, the part of the stock above the graft may be cut off neatly immediately above the point of union. The grafting may be done in spring just at the time growth commences, but success is not so certain in spring as late in summer.

RAPHANUS CAUDATUS.—The following note on the culture of this new vegetable may not be uninteresting :—

Its treatment does not differ from that of the common radish ; only the pods, and not the root, is the part used. The seed may be sown in pots in good light soil about the middle of April, and placed in a gentle heat. When the young plants are large enough to handle, they may be potted off singly in small pots ; but a better plan is to sow the seeds singly in small pots, and, when a few inches high, to harden off, and plant out one foot apart every way, in a sunny, open exposure, the soil being in good heart. This radish prefers a lightish loam. Water will be necessary during hot weather. The seed may be sown in the open

ground in May, or plants may be grown in pots in the greenhouse: for a single plant, a nine-inch pot answers well. The height is dependent on the treatment. — *English Journal of Horticulture*.

GLOXINIA, GESNERA, AND ACHIMENES CULTURE. — All thrive well in a compost of turfy loam, peat, and leaf-mould, in equal parts; adding sand if the soil require it. It should be sandy. The size of pot for the gloxinias will depend upon the size of the tubers. Those two, three, or more years old, should, in the first instance, have pots twice their diameter; and when they have grown a few inches high, and filled the pot with roots, shift into pots three inches more in diameter. The gesneras, if of the tuberous-rooted kinds, as *G. purpurea macrantha*, require the same sized pots as gloxinias; but if of the scaly-rooted kinds, as *G. zebrina splendens*, they should have pots in proportion to the number of roots put into each. A seven-inch pot may have five tubers, and a twelve-inch pot twelve roots. For achimenes, pots are not so good as pans eight inches deep, and one foot to one foot six inches wide. The tubers may be placed in these at an inch apart. All require the temperature of a stove, — from 60° to 65° by night, and from 70° to 85° by day; or they may be started in a hotbed, and, when a few inches high, removed to a vinery at work.

PROPAGATING CUPRESSUS LAWSONIANA FROM CUTTINGS. — The best time to put in cuttings is towards the end of summer, or when the growths are complete. The young shoots of the current year should be selected, taking them off quite close to the old wood. They should be inserted in pots or pans in silver sand; the base of the cutting resting about half an inch above a layer of loam at the bottom, over the drainage. The pots should be placed in a warm greenhouse or propagating-house, or set in a frame with a mild bottom-heat; and should be covered with a bell or hand glass. The sand must be kept moist. Though plants will grow from cuttings, they are not equal to those raised from seed.

This method may also be successfully employed for propagating *Sequoia gigantea* and many other evergreens.

PLEROMA SARMENTOSA. — This very beautiful species was discovered by Humboldt and Bonpland in the cool valleys of Peru. It appears to be not uncommon, having since been repeatedly found; and is known to the natives as *Flore de Gallinaso*. The plant is well adapted to greenhouse culture, and is one of our most valuable recent introductions. The flowers are very large, freely produced, of a royal-purple color; leaves ovate-oblong, dark green.

Figured in Curtis's "Botanical Magazine," tab. 5,629.

SARCANTHUS ERINACEUS. — A lovely but very rare orchid, native of Moulmeyne. The leaves are a dark glaucous-green; the flowers delicate rosy-white, with pink lip, in long, pendant spikes, from rough, shaggy stems. It is of very slow growth, but flowers freely during the summer, requiring the usual treatment of Indian orchids.

Figured in Curtis's "Botanical Magazine," tab. 5,630.

DESSERT-ORANGE CULTURE.*—In the diary of that “fine old English gentleman,” John Evelyn, may be found an intimation to the effect that he had eaten as good “China oranges” plucked from his own trees as he ever wished to eat. In those days, dessert-oranges were, it seems, called “China oranges.” Although oranges were cultivated in France long before Evelyn’s time, yet they were considered merely ornamental appendages to palaces and mansions. No thought seems to have been turned to them, so as to consider them fruit-trees: and even Evelyn, with his remarkable horticultural sagacity, does not mention that he had ranked orange-trees among fruit-trees; for in his “*Kalendarium Hortense*,” when he mentions, for every month, “fruits in prime, and yet lasting,” no mention is made of oranges. It would seem, therefore, that his gathering of oranges fit to eat was an accidental occurrence; and we are led to suppose, from the silence of gardeners for nearly two hundred years as to their culture, that the orange-eating world has felt perfectly satisfied with imported oranges, brought quickly by fast-sailing vessels. Still the difference between oranges freshly gathered from the trees, and the very finest imported, is most remarkable. There is a crispness and fine aroma in oranges freshly gathered, difficult to realize, unless they are promptly compared with imported fruit: they are indeed a luxury, and, as such, will be cultivated ere long in every good garden.

The houses best adapted for their cultivation are the large span-roofed, twenty-four feet wide, six feet high at each side, and fifteen feet high in the centre. A house of this size will require eight four-inch hot-water pipes, four on each side; as artificial heat is required all the year to ripen oranges in one season perfectly.

A smaller span-roofed house, five and a half feet high at each side, and twelve feet high in the centre, heated by four four-inch hot-water pipes, two on each side, is almost as eligible for orange-culture as one even of the larger size. A house of these dimensions, with a central path, and a border on each side planted with orange-trees, would form a pleasant and productive orange-garden; but to form an orange-grove, so as to have trees of fine growth and to give abundant crops, the larger house must be resorted to.

From the experience I have gained, I firmly believe that no conservatory, no orchid-house, no greenhouse, is half so beautiful or interesting as an orange-house constructed on the principles I now advocate, and provided with fixed roofs, rafters twenty-four inches apart, glazed with large pieces of glass, and admitting abundance of light; so that in December, when the trees are covered with their golden fruit, and many of them showing their snowy-white, perfumed flowers, the scene is indeed enchanting, and is enhanced by the agreeable temperature, which need not be higher than from 50° to 60° Fahr. (10° to 15° Cent.) in cloudy weather. It is not fierce heat in winter that ripening oranges require, but an even, agreeable temperature, such as is experienced in the Azores during that season of the year.

The houses above mentioned should have side ventilation, as in orchard-houses: viz., an opening in each side of the large house, two feet wide; for the smaller

* From the Report of Proceedings of the International Horticultural Exhibition and Botanical Congress of London, 1866; a very interesting record of that great horticultural gathering, just issued.

houses, one foot wide. These openings should be in the centre of each side, and shutters of wood or sashes employed to close them ; the latter, of course, being the most agreeable.

In houses thus treated, orange-trees may be cultivated in pots or tubs, or planted in the borders. There is no doubt that more rapid growth would take place if such borders were heated by having hot-water pipes placed two feet under the surface : but, from recent experience, I am inclined to think this is not absolutely necessary ; for, if the borders are raised eighteen inches above the surface, they would have sufficient heat from the atmosphere of the house, and their temperature would be quite equal to sustain the trees in health.

The cultivation of dessert-orange-trees in pots or tubs is very simple. The compost they require consists of equal parts of peat, loam, and manure thoroughly decomposed. The two former should not be sifted, but chopped up with the pieces of turf and roots so as to form a rough compost. The trees will grow in this freely, and bear abundantly ; but they should have gentle, constant root heat : this is best given by enclosing hot-water pipes in a shallow chamber of bricks, and placing the pots on a flooring of slates or tiles forming the roof of the chamber.

The compost for the borders in which orange-trees are to be planted should consist of turfy loam two parts, and equal parts of thoroughly decomposed manure and leaf-mould. After planting, the borders should be trodden down firmly, as orange-trees seem to flourish best in firm loamy soils. In the orange-gardens of Nervi, where orange-trees are, or used to be, so largely grown for exportation, and imported by the London dealers in oil, &c., the soil is a tenacious yellow loam.

The best form of tree for an orange-garden under glass is the round-headed, — a form which it seems to take naturally ; for if it is endeavored to be cultivated as a pyramid, which would seem desirable, its lower branches soon become weakly and unhealthy. If trees with stems two or three feet in height are planted, the lower branches may be gradually removed till a clear stem of five feet in height is formed ; and this height will be found sufficient. They may be planted from five to six or seven feet apart, according to the size of the house, and the room which can be afforded for each tree. It must not be forgotten, that, in small houses, the heads of the trees may be kept in a compact state by summer pinching, and in large houses be allowed a greater freedom of growth, so that the owner of an orange-garden in England may sit under the shade of his orange-trees.

There are but few kinds yet known of really fine dessert-oranges. The amateur who wishes to plant an orange-garden to supply his dessert must not think of planting the numerous varieties of the genus *Citrus*, grown by Italian and French cultivators : they are mostly what are called fancy sorts, and are more prized for their foliage and flowers than for their fruit.

One of the most charming and prolific of dessert-oranges is the Tangierine. The tree has small leaves, and seldom attains a height of more than seven feet, even in North Africa. Its most valuable quality is its early ripening ; so that in October, just as the late peaches and other soft fruits are over, this luscious lit-

tle fruit is ready for the dessert : and, when freshly gathered, no fruit can be more gratifying or delightful, as its aroma is so delicious, and its juice so abundant ; in this respect, offering a pleasing contrast to those imported from Lisbon in November and December, the flesh of which is generally shrunk from the rind, instead of being ready to burst, as is the case with those plucked from the tree. They should, in common with all home-grown oranges, be placed on the table with some leaves adhering to their stalks ; thus showing that they have not made a voyage.

Among full-sized oranges, the Maltese Blood takes the first rank. When quite fresh from the tree, it differs much from those imported ; although the voyage as now made by steamers is of short duration. I was not so fully aware of this till early in January, 1866, when I was able to compare some fine imported fruit with some gathered from my trees. I found the former, although rich and juicy, yet flat in flavor compared with those freshly gathered : they lacked the crispness and aroma which were most agreeable in the latter. The great advantage in planting this sort is its tendency to bear fine fruit while the trees are young : they are indeed so prolific, that trees of only two feet in height have here borne nice crops of fruit.

Some varieties, quite equal to the foregoing in quality, but without the red flesh so peculiar to these "blood-oranges," have been imported from the Azores, the paradise of orange-trees. One of the most desirable sorts is called simply the St. Michael's orange. This kind has a thin rind, is very juicy, and bears abundantly, even while the trees are young. In the orange-house, these will ripen towards the end of December, and throughout January and February, in common with the Maltese blood-oranges.

No one but an amateur of gardening can imagine the pure, quiet pleasure of taking a morning walk in the orange-house during the above-mentioned dreary months, and plucking from the trees oranges fully ripe. I have had much experience in the culture, and, I may add, in the eating of fruit ; but I can say with a firm conviction, that I have never enjoyed any kind of fruit so much as I have oranges of my own plucking in winter.

In addition to the three leading varieties I have mentioned, there are several kinds which will doubtless prove interesting and valuable. It is not to be expected that so much variation in flavor, as in the pear for instance, can be met with in oranges. I believe, however, that, when our orange palates are educated, we shall find many delicate distinctions in the flavor of oranges. As far as I have gone, I have found the Mandarin orange larger and more flat in shape than the Tangierine, and not so good as that sort. The Embiguo, the egg, the silver orange, the Botelha, the white orange, and some others, all varieties from the Azores, are of various degrees of excellence, and are all worthy of a place in an English orange-garden.

There are many various forms of the genus *Citrus*, which, in a large orange-garden, may be cultivated, and prove of interest to the cultivator ; but I have thought it proper to confine myself, in conformity with the heading of this paper, to the kinds of oranges proper for our desserts. It may, however, be not thought out of place if I mention that the lemon, more particularly the imperial lemon,

is well worthy of a place in the orange-garden ; as is also the small lime, which is a concentration of acidity.

In these few remarks, I hope to be excused any lack of full and proper directions to carry out my conceptions. It is at all times difficult to tell people how to cultivate even a cabbage ; for, unless full directions are given as to which end should go into the ground, it is just possible that a tyro in gardening would plant it head downwards. So it is in the higher branches of horticulture : it is only an outline that can be given in print ; the picture must be filled in by observation and study. Ten minutes' showing will do more than ten hours' reading : still, without the preparation of reading, the mind will not take in what is shown.

Thomas Rivers.

SAWBRIDGEWORTH.

SYMPHOCAMPYLUS HUMBOLDTIANUS. — A new and elegant species from Peru, far superior to the well-known *S. bicolor* ; the flowers being produced at the end of the branches, instead of straggling all along the stalk : the flowers are also bright scarlet, and freely produced.

This species succeeds in a greenhouse ; and, being easily propagated, like the rest of the family, will probably soon become common. The genus *Symphocampylus* is nearly allied to *Lobelia*, and abounds in showy flowering plants.

Figured in Curtis's "Botanical Magazine," tab. 5,631, and also in "Floral Magazine," tab. 313, under the name of *S. fulgens*.

PEPEROMIA ARIFOLIA, VAR. *ARGYREIA*. — An elegant foliaged plant, collected in Southern Brazil, by Mr. Weir, for the Royal Horticultural Society.

The flowers are comparatively inconspicuous, as is the case in many foliaged plants ; but the leaves are very beautiful, being of a dark glossy green, elegantly marbled with white above, and glaucous-white on the under side. The leaf-stalks are long, deep red. All the plants of this genus are well adapted for ornament, as the foliage remains long in good condition, and is seldom infested with insects. The plants are readily propagated, and of the easiest culture.

Figured in Curtis's "Botanical Magazine," tab. 5,634.

"The Floral Magazine" for March figures the following plants : —

SOPHRONITIS GRANDIFLORA, VAR. — A variety of this well-known free-blooming orchid, with larger leaves, and flowers of the brightest scarlet. The species is one of the most valuable orchids, and should be extensively cultivated.

CAMELLIA MRS. DOMBRAIN. — A new variety, introduced by Verschaffelt. Petals pink, margined with white ; flowers very double, and regular.

In this connection we may remark that Hon. Marshall P. Wilder has in his possession several new seedling camellias which have not yet been disseminated, and of which we propose to give figures and descriptions in the course of the next year.

POMPON CHRYSANTHEMUMS. — *St. Michael* ; a large flower, bright golden-yellow. *Countess* ; small flower, blush tinted with lilac. *Madge Wildfire* ; vivid red, with large golden tips.

ZONALE GERANIUM MISS MARTIN.—A very fine variety; foliage lively green, with dark stripe; flower soft, rosy peach, very round, of immense size, the petals overlapping.

If the plate does not exaggerate, this is one of the finest varieties yet produced.

We copy from "The Cottage Gardener" the following list of the newer chrysanthemums which have proved good:—

Of the flowers of 1866, the following are those most deserving of cultivation: Amabilis, delicate blush, incurved; Compactum, an excellent conservatory flower, blooming early, and of admirable habit; Countess of Granville, fine white, a reflexed flower of great beauty; Crimson Velvet, beautiful velvety crimson, the darkest and brightest of all the high-colored chrysanthemums; Gloria Mundi, a splendid brilliant yellow, a seedling from the Jardin des Plantes, and superior to that fine flower; Golden Beverly, a fine canary-colored flower, a sport from that fine deep flower Beverly; Hereward, large, purple, with a silvery back to the florets, very compact; Iris, medium-sized, very double, and compact; John Salter, reddish crimson, shaded with orange; Josiah Wedgewood, rosy carmine, close and compact; Miss Eyre, blush, late-flowering anemone, of medium size, and dwarf habit; Mr. Gladstone, dark-reddish chestnut, incurved; Sylvia, rosy lilac, with silvery back.

Of the Pompones of 1866, there are Fairy Nymph, fine pure white, with round florets; Little Beauty, white, bordered with delicate rosy pink; Marie Stuart, lilac blush, with sulphur centre; Prince Victor, dark-red maroon; Rose d'Amour, clear rose, very full and free; and Torfrida, bright golden amber.

The following list may be useful to those proposing to plant summer-beds of variegated plants:—

Half-hardy plants with ornamental foliage (annuals, or perennials proving effective in the first season),—

Perilla Nankinensis, purple foliage, a foot and a half to two feet. *Amaranthus melancholicus ruber*, blood-red foliage, a foot and a half to two feet. *Oxalis tropæoloides* (*O. corniculata rubra*), dark bronzy foliage, a half foot. *Salvia argentea*, silvery foliage, two feet. *Marvel of Peru*, gold-striped, two feet. *Cineraria maritima*, silvery foliage, a foot and a half. *Canna indica aurea vittata*, golden flowers, four feet. *C. superba*, scarlet, three feet. *C. Warscewiczii*, striped, four feet. *C. Sellowii*, scarlet, four feet. *C. bicolor*, red and yellow, two feet. *C. Fintelmanni*, yellow, three feet. *C. Nepalensis*, yellow, three feet. *C. gigantea*, red and yellow, seven feet. *Ricinus Borbonensis*, large foliage, six feet. *R. lividus*, green fruit, red stems, six feet. *R. macrocarpus*, whitish foliage, six feet. *R. roseus superbus*, rose-colored fruit, six feet. *R. sanguineus*, red foliage, five feet. *R. viridis spinosus*, green spiny fruit, three feet. *Zea Japonica*, striped leaves, six feet.

To these add *Iresine Hebestii* and *Coleus Verschafeltii*,—the latter doing better in a somewhat shady situation, and the former in full sunlight,—and we have a very good selection, which may, however, be indefinitely increased by the addi-

tion of such plants as *Wigandia*, *Calocasia esculenta*, and the different varieties of tobacco.

CANNA DISCOLOR. — This variety, which has been distributed under the name of *viridiflora* (? *iridiflora*), is by far the finest plant we have for ornamental planting.

Nothing can exceed the brilliancy and delicate contrasts of the leaf-markings, or the majesty and vigor of its growth. The foliage is deep green, beautifully marbled and banded with dark-reddish purple; the single leaves measuring three to four feet in length, and more than twelve inches across. The leaf-stalks are very deep red, contrasting well with the greenish under surface of the leaves.

A plant set out from a thumb-pot in the latter part of May, measured, when taken up Oct. 1, nine feet in height, and twelve feet in circumference: it had then shown no disposition to flower. — *E. S. R.*, *Jun.*

ORNAMENTAL GRASSES. — Mr. Abbey, in "The English Journal of Horticulture," gives the following list of ornamental grasses: —

Pennisetum longistylum, *Eleusine caput-Medusæ*, *Bromus Schraderi*, *Briza maxima*, *Agrostis nebulosa*, *Tricholæna rosea*, *Lagurus ovatus*, *Hordeum jubatum*, *Brizopyrum siculum*, *Avena sterilis*, *Setaria macrochaeta*, *Paspalum elegans*.

GEORGE U. SKINNER. — Every one interested in the culture of orchids will especially regret to hear of the death of Mr. George Ure Skinner. Although occupied by commercial pursuits, being one of the firm of Klee, Skinner, & Co., of Guatemala, yet he found time to pursue his favorite researches in natural history. His residence in Central America probably led him to the particular study of orchids, with which the forests of the district abound; and with them his name is now thoroughly associated. For about thirty years, we have known him engaged in their collection; and some one of their genera should do honor to his name. *Cattleya Skinneri* is a minor remembrance of him. One genus, worthy of him, records two of his names; but it belongs to the natural order *Scrophulariaceæ*. We refer to *Uroskinneria spectabilis*, thus mentioned by the late Dr. Lindley: "For this beautiful plant our gardens are indebted to G. U. Skinner, Esq., the most generous of merchants, the most eager of collectors, to whom or to whose assistance the botany of Western Mexico and Guatemala owes more than to all the travellers who have visited those regions. Nothing more worthy of his name could well be found; for the plant is very rare, very showy, and now secured to our gardens: we therefore trust that verbal pedants will not quarrel with the manner we have contrived to escape from the difficulty of there being already a *Skinneria* in the botanical field, but agree with us that Ure Skinner may be fairly blended into a name which shall unmistakably record the labors of one who has so signally benefited the science of florticulture." He died of yellow-fever on the 9th of January at Aspinwall, Isthmus of Panama, at the age of sixty-two; and it adds painfully to the feeling for his loss to know that he was journeying to Guatemala to complete arrangements for retiring from the firm, preparatory to taking up his residence in England permanently.

He was a native of Scotland ; and his father, the Very Rev. John Skinner, was Dean of Dunkeld and Dunblane, who died at Forfar in 1841, and who was son of Bishop Skinner, Primus of the Episcopal Church of Scotland. The bishop, we believe, wrote the well-known "Reel of Tullochgorum."

Mr. Skinner, whose death we now record, was not only a Fellow of the Linneæan and other kindred societies, but was ever ready by his counsel and his purse to aid others who were pursuing the sciences those societies fostered. He advised with Hartweg as to the latter's researches in Mexico ; and he supplied Warszewicz with money at the time of his extreme need, when he had been abandoned by the Belgian Association, which had sent him to South America to collect plants.

LILIUM TENUIFOLIUM, L. AURATUM, AND TRITOMA UVARIA, SEED-SOWING. — The seed should be sown early in May in pots or pans, well drained, in a compost of turfy loam, peat, and leaf-mould, with the addition of one-sixth of silver sand. The seeds should be covered with fine soil to a depth equal to the diameter of the seed. The pots should be gently watered, and placed in a hot-bed with a temperature of 70°. When the plants appear, admit air, and harden them off, or remove them to a vinery at work, where they should be placed in a light, airy situation. If there is not a vinery at command, remove them to a greenhouse. Keep them well supplied with water, and in September gradually withhold, discontinuing the supply after October, all but a little now and then to keep the soil moist, but not wet. The liliums should have the seeds placed so far apart, that they can grow in the pots or pans as sown (an inch will suffice) ; but the tritoma-plants should, when large enough to handle, be potted off singly in small pots, and the soil in these should be kept moister in winter than for the liliums. The liliums also should be potted in November, singly, in four-and-a-half inch pots, or three may be planted in a seven-inch pot. They should be kept in a cool greenhouse. — *Cottage Gardener.*

HYACINTHS DONE BLOOMING. — After blooming, they should be hardened off, or kept beyond the reach of frost, in an airy, light situation. When all danger of frost is past, they may be planted in the open ground, covering the crowns of the bulbs with two to three inches of soil. Those grown in water are of little or no value after blooming, and those forced in pots are not worth forcing a second time.

CULTURE OF ROSES IN POTS IN GREENHOUSES. — The best roses for greenhouse culture are the finer varieties of the China and tea-scented ; the latter especially, on account of their peculiar and delightful fragrance ; but the Bourbons and hybrid perpetuals must be included. The following varieties I have found good : —

China. — Madame Bréon, Mrs. Bosanquet, Triomphe de Gand, Prince Charles, Henri Cinq, La Séduisante, Infidélités de Lisette, Louis Philippe, Napoléon, Clara Sylvain (generally classed with the Tea-scented), and Fabvier.

EDITORS' LETTER-BOX.

THE Editors much regret being obliged to delay the conclusion of Dr. Kirtland's able and valuable article upon the magnolia until next month. The favors of our correspondents have been so numerous, and the interest felt in the success of "The American Journal of Horticulture" so great, that we are scarcely able to reply to the many communications, and to express our thanks for the kindly greetings we receive. Articles on cypripedia and Wardian cases, prairie-flowers, orchids, the vegetable-garden, lawn-grasses, new apples, hardy clematis, strawberry-culture, wild-flowers, and lilies, are on hand, and will appear during the summer.

I. L. R., Taunton. — Please name some of the best currants. — Red and white, Dutch, La Versailles, Dana's transparent.

E. B., Providence, R. I. — Does the Concord grape keep well after it is plucked from the vine? — No: it soon loses its flavor. Then, as its skin is thin, many berries crack in handling, and soon decay.

PYRUS, Norwich, Conn. — Would you advise severe trimming or pruning of pear-trees? and at what season of the year should you prefer to prune? — I would not prune severely. Take out all branches that cross or interfere with each other, and head in the leading shoots where they have made excessive growth; thus keeping the tree compact and symmetrical. Would much prefer to prune in June; but would do it any time until October. Some do it in March; but we do not regard it as a favorable time.

YOUNG GARDENER, Marion, Mass. — Does it injure grape-vines to bleed? — It is generally supposed to be injurious to trim grape-vines so late as to cause them to bleed; but we have known vines to meet with accidents by which they bled profusely, and we could not perceive that they suffered in any degree in consequence.

B. B. M., Bellows Falls, Vt. — How deep should grape-vines be planted at the North? — Not more than three or four inches deep. If planted very deep, the lower roots decay. The roots of grape-vines run near the surface; and they should be so planted, especially in the Northern States, that they may get the full benefit of the heat of the sun.

A FRIEND, Newton, Mass. — How shall I keep my cherry-trees in a healthy condition? They now burst the bark, causing the gum to exude. — Manure less, and grow them slower. If the land is very rich, sow it down to grass, and check the growth of the trees. Many cherry-trees have been lost by forcing them. The cherry-tree will not bear high manuring.

A. C. C., Dedham, Mass. — I have a Fulton pear-tree that was grafted on a very thrifty stock, that grew well, and gave fruit a year or two, but now seems to be dying; the extremities of the branches turning black. Is this a common thing with this variety? — The Fulton pear is a poor grower, especially after it begins to fruit. In your case, probably, the tree received too great a check; the stock being a vigorous free grower, and the scion a slow or poor grower. Some varieties are almost sure to kill the stock on which they are grafted. The Cross and Collins pears are among those that work in that way.

M. B. W., Newburyport. — What are some of the most profitable grapes to grow for market in Massachusetts? — Concord, because it is large and handsome, of fair quality, and generally ripens; Hartford Prolific, on account of its earliness, though there is a serious objection to it because the fruit drops from the stem; Delaware, as it always commands a ready sale at high prices.

Is it necessary to trench the land for a vineyard? — No: plough deep, and manure well with thoroughly decomposed manure, and set your vines. If your land is good enough for corn, you will get satisfactory results.

A SUBSCRIBER, Worcester, Mass. — Can peach-trees be grown in pots or tubs? and how should they be treated? — Yes; and give very good results. They may be set in twelve, fourteen, or sixteen inch earthen pots, or in tubs of about the same size, well shortened in when set, and should be well pruned all the time. Use good soil, and pack close in the pot. They should be well watered in summer, occasionally with manure-water. If the pots are plunged in the earth, they will be less trouble. Keep them in the cellar in winter for protection. Will give fruit the second year after being set. Try it.

SMALL GARDEN, Boston. — What are some of the best winter pears? — Lawrence, Winter Nelis, Hovey, Caen de France, Beurré d'Arenberg, Glout Morceau, and Vicar of Winkfield.

FRUIT-GROWER. — Should strawberry-plantations be made in spring, or autumn? — Spring is preferred by all market-gardeners North. When only a few are to be set, it may be done in August; but they require more care if planted then.

VITIS, Marblehead. — How deep would you plant dwarf pear-trees? — So that the quince-stock should be at least an inch below the surface of the ground. Is it profitable to graft grape-vines extensively? — We think not. It will do where you wish to bring forward rapidly new and rare sorts. It is cheaper and better to root up and plant anew than to try and graft a large number of old vines.

SCOTCHMAN. — The broom is not perfectly hardy in Massachusetts, but lives and blooms well with a slight winter protection of boughs. The white variety is more tender than the yellow, and probably would be winter-killed. The furze, or gorse, is not hardy enough to bear our climate.

R. D., Cambridge. — What is the best protection against the ravages of the canker-worm? — The simplest is tar put on with a brush round the tree on a strip of tarred paper. Printers' ink answers an excellent purpose used in the same way. There are iron and wooden troughs, so prepared and put round the trees, and filled with oil, that they prevent many of the grubs from ascending.

PERSICA, Williamstown, Mass. — Would you advise the planting of peach-trees in the New-England States, where the crop is so uncertain? — Yes: plant a few trees each year: you will get a crop occasionally, — as often as one year in three; and this will pay in satisfaction, if not in money. It is too good a fruit to give up. Peach-trees seem to be improving. There is fair promise of a good crop this year.

REUBEN, Springfield. — What do you consider the best three varieties of strawberries for market-purposes in Massachusetts? — Hovey's seedling, Jenny Lind, and Brighton Pine.

JULY, Portland, Me. — Is the Allen Hybrid hardy enough for vineyard culture? — It is not safe to leave it up through the winter. It requires protection. It is not hardy enough for ordinary vineyard-culture.

A. L. S., Rockville P. O., Utah. — The best time to trim grapes is in the autumn, after the frost has killed the foliage. If the growth is judiciously pinched during the summer, the labor of pruning will be materially lessened.

W. B. C., Boston. — Seeds of *Mathiola bicornis* can be obtained of Bliss or Washburn, and probably of any importing seedsman. The price is at present rather high, as the plant is comparatively rare. Packages cost twenty-five cents; but there is no reason why seed should not be plenty another year.

Mrs. E. L., Brighton P. O., Montgomery County, Md. — We shall publish in the July and August numbers a treatise on Wardian cases by a correspondent who has given much attention to the subject, and whose management has been most successful.

The subject is one to which we shall particularly direct attention, as no prettier decoration for the parlor can be desired; and the treatment is so simple, that one can hardly make a mistake in the management.

A NEW SUBSCRIBER. — Your double-flowering almonds have been allowed to grow too large. Our mode of treatment is to cut the bush down to the ground as soon as it has done flowering. Numerous slender stems will shoot up, which will, during the summer, grow about two feet high: these will be well set with flower-buds, and will bloom well the next spring. As soon as the bloom has faded, cut down the stalks. The plant is hardy, and needs no winter protection: its being winter-killed is exceptional.

ST. AUGUSTINE, FLA., Wednesday, March 13, 1867.

MESSRS. TILTON & CO.,—I promised you a letter from this “land of flowers” for the readers of your new Horticultural Magazine. I fulfil the promise; but how little there is of horticultural interest you cannot easily imagine. Instead of a land of flowers, this is a land of desolation rather than cultivation.

This town is a grand old ruin. It once was—the Lord knows what! It is hard to say what it is now, except a queer place, as compared with a Massachusetts village of two thousand people; which is the numerical strength of this “city,” counting the garrison, visitors, and residents. These are composed of about thirty heads of Northern families, in which is embodied all there is here of active life and energy; and the balance is an admixture of the old Minorcan race, imported by the English during the twenty years they held possession (1761–1781), with a small number of old Spanish, a few “natives of the South,” a few, very few, foreigners, and about the usual proportion of negroes, who can muster about a hundred and forty votes, — which shows that something like a third of the inhabitants are colored.

It is said, that in all the house-yards and gardens, and also outside the walls (for this was a walled city), the land was thickly planted with orange-trees; and, previous to the destructive frost of 1835, oranges were exported by the million. Perhaps that is true; indeed, I hope it is: for, unless that is the fact, I doubt whether a million orange values ever were exported from the place — that is, of the products of the earth — since it was first discovered in 1512 by old Ponce de Leon.

I am also morally certain that the native population, if it remains in its present condition of inertia, never will grow aught that can be exported. Indeed, from the very foundation, the city has been a military dependant, a very parasite, and, whenever left to its own resources, has sunk, as it is now, into poverty, and a miserable mode of existence, approximating to beggary.

About one-third of the houses in the town are so decayed as to be uninhabitable, or only tenantable under the discomfort of leaky roofs. From many, the roofs are entirely gone, and from many places where handsome mansions once stood the materials have been carried away to build other houses.

The walls of all the old buildings, including the curious old castle, or fort, the sea-wall, and many garden-walls, were built of “coquina rock,” — an agglomeration of small shells. The quarry is on Anastasia Island, in front of the town, and is inexhaustible.

The town is upon a narrow peninsula, its shape a parallelogram, about a mile long, and fourth of a mile wide; the fort at the north-east angle on the sea front, and the barracks at the south-east. This is an imposing structure, built in the Indian war of '35, and afterwards suffered to become much dilapidated, but now being completely repaired, and rendered capable of accommodating a thousand men.

The streets are all narrow, without sidewalks, and none of them hardly wide enough for two teams to pass. Of course there is no room for shade-trees, except on the Plaza; and not many are seen there.

In some of the yards, orange, lemon, guava, citron, limes, figs, peach, Cape-jasmin, myrtle, &c., are seen ; and in several places the date-palm waves its beautiful plumes. The sour orange is common.

On the outskirts of the town, toward the St. Sebastian, the widow of Dr. Anderson (Massachusetts stock) has an orangery of about twenty acres, part large bearing trees, and part just planted. This is the largest anywhere in this vicinity. Buckingham Smith has quite a number of bearing trees : so has an old Frenchman named Dumas ; but his place looks like a wilderness. George W. Atwood is at work vigorously to make an orangery. He has some bearing trees, both orange and lemon. From the latter I picked average fruit weighing over a pound each. In his garden I saw a rose-bush in full bloom, which Mrs. Atwood said had not been destitute of roses at any time during two years. They have also guavas, bananas, and date-palms. Peas are now in full bearing. A shipment of large cabbage-heads has just been made. Lettuce, beets, turnips, are abundant and good. Corn and potatoes, tomatoes, lima-beans, onions, &c., are growing as large and good as with us at New York in June.

The soil of all this country is sand, — one vast field of sand ; yet it is productive wherever properly manured. That is all that is wanted. But how that is to be accomplished where grass is never cultivated, where we never see a green lawn or meadow, where all the cattle run in a semi-wild state in the pine-woods, — that is the question. It is one that never has been and never will be solved by the native population : but it will be by the incoming one ; for it is one that will make this land produce more than the people consume. That is something it never yet has done. If it does not grow food, it should grow an abundance of stuff to export to pay for its imports, and leave a large surplus of profit.

If there was a line of steamers direct to New York from this coast, it could furnish excellent potatoes almost as early as Bermuda, and at a less price, or else great profit to the grower. Sweet-potatoes could be delivered in New-York market earlier than from any other convenient locality. They can be wintered in the ground where they grow, and dug, and sent to market in spring in better condition than from any place where they must be stored to prevent freezing.

Probably the most profitable crop would be watermelons, if there was steam communication with New York. I am told they often attain a weight of fifty or sixty pounds.

As peaches grow here (and, in speaking of here, I mean all this region) most luxuriantly, I do not see why they could not be made a profitable crop by preserving the fruit in cans.

It is also a pity there is not some way to utilize the fruit of the wild orange, which grows luxuriantly everywhere it is given an opportunity. It is grown for shade and ornament, and as screen-hedges for gardens and orchards ; and there are numerous groves in the woods from which people get trees, and plant for budding with the sweet variety. These trees have shed their beautiful fragrant blossoms within a few days, and are now dropping slowly their rich golden fruit. In some of the groves, the trees and ground are literally covered with oranges, beautiful to the eye, but sour to the lip. A pleasant cordial, called sour-orange-wine, is made of the juice ; and sometimes the fruit is used for sweetmeats.

I am told that quinces grow well ; and but few other fruits do that are common at the North. Pears, apples, cherries, plums, currants, raspberries, blackberries, strawberries, gooseberries, fail ; and I do not see much hope that any of the grapes that succeed with us will do so here. There is a sort called the St. Augustine grape, and the Scuppernong, that thrive. I saw in Mr. Dumas' garden a pecan-tree, ten years from the seed, as big as my body, which has borne one crop. If one grows so, why not grow an orchard, and make a profitable crop ? In the same garden was a thrifty Madeira-nut-tree ; also a variety of oranges grown from the seed, and producing fruit at ten years of age. Those grafted produced in five or six years. The scale-insect, which was so destructive fifteen or twenty years ago, has disappeared.

Peaches do not appear to be affected by any disease. There are some exceedingly thrifty orchards in the interior of the State, the fruit of which is largely fed to the pigs. Some of it is dried, and some distilled ; but much is wasted as valueless.

One of the pests of grape-growers, and the enemy of all small berries when they do happen to succeed, is the flocks of mocking-birds. The skin of the Scuppernong is so tough, that it withstands their attacks.

There is a fruit here, now ripe, called the Japan plum, which produces well, and is eatable, not excellent.

Of wild fruits, the running-blackberry is the most common. It is ripe in April, and quite abundant. Of wild flowers, the yellow jasmin is most common in spring, making the woods fragrant. In this vicinity, their season is past. There is a red jasmin, not so fragrant, but extremely handsome. The yellow jasmin is medicinal. The mere handling of the blossom, and smelling the odor, by some persons, produces a sort of paralysis, or stupor.

There is one of the azalea family, quite common, and very showy at this season, in low, rich places. The blossoms of the dogwood (*Cornus Florida*) have already disappeared. These, it is said, blossom in the shad season everywhere. Their season has been here since February commenced ; and so has the season of garden-planting. Field-corn, in some places, is now up, so as to show the rows. By the by, do you know the fashion here is to plant the corn, and plough the land after the corn is up ? That is, two furrows of a little one-mule plough are turned together, and the seed planted upon this little ridge of fresh earth, and left to grow, while "the middles" remain green strips of grass or weeds until the owner finds time to plough them out. A crop of ten bushels per acre is considered a good one. Of course it cannot be grown for profit, when a crop of two or three hundred bushels of sweet-potatoes can be grown upon similar land.

The great want of Florida at this time is capital in the hands of Northern men, who would make as great a change here in this wilderness as they have in all the Western States, and probably with a much more certain and immediate profit. I am certain that a great field is open to enterprise. It is a disgrace to this age that it has remained so long untilled. The time has come for a change ; so it has to close this letter.

Solon Robinson.

L. T., Baltimore, Md. — The best geraniums for winter blooming in the house are the different varieties of the Zonale or Horse-shoe family. These are free growers, adapt themselves well to the atmosphere of the parlor, and are seldom out of bloom. To flower well, they should be potted on through the summer, and well pinched to make them of good shape. The colors are white, pink, orange, red, scarlet, and crimson, in many different shades. If bedded out in the summer, they will grow very strong; and may be potted before the frost, and will soon bloom. The varieties with golden and silver foliage are not as well adapted for parlor culture as the plain-leafed kinds, but do well in a green-house. All the varieties are good; but, for the parlor, those of dwarf habit are preferable. The rose, nutmeg, ivy, apple, and oak geraniums also do well in the parlor, but are desirable rather for foliage than flower.

G. E. B., Auburn, N. Y. — Your communication has been privately answered. The Editors cannot undertake to recommend the works of one publisher above another. In all works on a given subject, much of interest and valuable information may be found. Our advertising columns may always be depended upon, as we only insert advertisements of parties we believe to be fully responsible.

A NEW SUBSCRIBER. — New-England May-flower, trailing arbutus, and ground-laurel, are all popular names of the same plant, — *Epigea repens*. It is extensively distributed and very abundant in some localities. In cultivation it seldom succeeds, but will thrive in a rhododendron-bed. We have but one species, of which, however, the flowers vary much in color, from deep rose to white; and the foliage in size, according to situation. In England, seedling varieties have been produced, and may be found in catalogues; but we doubt much whether they vary more than the wild plants of different localities. In England, the plant receives the usual treatment given to "Alpine plants." Plants may be removed to the garden in early spring before growth begins, or in August after the season's growth is finished.

I. C. — A decided case of red spider. Syringe well, sprinkle on the flue flour of sulphur (but not so it will burn), and, during summer, thoroughly paint the staging of your green-house. Any plant as badly affected as the leaves sent had better be thrown away at once: one such plant would stock a green-house in six weeks. — See article on the subject in the April number, concluded this month.

S. P. S., Brookline. — Lilacs, syringa (*Philadelphus*), deutzias, and *Pyrus* (*Cydonia*) *Japonica*, or Japan quince, are hardy ornamental shrubs, which will take care of themselves, and bear any amount of ill treatment. The Persian lilacs are very free flowering, and much more delicate than the more common varieties. Of syringa, the large flowered are most showy, but are not fragrant. *Deutzia scabra* is very handsome, and the hardiest; *D. crenata*, fl. pl., is a new variety which may prove valuable. Of *Cydonia Japonica*, the red is the more showy; but the pink is far more beautiful. The double and many new seedling varieties lately introduced are valuable only as varieties.

A SUBSCRIBER. — The articles on City Gardens, of which the second appears in the present number, will answer your questions.

GEORGE, Andover. — Your plant is *Daphne cneorum*, an old inhabitant of gardens, but recently brought prominently to notice. It is hardy certainly as far north as Boston, and thrives in good garden-soil. The foliage is evergreen. There is a variety with variegated leaves.

I. D. — The "native heath" is a variety of heather (*Calluna vulgaris*). For the history of the discovery and the controversy, see "Silliman's Journal," and "The Journal of Boston Society of Natural History," *passim*; also Transactions of Massachusetts Horticultural Society for 1861. There is a heath, hardy in New England, *Erica herbacea*, and the variety *carnea*, blooming in May, and thriving in a rhododendron-bed.

A. C. R., Gambier, O. — Plants seldom thrive outside a sunny window in summer if planted in pots; for the heat of the sun upon the pot is so great, that the roots become dried. The best plan is to put a box outside the window, and plant bedding-plants or seeds early in May: these will make a good growth before mid-summer, and generally bloom well. Climbers trained upon strings to the top of the window make a pretty show. For bedding-plants, we recommend heliotropes, gazanias, verbenas, and scarlet geraniums; of climbers, canary-bird flower (*Tropæolum peregrinum*), cypress-vine (*Ipomea quamoclit*), *Maurandia Barclayana*, and the varieties of nasturtium (*Tropæolum minus*); of annuals, mignonette, sweet allyssum, or any other free-blooming, low-growing plants; of bulbs, jacobean lily (*Amaryllis formosissimus*), tiger-flowers (*Tigridia pavonia* and *conchiflora*), and perhaps some of the more dwarf varieties of gladiolus. The one thing to be avoided is crowding: that requiring most care is watering.

I. G., Dorchester. — The new violets of which you have heard are of English origin, and are probably seedling varieties. They are the Czar, large, dark purple, fragrant, — a Russian violet; queen of violets, very large, double white; giant, somewhat resembling czar; king of violets, very large, double, blue. Some of these may be obtained of florists in this country; though of course, like other new introductions, they are of high cost.



WESTERN ORCHARDS.

IN presenting to your notice the condition of the orchards in the Western country, it is necessary that you bear in mind the vast extent of territory embraced in the area of our great interior valley. You must also consider the varying soils that are spread over its wide surface, and at the same time take note of the different conditions of climate which must exist over an extent of eight degrees of latitude and twenty of longitude, modified as they are, too, by their altitude above the level of the sea, by inequalities of surface, by elevations and depressions, by great bodies of timber-lands, wide areas of open steppes, and by broad sheets of water.

All these conditions are so totally different from those that exist in the limited area of New England, and the eastern slopes of the Alleghanies, near the sea-board, that we should hardly expect to find the fruits of one region succeeding in the other. And yet these circumstances have been overlooked by those who have planted orchards since the first settlement of the country. Within the great extent of territory above alluded to, there are local differences, requiring especial selections for each ; but there are also certain general conditions that apply alike to all.

Sources of our Fruits. — By a well-established law of population, now generally acknowledged by statisticians, though pointed out many years ago by our own Mansfield,* emigration moves very nearly along the parallels of latitude. With the immigration of men, there came, of course, the migration of fruits; for the settler would very naturally desire to bring along with him as many of the home-comforts of his former residence as possible. This fact and its results are so well understood by intelligent pomologists, that the origin of the population of a county or township is not unfrequently predicated upon the observation of certain leading varieties of fruits in their orchards.

As with the lines of migration of men, however, there are often observed some marked deflexions from the parallels of latitude, so also do we find departures from these in the western progress of fruits; and thus, as we pass toward the great Father of Waters, we often see these lines converging, and sometimes even crossing each other.

Long Island, New Jersey, Pennsylvania, Virginia, and North Carolina, have furnished the most reliable and satisfactory varieties of our orchard-fruits; and we are now seeking to extend our lists by fresh importations from the Southern States, encouraged by the happy results that have followed previous introductions. It need not be expected that these will all prove satisfactory: the lists must be sifted again and again. On the other hand, some of our extremely hardy kinds of apples are from the North of Europe and from Canada; while beside them some Southern varieties continue to brave successfully the hyperborean winters of Northern Illinois, Iowa and Wisconsin.

Besides the little collections of fruit-trees brought by the early settlers, there very soon arose in every neighborhood some provident individual who was engaged in the useful occupation of multiplying the best varieties of fruits, and producing trees for others to plant. He was the primitive nursery-man. Another individual soon followed him, and too often eclipsed him, and drove him from the field by the grander display and more voluble eloquence with which he approached his credulous customers: this was the tree-peddler; and to this class of adventurers the Western farmers owe a grudge for the evils they have committed. Long after the home-nursery-

* E. D. Mansfield, Commissioner of Statistics for Ohio.

man had discovered by observation what fruits were adapted to his neighborhood, and what were unworthy of culture, these strangers continued to flood the country with untried sorts from Eastern nurseries, and with those that had already been tried and found wanting, but which, they assured the credulous, were all the very best kinds for them to plant.

The unfortunate evils that necessarily followed this cause, eventually worked their own cure, but not until orchard-planting had come to be considered a very precarious business in many parts of the country, nor until many planters had lost their orchards from the inability of the varieties to withstand the vicissitudes of the climate. At length, the fruit-growers of the country began to assemble, and consult together upon topics of the greatest importance to their future success. From these meetings grew the *North-western Association*; and from it have legitimately descended our several State and local societies, which have done so great a work for the country.

One of the earliest conclusions of value that was arrived at by the discussions of these fruit-societies was, that many of the noted and highly-praised Eastern varieties were wholly unfitted for the new conditions to which they were exposed. Next it appeared that the Northern origin of a variety was no guaranty of its hardiness in its new Western home, and that some of these varieties had so much vigor while young as to make a late autumnal growth in our fertile soils, and they suffered a mortal blow on the access of the first frost. On the contrary, some of the Southern varieties were found to be able to withstand the severity of the Northern winters better than many of New-England origin.

Requirements. — A valuable result of these consultations was, that our fruit-growers came to an understanding with one another as to the requirements of a successful variety of fruit. First of these, by common consent, was, that the tree should be perfectly *healthy and hardy*. Too great a loss had been sustained all over the country to allow these men to reach any other conclusion. No matter how much the adoption of this principle might cut down the lists, an honest nursery-man could no longer recommend to his customers those varieties that were known to be tender, and which were liable to be winter-killed.

The second requisition was, that the tree should be *productive* in the or-

chard ; for it was soon discovered that certain varieties were very unsatisfactory in the money-returns of their fruitage. Whether this arose from an inherent defect of their organization, from the effect of late-spring frosts, or from a superabundance of wood-growth, which for a long term of years kept the tree unfruitful, all such varieties were tabooed by these men, and in some instances to their own loss, as in the case last cited ; for these trees, though a long time in coming into profit, are often exceedingly productive at last, and every way satisfactory. Besides, there are well-known means of accelerating the fruitage of these slow kinds, some of which have been successfully and extensively practised.

The next desideratum, and a quality that is imperatively demanded in a new country, is *early bearing*. Our first orchardists, having no fruit of the apple kind but the acerb native crab, were impatient for the results of their planting. They could not think of waiting twelve or fifteen years for the fruiting of the Northern Spy, Newtown Pippin, Rhode-Island Greening, or the Yellow Bellflower, especially as they found on the mucky soil of the prairies that many of their trees were killed outright or sadly crippled by the winters before half that period had elapsed. Hence the preference that was very early shown for the Baldwin, Red June, Keswick Codling, Smith's Cider, Ben Davis, Fallawater, Gilpin, Buckingham, White Pippin, and others that gave prompt returns, even though some of them were deficient in hardiness.

Excellence of quality, though highly appreciated by Western pomologists, was, and continues to be, a recommendation of the least value, if unaccompanied by the other requisitions. To men whose experience had led them to rejoice at the attainment of abundant fruit after frequent disappointments, the quality of the product was of secondary importance to its attainment. To the great world of purchasers called the market, it is a matter of very little consequence whether the fruit be *good* or *very good*, if it only be smooth, good-looking, and plentiful ; and our Western orchardists soon learned to cater to the taste of the market as they found it. I am aware that my critical readers, especially those that are mere amateurs in fruit-growing, will exclaim against this decision : but I also know, that, in a business view of the operation, the orchardists are right ; and I believe, that, outside of the circle of accomplished pomologists, the world, both East

and West, will agree with my Western friends. But, as we did not set out to discuss the term *market-fruits*, let it be laid aside for the present, lest the limits of this paper be transcended.

Influence of Soil and Climate. — Having thus set forth in brief terms the history of Western orchards, the sources whence they were derived, some of the mishaps which befell them, and the conclusions reached by the intelligent fruit-growers of the country, let us now inquire what may be some of the causes, which, after an average of twenty years' trial and observation, have forced them to these conclusions.

First let us consider the entirely different soils in which our orchards are planted. Upon the granite rocks, covered with a drift formation resulting from the glacial action of a former era upon the primary metamorphic and schistose rocks of the mountain region, there originated varieties of fruits which proved themselves adapted to that soil. These varieties have been removed to soils which rest upon the fertile diluvial drift formation of the West, which covers the horizontal strata of limestones and coal measures. They have been planted also in the rich alluvial deposits of lakes and rivers that have left their traces so manifestly upon our Western plateaux, long after the glacial action had ceased.

Next we must not overlook the influence of our seasons, nor forget that the climate of an elevated interior basin is necessarily very different from that of a mountain country with its narrow valleys that communicate directly with the ocean, itself calculated to exert a marked influence upon the atmosphere. Our weather may be too variable, with violent and sudden changes of temperature; the atmosphere may be at times too wet, at other times too dry. South of latitude forty degrees, it is quite probable, that, for many of the Northern varieties of fruits, our season is too long, causing the premature development and maturity of the seeds, and the consequent early decay of the pulpy fruit.

The result of twenty years' trial with the New-England varieties over a wide extent of Western orchards, and with an experience which has reached more than eighty years in some parts of the Ohio Valley, has shown us that most of the winter varieties of apples become autumn sorts, and are thus of greatly diminished value in the commercial orchard, because they do not keep well into the winter. Of twenty-three kinds introduced

into the Ohio Purchase from Connecticut by the Marietta settlers, most have fallen into disrepute, and have long since disappeared from the nursery-lists, while very few remain in cultivation.

In closing this hasty sketch of the condition of Western orchards, we are forced to the conclusion, that the West has a work of its own to perform. All intelligent pomologists willingly acknowledge a heavy indebtedness to their Eastern friends and brethren, and freely accord to them the meed of praise, and of thanks for their valuable contributions of information ; but, in the West, there are many important problems which must be solved by her own sons upon her own soils. Though we have ever been accustomed to look hopefully to the East for bright rays to illumine our pathway, and to aid us in solving the difficulties and in removing the obstructions that beset us, we can here expect but little assistance from that quarter. We must experiment, observe, and study, and endeavor to surmount these obstacles, for ourselves.

We are happy in feeling that many of these difficulties have already been nearly overcome. The introduction of shelter-belts of deciduous and evergreen forest-trees, of hedges, the closer planting of orchards, the low-headed trees, the use of root-pruning, and well-selected fruit-lists adapted to the several localities, and of hardy and productive varieties, have enabled us to demonstrate what was formerly believed to be an impossibility, — *the production of fruitful orchards on the prairies*, now known to be *an accomplished fact*.

Our Eastern friends must not hastily conclude from these remarks that we are willing to sunder our relations with them. No : the approaching meeting of the AMERICAN POMOLOGICAL SOCIETY in St. Louis has been hailed with universal joy by almost every horticultural association in the West, and a larger attendance is anticipated than has ever been seen at the assembling of that body. A feeling approaching to veneration is entertained for the veteran leader of that society, and his worthy coadjutors in the Eastern States, many of whom we hope to see among us in September. To their words of wisdom we shall lend attentive ears.

John A. Warder.

CYPRIPIEDIA.

FLOWERS are valued by me very much as my pictures are. I have no picture-gallery, and I have no conservatory ; but I have pictures and flowers to furnish my house, and to give an atmosphere which upholsterers and cabinet-makers cannot compass. They are companions to me as much as books are. I enjoy their peaceful society. They are a refined and constant resource. I have a sympathetic interest in books, pictures, and flowers : I love them very much as I love my wife and my children. In the room where I now indite these reflections, I am surrounded by their agreeable influence. I look up from my paper, and behold upon the shelves of



CYPRIPIEDIUM SPECTABILE.

bookcases the works of Ruskin, Washington Irving, and Shakspeare ; and, on the walls beside them, exquisite paintings in water-colors by Birket Foster and Mrs. Murray ; while just at my left are the blooms of exotic orchids, *Cypripedia*, *Dendrobia*, and *Phalænopsis*, gracefully intermingled with ferns and variegated foliage. The satisfaction arising from these associations is, in a large degree, æsthetic. I know something of flowers and their scientific relations ; but my botanical researches are only to inform and enlighten my judgment, that my æsthetic appreciation may be more critical and comprehensive. I have cultivated myself to understand some-

what the best books in the different departments of literature, the chief merits of the different schools of art, and the rareness and peculiarities of the different classes of plants. I am just amateur enough in these things to enjoy understandingly the best. The profit of this innocent pleasure is not, generally, correctly estimated. To study for the purpose of becoming an author, a botanist, or a painter, is accounted worth the doing; but to inform one's self for the mere pleasure of appreciation is hardly deemed meritorious, certainly not profitable. The great moral advantage is not perceived. The intellectual and spiritual profit is not inculcated in ordinary arithmetics, especially as to the acquirement of knowledge and taste respecting pictures and flowers. I hold, however, that all knowledge is profit; that taste is the result of knowledge, or at least dependent upon it. But to demonstrate the profit derived from the study of pictures and flowers would lead me into a discussion of the philosophy of life, and the nature and meaning of profit, which had better not be indulged in at the present time. Civilization is cultivation, and the highest civilization reaches into and is distinguished by exalted education in art. Horticulture is art, and high art too, as decidedly as literature, music, painting, and sculpture. At the Botanical Congress in London last summer, the importance of horticulture to botany and agriculture was fully explained, as also its general beneficial influence upon the moral and material interests of mankind, in the discussions evoked, and especially in the able and exhaustive essay of the president, M. de Candolle of Geneva. Its usefulness is recognized by scientific minds throughout the world, and is being developed, in a practical sense, by every year's added experiments. The profit, in a scientific way, is readily understood. The trouble is to see its value in the moral scale, and to admit the importance of its influence upon man's moral nature and upon the moral interests of society. The romantic associations of flowers, their poetic status, the most unappreciative will not deny; but picturesqueness, they contend, is not virtue, and æsthetics are not a safe code of morals. Yet, as we are surrounded by objects which appeal directly through our senses, it certainly seems wise that we should cultivate our senses to appreciate what is best and purest and most refined. The study of the beautiful is ennobling in directing our thoughts to the contemplation of whatever is symmetrical and graceful and pure and true.

There is enough already said about the education of the intellect, but hardly a word about the education of senses, when it is known that character depends upon a man's sentiments and tastes rather than upon intellectual achievements. A man's pleasures — those things which occupy and amuse his leisure — mould and influence his moral character vastly more than his work. To educate the senses to apprehend and enjoy the noble and the beautiful is to elevate and exalt human nature. We must be taught what is beautiful and symmetrical and pure and true, and educated to find pleasure in the contemplation of excellence, if we expect to enjoy the highest sentiments, and to keep above the degradation to which the senses, unaided, might lead us.

There is so much contributed through the senses to make up the man, that we should analyze profoundly the capabilities and range of sensational pleasure. Sensational gratifications may be lofty or low ; and they are so mysteriously mixed up with the subtlest elements of our being, that it is almost impossible to define their limits. I know the word "sensational" is, with the public, by no means a synonyme for spiritual or intellectual ; and the very reason of its occupying so low a status is, because we allow the senses, in a great degree, to select their own avenues of pleasure, and to expatiate in the lower ranges of animal gratification.

The following sentiments of the great German poet (Goethe) express so appropriately the necessity of cultivating and keeping alive the æsthetic faculty by disciplining the senses to apprehend and enjoy the consummate and the excellent, that I am resolved to quote them here : —

"Men are so inclined to content themselves with what is commonest, so easily do the spirit and sense grow dead to the impression of the beautiful and the perfect, that every person should strive to nourish in his mind the faculty of feeling these things by every thing in his power ; for no man can bear to be wholly deprived of such enjoyment. It is only because they are not used to taste of what is excellent that the generality of people take delight in silly and insipid things, provided they be new. For this reason, every day one ought to see a fine picture, read a good book, and, if it were possible, to speak a few reasonable words."

These philosophical ideas, however, may not be considered *àpropos* in a horticultural journal ; and I may incur the penalty of being called to order

for too great latitude of discussion, if I continue. So I will adopt a more practical line.

I am invited to contribute an article upon the *Cypripedium*, a vegetable family of extensive relations, upon which I have bestowed considerable attention. The interests of this family being just now paramount in my mind, I prefer to review its claims and generic peculiarities.

The *Cypripedium* is a terrestrial orchid, and constitutes Dr. Lindley's seventh tribe of orchids, comprising but this one genus, which differs from all other orchids far more than any other two do from each other. It is claimed that an enormous amount of extinction must have swept away a multitude of intermediate forms, and left this single genus, now widely disseminated, as a record of a more simple state of the great Orchidean order.

Darwin describes the organic peculiarities of the *Cypripedium* as follows : —

“*Cypripedium* possesses no rostellum ; all three stigmas being fully developed, but confluent. That anther which is present in all other orchids is here rudimentary, and is represented by a single shield-like projecting body, deeply notched or hollowed out on its lower margin. There are two fertile anthers which belong to an inner whorl, represented in ordinary orchids by various rudiments. The pollen-grains do not consist of three or four united granules, as in all other genera excepting the degraded *Cephalanthera*. The grains are not united into waxy masses, nor tied together by elastic threads, nor furnished with a caudicle. The labellum is of large size, and is, as in all other orchids, a compounded organ.”

The curious slipper-like shape of the labellum is necessary for the fertilization of the plant, in leading insects to insert their probosces by the lateral passages close to the anthers, by which means the glutinous pollen is conveyed to the stigma. The *Cypripedium*, like many other orchids, is incapable of producing ripe seed by virtue of its own powers ; and the structure is said by Darwin to be actually opposed to it. The aid of insects is absolutely required ; and, without their visits, the plants would be sterile. Darwin styles the moths their “marriage-priests.” This is one of the most curious phenomena connected with plant-life, and shows the reciprocal importance of the different created things to each other. Vegetable growth not only furnishes food for insects and other creatures, but the

instinctive visits of insects to certain plants in search of this food, are, by a mysterious economy, made absolutely necessary to the fructification of the plants ; the insects, accidentally as it were, being the agents for uniting the pollen with the stigmas : for though all the organs are represented with requisite reproductive power in the same individual plant, yet they are so related structurally, that union is impossible without artificial assistance. Among the many interesting features of the vegetable kingdom, the contrivances for fertilization which prevail among orchids are chief, and, together with the singular and exquisite forms which they present, are an attraction which arrests not only the observation of the student of natural history, but the admiration of every lover of the beautiful who finds any thing in Nature picturesque enough to inspire him with a sentiment of beauty. Exalted ideas of plant-existence proceed from study of the admirable processes and marvellous methods which abound in Nature as they are developed by investigation. The *Cyripedium* alone has interesting chapters enough to reward the researches of the most exacting ; and the frequent discoveries of new species are yearly adding to the accumulation of attractions which already cluster around this remarkable genus.

Of the *Cyripedium*, there are six species indigenous to the United States, and all found, in more or less abundance, in different localities in the Northern States. They are as follow : *C. pubescens*, larger yellow ; *C. parviflorum*, smaller yellow ; *C. spectabile*, purple and white ; *C. acaule*, pink ; *C. candidum*, white ; *C. arietinum*, red and white.

Five of these species I have growing in my garden, and have no trouble in keeping them. I plant them in the shade in leaf-mould. *C. acaule*, which is not rare, I have frequently planted in large numbers, but have never had it bloom a second season.

Mr. Rand, in a recent correspondence respecting our indigenous *Cyripedia*, wrote me of this species as follows : " As to *C. acaule*, my woods are full of it. I remember, one day last summer, my little boy brought in more than a hundred blossoms. I have often transplanted them with complete success : they seed freely. Plant it in dry, sandy loam, and shade from the sun ; never set the roots more than an inch deep, spreading them, and mulch with pine-needles."

On the other hand, a correspondent in New Jersey, devoted to native bot-

any, and who cultivates more native plants, I think, than any one else in the United States, agrees with my experience. I copy from his letter as follows:—

“I have met with *C. acaule* in damp woods and in dry woods; in the sandy pine-barrens of New Jersey, sometimes in nearly pure sand, with very little mixture; and in one instance I have met with it in tolerable abundance growing in a wet sphagneous swamp, where grew *Sarracenia purpurea* and *Pogonia ophioglossoides*. It did not grow quite so much in the water as the two last-named plants: but there would be no difficulty in reaching *C. acaule* with one hand; and with the other, *Sarracenia purpurea*. But, up to this time, it has resisted or rejected all my endeavors to retain it. It will come up one year after bringing it in; and after two, sometimes; but is sure to be gone by the third.”

One of the peculiarities of *C. acaule* is, that it seems never to throw up two stems or scapes from one plant; and another, that it never increases at the root as the other native species do, but always by seed. This is the experience of a friend who is a close observer.

C. candidum is a dwarf lovely species, and challenges my admiration as much as any of them. It is pure China-white, about the size of a robin's egg. It is very rare indeed, although a lady wrote me last summer it was abundant in swamps about ten miles from Madison, Wis. My plants came from Western New York, where it is occasionally seen.

All these species have the characteristic shoe-shaped lip, from which the plant derives its name, Venus's-slipper; more commonly, lady's-slipper; or, in the United States, moccason-flower. Some Englishman has remarked, in view of its classic name, that he hoped Venus did not, slattern-like, wear her slipper down at the heel, but that all the species of *Cypripedium* he had seen indicated that she did.

C. spectabile is larger and more showy, and generally esteemed the handsomest of the native species. One clump of roots of this species in my garden, last July, produced twenty-six superb flowers, two on each stem; the stems about two feet high, and the flowers uncommonly large.

C. arictinum is a small species, with a wild look, but is quite interesting, and the exact shape of a ram's head, as its name indicates. This diminutive species is very pretty when examined, the red and white lip curiously drawing to a point at its lower extremity. I counted fifty-two flowers in

my garden last June upon my plants, which came from Canada. As to stations for collecting it, I can only remark, it is a first-rate thing to *hunt after*. It is the most uncertain, irregular, vagrant plant in all our flora. It seems enchanted, and to have the gift of disappearing at will when wanted.



CYPRIPEDIUM ARIETINUM.

In some stations, amid cold swamps, it is reported to be both plenty and permanent. I have heard it is somewhat abundant in Bergen Swamp, Genesee County, N.Y. Referring to its transitory character, is not one reason for its disappearance from accustomed habitats, that sphagnum is always growing, and in course of time overtops all the little hillocks in the

swamps upon which it prefers to grow, thereby destroying its roots? Excessive moisture is fatal to it in cultivation, I know from experience.

A gentleman wrote me from Canada, that he found it growing with *Lilium Philadelphicum*, and other plants that require a dry, warm soil, but where a cedar or tamarack swamp had formerly been ; and, as that was the only swamp-plant remaining, he inferred, that, like *C. pubescens*, it could exist without much moisture.

These little hillocks in the swamps are the favorite haunts of *C. acaule* as well as of *C. arictinum* ; and a theory is drawn from this fact to account for their blooming in May. These knolls get heated through long before the ice is out of the swamps ; and I am informed it is not a rare occurrence to find them in flower with ice in their immediate vicinity.

C. parviflorum and *C. pubescens* are both yellow, and very showy. They vary much in intensity of color ; some being quite dull, and others lively and brilliant. The brightest I have had came from Canada. *C. pubescens*, in size, is from two to four times as large as *C. parviflorum*.

These two species are abundantly distinct, though in some localities difficult to determine. *C. parviflorum* is much the rarer of the two, though not generally so considered : it is also fragrant, shorter, and flowers earlier ; has a deeper brown-purple perianth ; does not change much in form, though some in size. *C. pubescens* is generally paler in color, much larger, and is quite changeable in all its parts.

C. parviflorum is entitled strictly to but one flower to the stem ; yet Mr. Rand informs me he had a plant of this species under open-air culture, in his garden, which produces three flowers on a single stem. This accidental development occurs in those East-India species which ordinarily have but one flower to the stem also ; for I have this winter seen a large plant of *C. insigne*, in Mr. Rathbone's greenhouse in Albany, with two or three of its many stems bearing two flowers each.

Flowers of *C. spectabile* are frequently met with of pure white ; and in Otsego County, in this State, blossoms of *C. acaule* have been found entirely white.

A specimen of *C. parviflorum* has been gathered in Schenectady County, in this State, having all the parts of the flower single except the lip, which is double.

These hardy species may be transplanted in the spring before they begin to grow, or in the fall after they have ceased growing. Removed at these seasons, the roots may be entirely separated from the soil with safety, and transported by mail or express to almost any distance. But I have received roots taken up while the plants were in flower, which, with care, have succeeded well. In this case, some of the native soil or turf should be taken up with the roots. The great danger in their cultivation lies in their getting dry during the season after they have bloomed. If a good growth is not made during the summer, they will not have gathered strength enough to flower the following spring, and perhaps not constitution enough to keep alive a second season. They should, therefore, be grown in the shade, and carefully watered through the summer after flowering, and perhaps mulched with moss. Mine, however, do well without mulching. *C. acaule* is an exception to this treatment, as it regularly fails with me. It evidently requires a dryer and sandier soil than the others; yet it is found in its native state both in dry and wet situations. *C. parviflorum* is less particular as to soil and moisture than any of the species. They are all, however, impatient of being disturbed, and can only be domesticated by being left alone when once transplanted. It is well (not necessary) to protect them in winter with a thin covering of leaves or light litter.

The strips of ground on the north side of house-walls, generally so desolate, where the sun's rays do not reach, and where even grass will not thrive, may be converted into the most picturesque and attractive portions of the garden by the introduction of hardy *Cypripedia* and ferns.

All of the native species may be successfully grown in pots in a cold plant-house; but I have had no experience in this mode of culture. Mr. L. Menand of Albany, a professional florist, grows them in this way, and seldom fails to flower them in the early spring.

There is a very rare and beautiful little native orchid, *Calypso borealis*, that resembles the *Cypripedium* in the sac-shape of its lip. I received a number of its tiny bulbs in full flower, last spring, from Canada. It has a single leaf, with a scape three or four inches high, bearing a large, variegated purple and yellow flower, the lip of which is three-fourths of an inch long.

George B. Warren, Jun.

FORGET-ME-NOTS.

THE little blue flower, commonly known as Forget-me-not, divides with the pansy, heart's-ease, or lady's-delight, a multitude of tender recollections. Botanically, the plant is known as *Myosotis*; and the true forget-me-not of poetry and popular love is *M. palustris*, a native of England, and now everywhere naturalized.



The flowers are blue, with yellow eye, and in most places are produced all summer, and ripen abundance of seed.

Besides this, there are many other species, both annual and perennial, some tender, others very hardy: the annual are increased by seed; the

perennials, both by seed and division. *M. Alpestris* is the well-known species of the Alps, with pretty dark-blue flowers. *M. Azorica* is a fine, tall, showy perennial from the Azores, as its name signifies. *M. cæspetosa* (tufted) *intermedia*, and *nana*, are natives of England ; and *M. rupicola* is a Scottish species, thriving, as its name implies, in the clefts of the rocks, and blooming very early in the season. All the above are perennials, except *M. palustris*. Of annuals we may mention *M. arvensis alba*, with white flowers ; *M. collina* and *M. peduncularis*, both with blue flowers ; and *M. commutata*, also with blue flowers, which is a biennial.

The variety which we figure is a seedling, recently obtained in Prussia by hybridizing between *M. Alpestris* and *M. Azorica*, and has been called *Myosotis Impératrice Elizabeth*, or *Semperflorens hybrida*. It seems to have the fine, erect habit of the latter, combined with the compactness of the former ; and in beauty, and abundance of flowers, leaves nothing to be desired. The flowers are deep, rich azure-blue, with dark-yellow eye. It flowers most abundantly during the whole season, from early spring until the severe frosts of autumn ; a quality which must give it preference over many other varieties the period of whose flowering is very short.

It is hardy in Europe, and would probably stand our winters, certainly if protected with a cold-frame.

For forcing it is admirably adapted, and makes a charming pot-plant.

The plant is for sale in Europe, and will probably be obtainable of florists in this country the present summer. E.

THE CONCORD GRAPE.

THE decision of the committee recently appointed to award the Greeley Prize to the best grape for general cultivation has the indication of merit, — that it has been thoroughly abused. At the first announcement that the Concord grape had been selected, every amateur was seized with a paroxysm ; and even at the meeting of practical fruit-growers held in Rochester, N.Y., this award was so severely traversed, that a member of the committee who chanced to be present, perhaps fearing expulsion from the meeting,

hastened humbly to disavow all responsibility for the decision, on the plea that he was "one of six."

Public attention thus awakened naturally inquires why it is (if this award has not some weighty reasons to back it) that the opinion of six gentlemen on a meagre exhibition of grapes should set the horticultural world into a ferment. Nursery-men would very naturally eye with disfavor any thing which would tend to make a twenty-five-cent grape-vine more popular than one which brings a dollar ; but it is noticeable that this award has its worst enemies among the devotees of the science, who aim to foster fruit-culture among their countrymen as an ennobling pursuit, and who view such questions disinterestedly.

There is no class of amateurs to whom America is more indebted than the amateur pomologists. To them we owe some of our choicest treasures, both of cultural knowledge and of varieties of fruit. But we submit, that, in such questions, the public occupies a different position from the amateur.

What is an amateur ? He is a man whose cultivated taste demands perfection, without regard to cost. He is an epicurean in science or art.

What does the public demand in grape-culture ? It demands, as cardinal points, certainty and cheapness of production. Quality, time of ripening, duration, are all secondary. It would actually prefer to raise with *certainty* a bunch of Concords for a penny, than to risk a doubtful chance of producing a bunch of Delawares or Rebeccas for a shilling.

"What taste !" cries an amateur. But can he or any one deny that these are *essentials*, without which no grape ought to be confidently recommended for general cultivation ? Can he deny that the Concord grape is known to be hardy and prolific over as large a variety of soils and climates as any grape of as good a quality ?

The amateur may enjoy his Dyer and Early Joe apples, his delicious Hooker strawberries, and his Dorchester blackberries ; he may rest under the shade of his Delaware vine (if he can induce it to grow high enough), and commiserate at his leisure a public whose embryo tastes are satisfied with the Baldwin apple, the Wilson strawberry, or the Lawton blackberry : yet even he, scornful as he is, will not venture to gainsay the adaptability of *these* to general cultivation. Why should he be so opposed to placing

the Concord grape in the same category of unassailables? Is the Concord grape a whit more inferior as a grape than the Wilson is as a strawberry, or than the Baldwin is as an apple?

We would ask whether there is a surer way of adding to the number of intelligent grape-growers, and raising the general standard of taste, than by introducing to public notice some grape, albeit not of first quality, which will not disappoint either by mildew, lack of vigor, or paucity of fruit.

Will not every one who plants a Concord vine, and gathers his rich reward, be encouraged not only to plant more vines, but of choicer varieties?

MACEDON, N.Y.

Pro Bono Publico.

IONA AND DELAWARE.

(Concluded.)

THE introduction of the Delaware gave us our first grape that could compare favorably with the best kinds of Europe. It is a grape of the highest excellence; hardy and productive; free from disease in almost all locations. In the extreme hot summer of 1865, in my own vineyard, one hundred Delaware vines loaded with fruit showed not a sign of disease; while on the Catawba vines, in rows eight feet from the Delaware on either side, the fruit rotted badly. In other vineyards, the Delaware did equally as well. I have yet to see the first sign of rot, or of mildew to any extent, on my Delawares, of which I have over one thousand strong-bearing vines, and planted, last spring, six thousand young plants, of which I did not lose one.*

The introduction of the Iona grape was another step in advance. On sending it out, its originator (Dr. Grant) claimed for it many good qualities; so many, in fact, that it was at once marked as a humbug by some of our oldest vine-growers. They could not believe that such a grape had so soon been produced in America; and it at once became a mark for many pens (many honest ones, I have no doubt) to write at; and this has continued, to some extent, up to the present time. This was and is most unjust; first, because the half had not nor ever has been said in re-

* The writer's location is specially favored; the great obstacles to the general cultivation of both the Iona and Delaware are the tendency to mildew, the weak nature of the vine, and the long season required for the former variety.

gard to the superior excellence of the Iona grape for table or for wine. No one can by words be made to realize the true value of this grape : only by eating the fruit in sufficient quantity to become acquainted with it, and by testing its wine by the side of the best wines of Europe, can a full knowledge of its surpassing excellence be gained. Secondly, it was unjust, because Dr. Grant had done more than any other man to introduce the Delaware into all parts of our country ; thus giving grape-culture in America a helping hand, which it particularly needed at that time. This should have gained for him more consideration from those interested in vine-growing. The true value of the Iona is fast becoming known to our best vineyardists. Already such veteran grape-growers as Mr. John E. Mattier of Cincinnati, and Mr. William Griffith, late President of the Lakeshore Wine Company, are planting Iona vines by tens of thousands. Hundreds of men in all parts of our country are planting it alone, believing it to be our very best grape, as all must believe who give it a thorough trial. In five years, the wine from this grape will not only be known as the best we have in this country, but the best in the world.*

I have grown the Iona from the first season it was offered for sale (1864). The vines that I then procured have given me two crops of fruit. The second season after planting, they were suffered to bear from four to six clusters each. The fruit even on these young vines ripened perfectly and in good time ; and although this was the season when the Catawba crop was so much injured by rot, and the Concord dropped its fruit badly, yet the Iona showed no sign of rot or mildew, nor did it drop its fruit. These vines passed safely through the following winter which killed so many young vines of other varieties, and in the spring set a large quantity of fruit, some of which was removed. The remainder (about two pounds to the vine) was ripe at the same time as the fruit on Delaware vines one year older : if any difference, it was in favor of Iona. I made my first shipment of Delawares to the Chicago market Aug. 24. I have planted many hundred Iona vines since, some of which I expect to bear fruit this coming season ; and can safely say that I have had no more trouble in growing Iona or Delaware than Clinton or Concord, and have never lost a vine of either, except under the same circumstances as destroyed all other kinds.

* Our correspondent is enthusiastic, as his success may well cause him to be. We only hope the future may prove the truth of his prophecy. — EDS.

It is true that many young vines were lost in the winter of 1865 and '66; but in equal proportion were small vines of all other varieties lost: even apple, pear, and cherry trees, that had come safely through the extreme cold of the winter of 1863 and '64, were killed. Is it, under such circumstances, just or reasonable to say, that, because vines of Iona and Delaware were killed this winter, they are not hardy; that they have not proved a success in Illinois, or in the West generally? There is yet another thing which has done much to bring about this belief that the Iona and Delaware are not hardy in the West. This is the extremely poor plants that have, in too many instances, been bought and planted. Thousands upon thousands of the most worthless plants have been and will continue to be sent out until people learn that extreme cheapness of vines for a vineyard is, like buying many other things because they are cheap, very bad economy in the end. This has done more than any other one thing to injure the reputation of these varieties; and it will continue until planters learn that ten good vines are better, and will bring in more money, than one hundred poor ones. Undoubtedly, in particular locations and situations, they will require peculiar treatment: for instance, a man planting a vineyard in the rich soil of the West would make a great mistake should he manure his ground as highly as is required in some parts of the Eastern States. In the West, all vines grow too rapidly: they do not make as solid wood, neither is it as perfectly ripened, as in localities where the growth is slow; and, of course, cannot withstand the same degree of cold. Knowing this, as all Western vine-growers do, it becomes necessary to prevent this rapid growth as much as possible by choosing ground for the vineyard not so rich as is the greater part of our land; and, to cause the canes to ripen, their ends are pinched off in August. This exceedingly rapid growth of the Iona and Delaware vines is confined to the first two or three years after planting.

A situation for a vineyard should be chosen where the vines will not be too much exposed to high winds, yet where there will be a free circulation of air through them. The surface of the ground should incline, so as to quickly run off all surface-water; for, when this water is retained, then the roots will surely freeze out in winter, even though they be of Concord or Clinton. The ground should be thoroughly underdrained; the soil

broken up by spade or subsoiler at least twenty inches deep (two feet will be better): but, if the subsoil is thrown to the surface, good soil must be brought from elsewhere to place around the roots of the newly-planted vines. The vines should be trained low, the arms not more than one foot from the ground: four feet is high enough for the trellis. So trained, the fruit has the benefit of heat thrown back from the ground in cool nights, and is thus kept at a more even temperature night and day. I have a vineyard of several thousand vines, all trained with arms and spurs. These vines have produced large and regular crops, year after year; and I know of no better method of training. If there are any perfect buds or perfectly ripe wood on the vine, it is that remaining after pruning.

The vines should not be suffered to ripen more than two or three clusters of fruit the second season after planting; and, unless very large, should not bear till the third year. The distance I would recommend for Delaware and Iona is four feet in the row, the rows six feet apart. The Iona may be planted six by six; but the Delaware, if planted at this distance, will set more fruit than it should ripen. I am satisfied, that, as a general thing, we plant all vines too far apart, and injure them by heavy bearing.

All vines must be covered with earth in winter. This is decidedly necessary. Even in warm winters, this covering will insure one-third more fruit, and the clusters will be much more perfect: a crop of fruit is thus made certain. This covering is very little trouble if the vines are trained with either double or single arms: but the arms should be taken directly from the ground; that is, started as low down as is possible, and not, as is shown in most books on grape-culture, taken from the two upper buds of a cane cut at one foot from the ground, started from near the surface. They should be trained at an angle until the lower bar or wire is reached, and then directly along it. When trained this way, they almost drop to the ground when untied from the trellis. The spurs being short, all are easily covered by plough or spade. In building trellis, use three wires, — the first, one foot from the ground; the second, fifteen inches from that; and the third, within an inch of the top of posts, which are four feet above the ground. I first built my trellis with upright wires, but soon had them removed.

GARDEN ARCHITECTURE, AND HINTS ON LANDSCAPE GARDENING.

ENTRANCE-ROAD.

THE entrance-road, with its wing-walls, in most cases the first unmistakable indication of proprietorship which strikes the visitor, demands much care in its treatment.



Fig. 14.

For entrance-sweeps of a plain character, the subjoined sketch shows a method of coping which may be practised with very good effect. It is a rude sort of crenellation, by no means lacking picturesqueness in execution, though not very effective as a sketch.

The two annexed cuts, Figs. 15 and 16, show two nearly similar methods

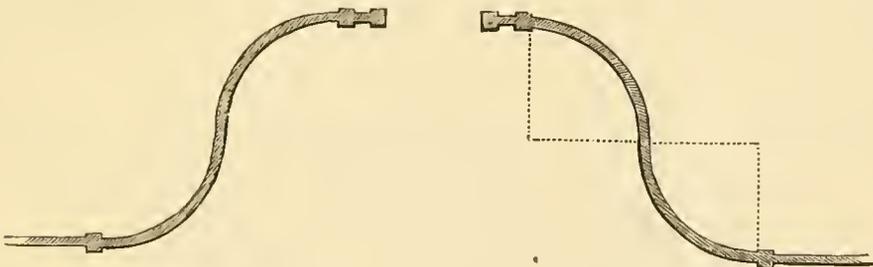


Fig. 15.

of treating an entrance-sweep wall. In the former, the curves are simple quadrants in the Roman manner, which can never give grace in combination, as may be seen in the *cyma recta* or *cymatium* of any Roman example. The Greeks, on the contrary, used invariably curves drawn by hand, of such extreme delicacy, that they cannot be imitated by any mathematical formula of projection. The Italian form of *cymatium*, which is of extreme grace, is also drawn by hand.

Fig. 16 shows the sweep treated in the Italian method, drawn, for convenience, by two portions of circles of unequal radius. The curve is easy, and what is termed "flowing."

Some prefer a hollow curve for the entrance-sweep ; but it seems more natural that the walls or fence should conform to the track which either

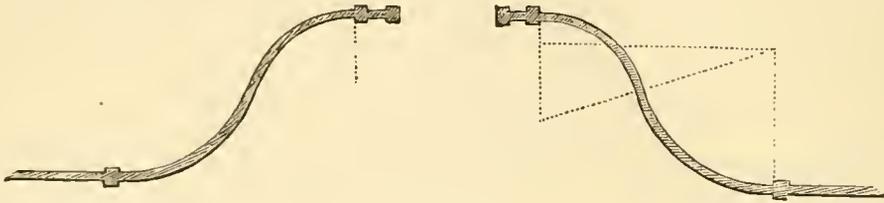


Fig. 16.

wheeled vehicles or pedestrians would take on turning from the highway into private grounds. Besides, any thing that tends to increase the quantity of gravel *which requires weeding* is an objection. If on a very large scale, the portions of the road over which the traffic never passes might be turfed, and indeed planted, enclosed by a fence, or posts and chain ; but it may be questioned whether there is strict propriety in supplementing the sweep-wall, which is the real fence, by another outside it. This difficulty is greatly lessened if the entrance recess is angular, as there will then be at least a fair place to start the supplementary fence from ; namely, a corner pier.

The first thing required of an approach-road is that it should be easy, and reasonably direct. People who are hurrying to catch a train have little leisure to admire the road for any thing but its suitability for purposes of locomotion. The curves should be fair and continuous, easy to be kept by the horses, and screening the house. The following example shows a very short approach ; but, short as it is, it admits of being done badly.

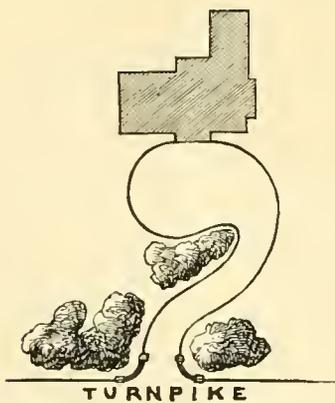


Fig. 17.

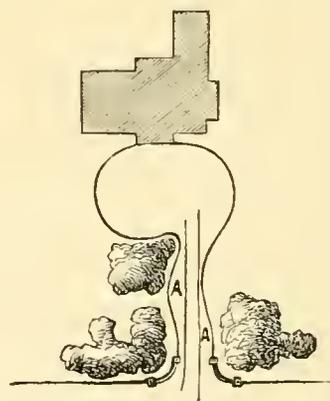


Fig. 18.

In Fig. 17, the curve is continuous, and the house is screened. In Fig. 18, the wheels would certainly follow the straighter course shown by the straight

lines ; and the recesses or bays, $\Lambda \Lambda$, would grow up in weeds, or require constant care ; the projections would be shaved by the carriages, and continually encroached upon. Fig. 18 is, however, by no means as bad as evil ingenuity could make it ; but it is wrong in principle, and no landscape-gardener would lay it out so.

A practice which should decidedly never be allowed is for two bays or two projections on the same side to be seen at once : it is the worst possible fault a road can have. Use curves, as many as may be desired, but no serpent-like twistings. The following figures will explain more clearly.

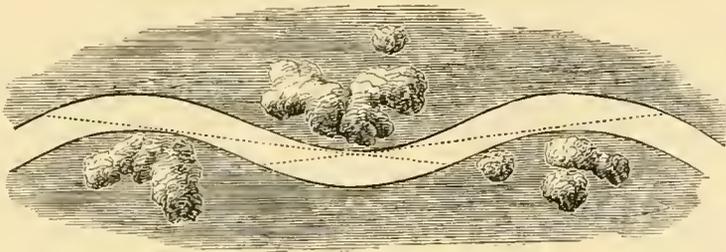


Fig. 19.

In Fig. 19, we have an easy curve ; and, by looking at the dotted lines, it will be seen that the view is confined to one bay and one projection. In Fig. 20, on the contrary, two indentations and two projections are visible,

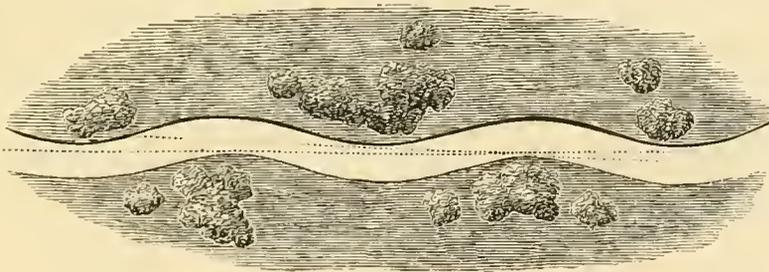


Fig. 20.

the effect of which would be very bad. A horse would draw a carriage so as to shave the projections, and avoid the indentations ; and the track of the wheels would soon show the faults of the design.

Most landscape-gardeners insist that the road should be carried on the natural surface of the land. Unless, however, the ground be very easy in its slopes, there seems no valid objection to a moderate amount of cutting and filling. The main thing to avoid is the formality of a railroad ; but,

as a road is manifestly an artificial work, why should it not be as perfect as skill can make it? The first object of a road is to carry wheeled vehicles; and any thing in reason which facilitates this object would seem to be allowable.

The difficulty of making a satisfactory cutting is greatest in comparatively level ground which happens to be repeatedly crossed by hillocks, recalling in miniature to the traveller the rolling prairie of the West.

Fig. 21 is, of course, an exaggeration; but it will serve to illustrate the bad effects of the concealment of any low portion of the road by any high

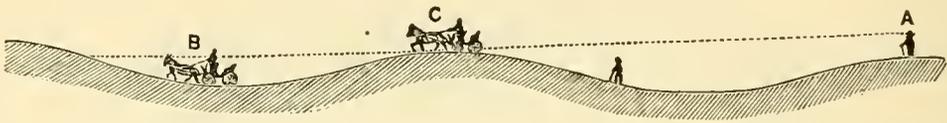


Fig. 21.

portion without a bend in the road. The spectator at A sees the carriage C in a proper position; but when C retires down the slope, and is partially lost at B, the effect will be rather grotesque, and will not be improved by the gradual emerging of C towards the crest of hill.

Where there are means of laying out the road on curves, the inequalities of the ground can be got over with comparative ease, and a cutting may also be much bolder.

As to the width of roads, every thing depends on the size of the place: but, as no entrance-road need be wider than enough to let two carriages pass, fourteen feet is sufficient for the largest place; and, as the width of the road pre-eminently gives scale, it should never be made in a small place more than nine, or at most ten feet,—enough for one carriage to drive handsomely. It is thus kept in order by the traffic, and the weeds kept down; which will not be the case where the road is double the width of the travel. If two carriages meet, it is easy enough to take the grass with one wheel for a few yards; and, even if the turf should be injured, it is cheaper to repair it now and then than to keep down the weeds in a fourteen-foot road permanently. The refuse lime from gas-works is excellent for killing weeds; but it must be used with care, as it will kill any thing it comes near, and it spreads its influence laterally farther than is generally supposed.

If the place is old and well wooded, the road may pass through a piece of wood. An entrance, however, should be as cheerful as possible, which a long grove can never be ; though, by passing through trees occasionally, great variety is given, and the pleasure of the drive increased. Of course, there is no objection to an avenue of any kind, because that supposes the trees to be at a good distance apart, and not too close to the road. Besides, an avenue consisting of two or more rows of trees is by no means a *track* cut through a forest. What should be avoided is a road running into a wood composed of thick foliage, where a sufficient number of trees are not removed to allow the sky to be seen in almost all parts. A pair of trees here and there, with the road going between them, will be very good ; even three or five trees can be thus managed with advantage : but there should not be enough to make *the road dark*.

A growing custom is to make avenues by clumps of several trees, sometimes as many as seven or nine, disposed in groups at about seventy yards apart. Of course, in time, most of the trees must be thinned out, that is to say, entirely removed, to allow those remaining to expand into their proper proportions.

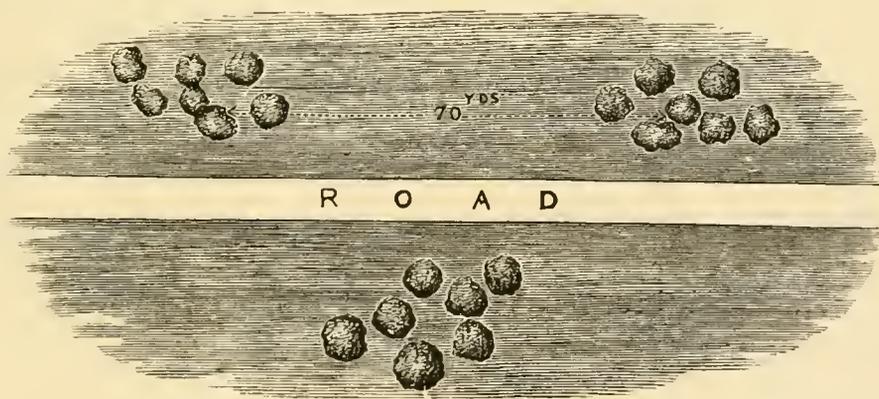


Fig. 22.

When trees become large, and touch each other, they exercise a most prejudicial effect by cutting the branches of their neighbors when swaying with the wind. This is reciprocal, and two trees are injured in every such case.

Avenues should not be designed to bear towards a *dip* in the land, unless there is an elevation beyond capable of bearing an object or forming a *vista*. — Adapted from "*Garden Architecture and Landscape Gardening*" by John Arthur Hughes.

THE MAGNOLIACEÆ.

(Concluded.)

11. *M. PURPUREA* (*Purple-flowering Magnolia*).—Japan is the native country of this unique and dwarf species. When first introduced here, it was considered and treated as a half-hardy shrub. Experience has shown it capable of standing the coldest of our winters. My first successful attempt at growing it on the cucumber-tree was made last season. It took both by side-grafting and budding early in May. If it can be grown into a tree as large as the *glauca* by this plan, it will form a splendid ornament. Time only seems wanting to develop it.

The period of blooming continues through summer, and even into autumn, when suitable rains are furnished. A few seeds are matured every season. As this is the only species with red or purple flowers, it will doubtless be employed to impart colors in crossing and hybridizing.

That given points can be reached in breeding fruits and flowers, the experiments of Mr. Knight and certain other pomologists and florists have decided. The principles governing the results are known. The art of manipulating in the best manner is not, in all instances, as well understood. Mystery is, perhaps, intentionally thrown around it by experts. That it is successfully and extensively practised, is evident from the number of new and improved varieties of fruits and flowers annually introduced to the public. A few may be the result of accident or empirical effort. The larger numbers are the products of well-regulated art.

An editor of a horticultural journal could confer no greater benefit on his patrons than to instruct them in the details of that art; and our intelligent young people could engage in no more interesting and healthful amusement than in carrying those details into practice.

12. *M. GRACILIS*.—Slight differences distinguish this variety from its parent, the *purpurea*, but sufficient, perhaps, to entitle it to cultivation.

Of the twelve species and varieties described, all, the *auriculata* excepted, are now growing near the lake shore, and fully exposed to the lake influences, five miles west of the city of Cleveland, O. Their

flourishing condition bears evidence, that, under suitable management, they are capable of resisting the vicissitudes of this northern climate.

A few other kinds are named in the catalogues of nursery-men, and their merits remain to be tested. An intelligent native of Burmah, a student of medicine and divinity, now here, informs me that a small and handsome species of magnolia grows in his country. It perhaps is the *purpurea*.

(b.) LIRIODENDRON.

I. L. TULIPIFERA (*Poplar, White-wood, Tulip-tree*).—This is the only species included in the genus, and is familiarly known as one of the most stately and magnificent trees in the Western forests. The frequency with which it is here met prevents its merits for ornamental purposes being duly estimated.

Its habit is much improved by cultivation, when young, in open grounds. In such situations, it is an object of great beauty, especially while covered with its large yellow and glaucous-green flowers in the month of June. At this time, the nectaries of these flowers abound with honey of a superior quality, which entices the honey-bee to resort to them in great numbers, in preference to the many other flowers expanded at the same period.

Its large, rich green, and uniquely formed leaves are objects of special admiration. Each leaf has two lateral lobes near the base, and two at the apex, the latter abruptly truncate. The original tree, standing, of course, in the Garden of Eden, produced leaves, with the two latter designated lobes united into one, and terminating in an elongated spear-form point, till, on a time, Damsel Flora, in a sportive mood, plucked a leaf, folded together its sides upon the mid-rib, and then with her scissors abruptly cut off the spear-form leaf at its middle. Since that day, the impression of the mutilation has been entailed on all succeeding generations of its leaves. *Such is tradition.*

Seedlings frequently spring up in the forests and neglected fields, and they are more tolerant of removal than cucumber-trees of similar size. No tendency has been discovered in them to deviate in the least from the normal habits of the species; yet in Europe, where it has been under cultivation for near two hundred years, several varieties have been produced. Its close botanical affinities to the magnolia leads to the suggestions,

whether hybrids between the two may not be originated ; and also whether it may not be substituted as a stock, in place of the cucumber-tree, for the propagation of the several species of magnolia.

Several experiments, testing the feasibility of the latter suggestion, resulted in effecting an adhesion between the bark of the magnolia buds, and alburnum of the tulip-tree ; yet, in every instance, the chit of the bud perished. These experiments, though falling short of perfect success, served rather to strengthen the affirmative side of the query.

PROPAGATION.

BY SEEDS. — A cold frame is required. It should be constructed in a situation protected from cold winds, shaded from noonday sun, and not under drippings of either buildings or trees. The soil should consist of wood-mould, well-digested peat-earth, and sandy loam, in equal proportions, intimately mixed and riddled.

The seeds, prepared as directed under the head of *M. acuminata*, should be planted one inch deep ; and the surface of the bed should be covered with a layer of leaves during winter, and until the seeds begin to sprout about the middle of May, when the covering should be removed. Constant attention to the condition of the surface will be required till the plants are well established. An excess of sun, dryness, or moisture, is equally fatal to them. From time to time, until September, seedlings will often continue to appear. The most luxuriant usually make only a few inches of growth by the close of the first season : that is, however, the best period for their removal either to nursery-rows or their permanent localities. At this age they suffer little from the operation ; and, besides, it induces them to throw out fibres from the main roots, which prepares them for subsequent removals should it be desirable.

By this method, a supply of choice seedlings as well as stocks can be secured.

BY LAYERING. — Two seasons are required to complete the process with the magnolias. For directions, see practical works on horticulture.

BY BUDDING. — The method is familiar to every nursery-man, and differs little from that required in propagating the peach. Two periods each season are, however, afforded. *First*, When the bark of the stock will peel

freely,— about the 10th of May in this vicinity. The wood of the stock may be from one to three years old. Buds may be selected from scions cut in February and carefully preserved, or may be taken directly from the tree. If from the latter, employ those the least swollen ; and even those which are small and semi-abortive are to be preferred to those which have burst. Cut them with a long base, and dip slightly into the wood ; but never attempt to remove the slice of wood taken off with the bud.

When inserted, tie them in with narrow strips of waxed cloth ; and complete the process by stopping every crevice about the bud with melted grafting-wax, so as to exclude air and water. Neither woollen-yarn nor bass-matting can be substituted for these cloth ligatures.

Second, From the middle of June to the middle of July, a period is furnished for summer-budding. At this time, well-matured buds of the present season's growth are to be selected. The operation, in every particular, is the same as in spring-budding. It is, however, more difficult to fix upon the exact moment for doing it. The buds must be well ripened, while at the same time the deposit of young sap-wood in the stock must not be too mature. The present year's growth only is now used for the stocks. Buds set in the spring are expected to make a free growth before autumn, while those set later will remain dormant till the next spring. They form their adhesion with the stock very slowly, and a premature removal of the ligatures will destroy them. Such removal should not be attempted till the stocks are slightly strictured.

BY INGRAFTING. — Inarching can sometimes be resorted to ; but I have found other methods more convenient.

Side-grafting, or double-tonguing the scion upon the side of the stock, often succeeds. It is preferable to leave on the graft a shank five or six inches long, projecting below the junction with the stock. By placing this shank in a suspended bottle of water, the graft will be prevented from drying till it forms a union with the stock.

If the stock be small, the scion may be tongued on the side of the stock, just above the crown of the roots ; and the shank may, in that case, be inserted in the earth.

No mode of grafting these spongy-wooded magnolias will succeed that requires amputation of the stock. The top is required to keep the sap in circulation.

BY GRAFT-BUDDING. — This is similar in all respects to budding ; only a scion is employed in lieu of a bud. One side of its base is sloped for two inches, so as to leave its end, drawn to a narrow edge or point. When it is inserted in the T incision in the back of the stock, it must be confined there by means of the wax-cloth ligatures ; and it is important to close the incisions carefully with melted wax, as previously directed.

The 10th of May, in this latitude, is the suitable time for operating. After a few days, the larger and expanded buds of the scion may perish ; but soon those at the base, and sometimes small ones at the side of those which have perished, will be forced into a growth. To these insignificant buds we often look for success, and should choose scions on which they abound.

After buds or grafts have taken, skill is required to divert into them the main flow of sap without impairing the health of the stock. The top, hitherto left, must be gradually shortened, at intervals of a week or two, during the season ; and, in some instances, the process must be carried into the second season. If attempted too abruptly, both stock and bud or scion may be destroyed.

SOIL AND MANAGEMENT. — The health, vigor, and durability of the members of this order of plants depend in a great measure upon their roots being continuously in a condition similar to that which existed in their native localities. The soil must be deep and rich in the requisite elements. An excavation at least two feet deep, and four in diameter, should be formed for the reception of each tree, however small. This should be filled with a soil similar to that recommended for the cold-frame, omitting the labor of riddling ; and time should be allowed for it to settle before the tree is planted. If it be of any considerable size, it should be removed with a ball of earth investing the roots. If a selection can be obtained in a nursery, secure such as have been repeatedly removed.

When the transplanting has been completed, the next step is to preserve a uniform moisture about the roots, akin to that which is uniformly sustained about the roots of trees in a thick and shaded forest. There the surface of the earth is constantly strewed with a covering of decaying leaves, which preserve a constant moisture. Applied artificially about the roots of a magnolia in a lawn, the same effects follow. To preserve this mulching in place, and aid in forming a shade, a well-adjusted circle of boards should be placed upon the leaves.

The leaves should be turned under the soil every spring ; and I have found it beneficial to add to them a liberal quantity of saw-dust, small chips, and fragments of bark collected in a wood-yard. A new layer of leaves should then be applied, and the boards replaced for another year. While thus protected, they appear to suffer neither from the sun of summer, nor the frosts of winter.

These protecting materials may appear unsightly in a neatly-kept lawn. An ingenious cultivator can contrive means to conceal them. Vines and trailing plants may be trained over them during summer. In winter, they strike the eye no more unfavorably than the furs upon a well-dressed person.

Lime, ashes, and animal matter, in any considerable quantities, are injurious to plants of this order. Vegetable mould is their requisite food.

In conclusion, it may be recapitulated that success in their cultivation depends, —

1st, On furnishing them with a deep soil, rich with decayed-vegetable matter.

2d, On sustaining that richness by annual supplies.

3d, On preserving the ground extensively about their roots in a moist condition, similar to that existing in their native forests.

4th, On protecting the roots from the impression of frost during winter.

5th, On propagating the shrubby, weaker, and less hardy kinds on the stock of the *acuminata*.

Fared P. Kirtland.

CLEVELAND, O., Jan. 9, 1867.

SUMMER-PRUNING OF THE GRAPE.

(Concluded.)

THIRD, Trimming to direct the growth of the canes. *Pinching* off the ends of some of the shoots is a very important part of summer-pruning ; but it is one which has been very much abused in practice, and still more so in the criticisms of those who theoretically condemn the practice. Before proceeding any farther, it is well for us to consider, that, in all pruning

of vines, we must remember the necessity of keeping the plant in due shape as to its wood, and that we desire to have this properly distributed. We want the new growth, which goes to form the canes for the next year's fruitage, formed low down on the stock, and not at the ends or higher parts of the vine, which would soon give us high, naked stocks, and bare, empty trellises, such as may everywhere be seen, — striking witnesses of the ignorance of Nature's laws as illustrated in the vine.

No intelligent cultivator need be told, that when a vine is tied up to a stake, or trained vertically upon a trellis, the terminal or upper buds will break the most vigorously; and if let alone, and allowed to grow upward, they will maintain their ascendancy throughout the season. This is often at the expense of those starting from a lower point, which were expected and desired to be the stronger, so as to produce the wood for the annual renewal of the vine. The same thing is true of vines trained upon the bow system, especially if the binding have been done too early in the season; the object of the bow being to distribute the nourishment equally to the different parts of the vine. The binding should not be done till the sap has started towards the upper buds, and they have received an impulse. If they are then brought down to a lower position, they are subordinated; and other buds at the upper bend become the highest, and thus produce the stronger shoots. In the mean time, those springing from the spur for renewal-canecan get the desired start; and the pinching now to be described is intended to favor their growth. In trellis-training, for the same reason, the canes should be allowed to hang loose until after the starting of the sap, so that advantage may be taken of the condition of the leading buds, and we can subordinate those that are likely to receive too much nourishment.

Do what we may, however, whether our vines be trained in one method or another, and despite all our forethought and care and management, the higher shoots will often become leaders at the expense of those we are endeavoring to produce from the spur, upon the principle of renewing by canes from below, and thus keeping the vine in good shape. Here, then, the pinching becomes an agency of the greatest value to the vine-pruner; for, by the removal of the tips of these strong shoots, he may succeed in so directing the flow of sap as to develop the growth of those he desires to produce for the future crop, and which are suitably placed upon the vine.

It may be objected, and we are all tired of hearing the objection, that we are contending against the natural efforts of the plant, which was only following its own instincts; and that, therefore, our attempts thus to thwart Nature were unwise and unphilosophical, and consequently wrong. But we may answer all such objections by telling them that we are treating the civilized vine in a civilized manner, and for the purposes of civilized man. The conditions of the problem are changed. One thing, however, remains the same in the wild and in the cultivated vine: in both cases, the fruit-branches spring from healthy and well-matured shoots of last year's growth. In the native forest, the vines clamber over shrubs, and even upon the highest trees, where they can have free exposure to the air and light, and where God's creatures, called the inferior animals, — for whom, in the bounty of his providence, they were produced, — can enjoy the fruits of the vine so lavishly furnished. Intelligent man, not wishing to rival these animals in climbing, and unable to fly with the birds to gather the clusters, cultivates and improves the fruit for his own use, and trains the vines so that he may reach their luscious bunches. Of course, his treatment of the plants is not exactly according to Nature; and yet the important facts and principles of the natural habits of the vine are ever borne in mind by the successful cultivator, who will take very good care not to set himself in opposition to them.

We now come to the last subdivision of the subject, — that of summer pruning and training in order to check the too great extension or the too late growth of the vine, and for the sake of developing the lower buds along that part of the cane which will be called upon to produce the fruit-bearing branches. It may be that those who advocate this kind of shortening-in are right. Let us listen to the arguments advanced in its favor.

The success of the renewal system as it is generally practised, whether the vine be trained upon stakes or trellises, always depends upon the suitable development of the *renewal-caness*, or shoots that are provided for bearing the next crop. To this end, these shoots are encouraged in their growth: they are carefully tied up as they grow; and they are maintained in a vertical position, that they may continue to develop themselves. All laterals are removed as soon as they appear; and the tendrils are pinched off, at least so far as the cane is to be retained on the vine at the winter-pruning. At the same time, aspiring shoots in other parts of the vine are subordinated

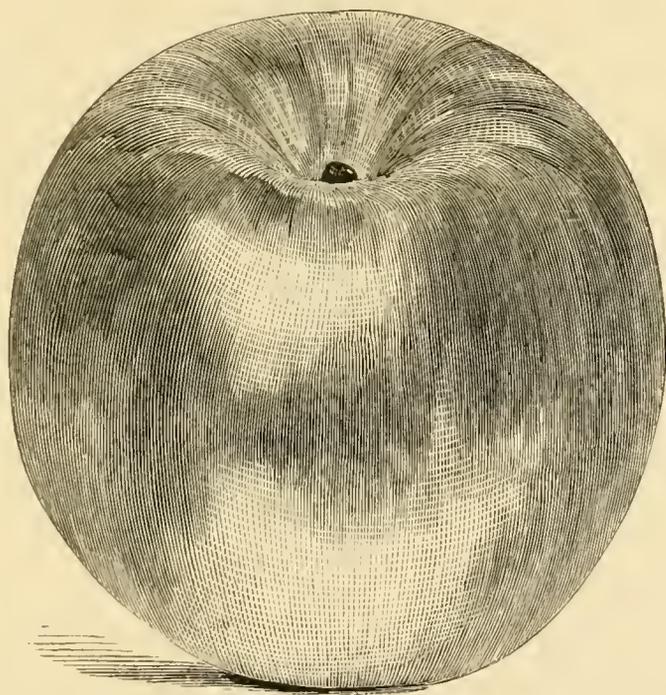
by pinching, as already indicated ; or they are checked by their dependent position, caused by the weight of their fruit.

With proper care, these canes will reach the top of the stakes or trellis ; and, if strong, they will continue to grow, often for several feet, or even yards. What is now to be done with them ? The Europeans we have among us advise to cut them off at this point. Intelligent American vine-dressers prefer to leave them, and carefully train them from stake to stake, or along the top of the trellis, and at last allow them to hang downward : they also let them produce as many laterals as their vigor may push out. These modes of treatment are diametrically opposite ; and yet there may be good reasons for both. The American, knowing the great vigor of most of the vines he has to deal with, allows them to develop themselves, feeling confident that he would commit an injury by attempts to curb their rambling nature too abruptly. He has observed, that where cut off, or broken by a storm at the top of the stakes, the buds, which contain the promise of the next year's vintage would be forced to break, and to produce very strong laterals that blossomed out of season : this he apprehends will be injurious to the next crop. On these strong canes, he has observed no difficulty arising from the want of development of the lower buds, upon which he confidently relies for his fruit the next year. On the contrary, the European, who has often come from the northern limit of grape-culture in his own country, has been taught that in such a situation the plants of the sunny South will continue to grow too late in the season, and that, as a consequence, the buds may not be well developed, nor the wood thoroughly ripened, unless he artificially checks this late growth by heading off the shoots at a certain height. Under such circumstances, the practice is sound and philosophical ; and it only needs judgment to indicate the proper period for performing the operation. It may be well for us to observe among our grapes whether some varieties may not be benefited by a similar treatment, though it is evident that most kinds are seriously injured by it.

In conclusion, upon this point it may be said, that, with our vigorous American vines, the canes should be cleared of laterals when quite young, and trained to the top of the support ; then trained horizontally for a certain distance, and allowed to hang downwards. Beyond the top of the stake or trellis, all the laterals should be allowed to grow unrestrained.

BOTTLE-GREENING.

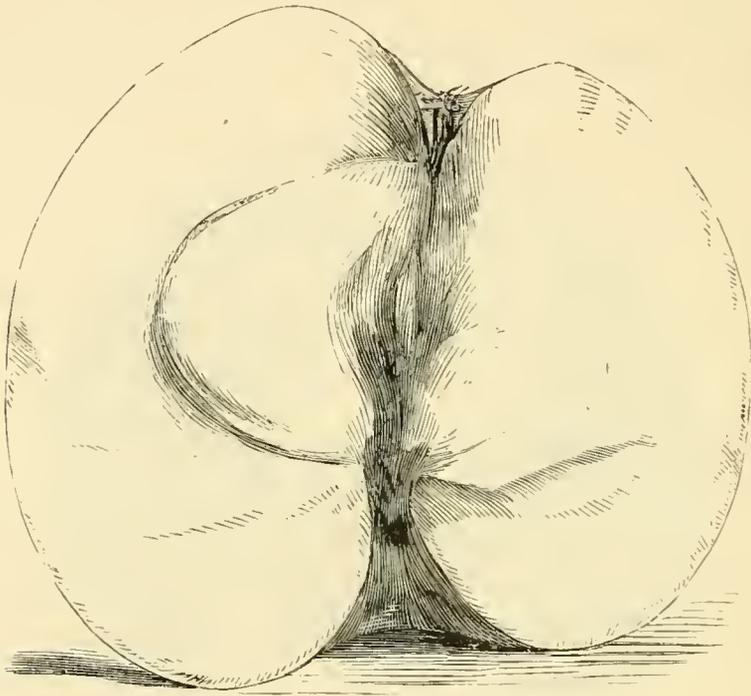
THIS delicious apple, possessing every desirable qualification, is but little known. Its origin is involved in obscurity. As far, however, as can be ascertained, it is a chance seedling, which sprang up on a farm on the dividing-line of New York and Vermont. The original tree was living a few years since. The name, which is peculiar, has no reference to the shape of the apple, but is derived from the fact that the workmen in the field where the original tree stood were accustomed to place the "bottle" in the hollow of the tree.



The apple became well known in the neighborhood by this name, there being no other ; and was propagated under this name. A nursery-man in New York, becoming acquainted with the merits of the fruit, grafted it extensively, and sold many of the trees. A large lot were sent to Dedham, Mass., to Eben Wight, a well-known pomologist, by whom the variety was still further disseminated. The oldest trees in this part of the country are now growing in Dedham. As we have said, the apple possesses every good quality. It is of medium form, and of fair size ; one great peculiarity being, that all over the tree the apples are of an average size, none being very large,

and none small. The color is yellowish-green, with a red cheek, covered with a rich purplish bloom as deep as on a plum. When this bloom is rubbed off, the fruit shines as if had been waxed. When fully ripe, the fruit is golden-yellow, with red cheek.

Our cuts are taken from a fair specimen grown in Dedham. The skin is always fair, never specked or blotched ; and this quality recommends it for a dessert-apple. The tree is of vigorous growth, rather spreading than erect,



and comes into bearing young. It bears every year, blooming profusely, the blossoms being very pink ; and, for bloom alone, the tree would be worthy a place in the garden. The old wood is dark gray, inclining to yellowish ; the young shoots are reddish-yellow.

The flesh is sub-acid, almost melting ; core small. In season from October to February.

R.

THE PYRAMIDS OF EGYPT.

It is claimed that in the same year that William Penn, of peaceful memory, founded the Quaker city of Philadelphia, the first settlements of the French were also made in the Mississippi Valley by the establishment of the missions and villages of *Notre Dame de Cascasquias* and *Sainte Famille de Kasquias* (as Pittman calls them). Both of these now unimportant and somewhat dilapidated hamlets are situated in that part of Illinois, which, either from the Nile-like fertility of its river-banks, or a former scarcity of spelling-books among its inhabitants, has long been known as "Egypt," and even at this day has its Cairo, Thebes, and I know not what other namesakes of its African original.

The French settlers, coming, in part at least, from orchard-bearing Normandy, had a proper appreciation of pomological products, and, if we may trust tradition, planted orchards or fruit-gardens, probably with seedlings grown by themselves, some remains of which endure even to this day in some stately pear-trees known among pruning pomologists as the Pyramids of Egypt.

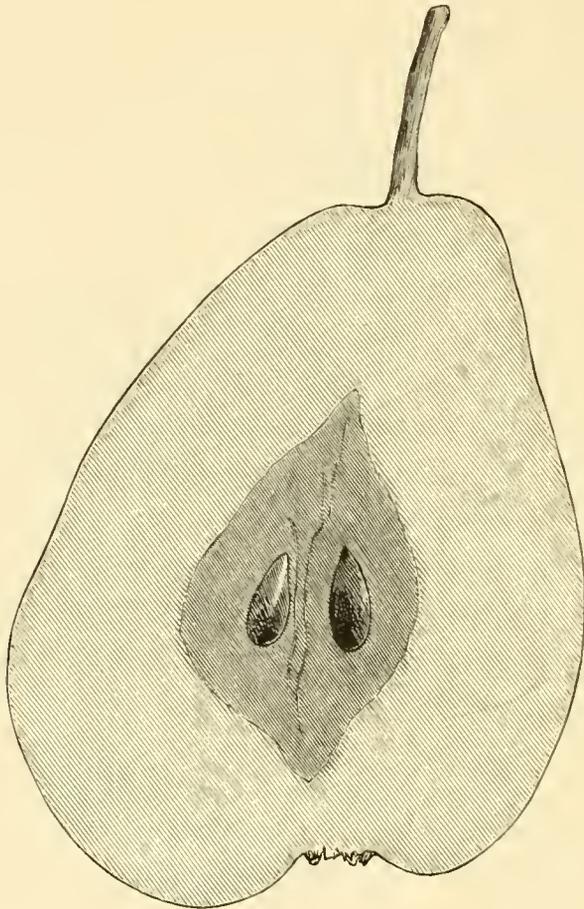
While year by year we plant our modern dwarfs and standards, and early mourn over blighted hopes, these pioneers of generations ago still stand strong like hale old patriarchs among an effete and degenerate race of descendants.

All the old French settlements in Michigan, Illinois, Missouri, and, I presume, other States, have their old pear-trees ; but I have seen and heard of the most of these in the old French settlements of the Upper Mississippi.

These trees are all found on the "American Bottom," a strip of alluvial or lacustrine deposit lying on the banks of the Mississippi, opposite St. Louis, and extending from Alton to Chester, a length of perhaps seventy-five miles, with a width of from four to eight. It is interspersed with numerous ponds and marshes, that in former, and even in later years, render it a breeding-place of chills and fever, mud-turtles and frogs ; but its more elevated portions have a soil of unsurpassed depth, warmth, and fertility. There is no limit, practically, to the downward extension of the deep-rooted

pear, and this in combination with a very fertile soil propitious to the strong growth of trees.

Two of these undated pear-trees stand upon the farm of Samuel Squires, near Nameoki Station, on the Terre Haute, Alton, and St. Louis Railway, in Madison County. They have been known by their present owner for fifty-six years ; and he estimates their age at between seventy and eighty years. Calvin Knider, another old settler, states that he saw them in 1825, and



that they then seemed about forty years of age ; thus varying little from Mr. Squires's estimate. This carries the date of their planting back to about the year 1785, or about fifteen years before the first American pioneers settled in the country. They are, therefore, probably of French origin. The fruit of one tree is small and worthless : that of the other resembles the Bartlett in outline and color, ripens in August, is only good in quality, and quite productive. I enclose an outline taken from a ripe specimen on the 22d of August. The trees stand in an open field, and, though showing

signs of heavy bearing, seem hale and hearty as ever, and stand a perpetual encouragement to discouraged pear-growers.

At the ancient village of Cahokia, just below and opposite St. Louis, are pear-trees of much greater age. Mr. Knider estimated them as forty years older than the trees of Mr. Squires, or about a hundred and twenty years of age. George C. Eisenmeyer, in a letter to the Alton Horticultural Society, states that he was informed in 1865 by a Mr. Aubry, who has resided in the "French Bottom," near Cahokia, for the last thirty years, that an old man upwards of a hundred years of age told him that seventy years ago there were large old pear-orchards in the neighborhood of Cahokia, of which five trees now living are the survivors. This would put the time of their planting prior to the year 1750, or about the time the "Company of the West" were endeavoring to settle and improve Upper Louisiana. These trees are said now to be forty or fifty feet high, with trunks three feet in diameter. They produce from fifteen to twenty bushels each of a pear which is said to rival the Seckel; but this I think must be an exaggerated estimate of their flavor. It has, however, been sufficiently esteemed to be propagated, by a nursery-man of the county, under the name of the "Cahokia Seedling."

In 1844, the year of the great flood on the Mississippi, the fruit was gathered, and conveyed to market in skiffs. The trees were not injured by the freshet; whilst smaller trees, whose foliage was submerged, perished.

There are other old pear-trees at Prairie du Rocher, but of a much less age; although, among the American settlers, they would be reckoned patriarchs of the orchard.

The Cahokia pear-trees are the oldest, to my knowledge, in the Valley of the Mississippi; and though they will not compare with the Endicott or the Stuyvesant pear-trees in their age, nor with that of Vincennes in their size, they are very big and ancient trees, and suggestive of the best conditions of pear growth and hygiene.

W. C. Flagg.

ALTON, April 24, 1867.

CULTURE OF HERBACEOUS CALCEOLARIAS.

IN the first place, every endeavor should be made to secure a packet of first-class seed from a well-proven source, as the bad sorts require just the same space and attention as the good : besides, the pleasure, in the end, of having a superior to an inferior quality of flowers, will infinitely outbalance the extra trouble and expense.

About the beginning of July, the seeds ought to be sown in pans well drained, on the following compost, after being thoroughly incorporated : two-fourths rich fibry loam, one-fourth leaf-mould and old mushroom-bed dung, one-fourth silver or river sand ; the whole put through a fine riddle. Fill the pans about half up with crocks, putting a thin layer of the fibry portions of the riddlings over the crocks ; the remaining half fill with the soil, when slightly press and smooth the surface ; then scatter over the seeds, and finish with sifting a little soil over, and give a sprinkling of water through a fine rose.

The pans may be placed in a shaded part of a pit or frame, near the glass, where they can get a little bottom-heat ; or, better, on the back shelf of a vinery, near the ventilators, where they may have the advantage of both heat and air. If the vine-rods are insufficient to shade the pans with their leaves, pieces of glass, whitewashed above, will be found necessary to cover them until the plants have made some progress, and can stand exposure.

Remove daily the drops that will gather on the under surface of the glass, so that they do not fall among the young plants ; and never permit the plants or soil to get dry or crusted, but keep both slightly moist with water.

When the seedlings have made sufficient strength to be handled, prick them in lines into boxes, and give a good shower through a fine rose, that will lay the earth to their roots ; and return them to their old quarters, shading as before until they are on their feet again, when they may be removed to a cold frame or pit. Place them near the glass, shading in strong sunshine, and giving sufficient air to harden them off by degrees to the full exposure of air and light.

Continue to keep their foliage damp, and never allow them to flag for want of water at the root, or with the sun, throughout any stage of their growth; and in a short time they will be prepared for a shift into pots three inches in diameter. Cut out their balls carefully into squares, and place them individually into the pots, using soil the same as recommended for the pans, only more rough. The plants will not appear to suffer from the shift, but will continue growing; which growth ought not to have a check up to the time the flowers make their appearance.

If green fly pay them a visit, take advantage of them, when the foliage is dry, by giving a smart smoking with tobacco-paper, and administer a good lashing with the syringe after the smoke has passed away.

In a short time, if all prospers, the roots will be through the soil, when a larger shift will be requisite, which, on no consideration, ought to be neglected or put off till to-morrow. Procrastination, or any other cause of prevention, will be found ruinous, as nothing can be worse than allowing them to get pot-bound; in which case the consequence will surely be stunted plants, that will send up flower-stalks weak and premature; whereas a regular succession of shiftings up to ten-inch pots will produce really good plants. About the beginning of November, prepare a place in the greenhouse as near as possible to the glass, without endangering them to frost. Place them there for the winter, after carefully washing and clearing the pots of weeds, being careful not to break the leaves in the operation; and continue to treat, as regards watering, syringing overhead, and potting, when needful, as the winter passes. As soon as the plants are established in their last shift, give a good soaking of liquid manure, at the rate of forty gallons of rain-water to one pound guano once a week, up to the time the flowers begin to expand; when it may be discontinued. Turn the plants every time you have occasion to water, that they may be well balanced with the foliage; and, as soon as the flower-stalks are of sufficient length, stake out, and finally stage to flower.

A. Kerr, in "Scottish Gardener."

VEGETABLES.

KEYES'S EARLY PROLIFIC TOMATO. — This new and very distinct variety originated with Mr. Charles A. Keyes of Worcester, Mass. The fruit is of medium size, uniformly smooth, solid, and of excellent flavor. It is very early. Grown with the Tilden and other leading varieties the past season in the grounds of Mr. Keyes, it ripened thirty days earlier than any other sort. The fruit is produced in clusters, from six to twenty in a cluster, and from seven to fifteen clusters on a vine, with the fruit not more than eighteen inches from the root of the plant. The foliage is large, — entirely distinct in this particular from any other variety; some of the leaves often measuring eight inches in length by six in breadth. Being naturally of a dwarf, compact habit, it can be planted as thickly as potatoes; and may, on this account, prove a valuable variety for forcing. We consider it worthy of trial, and shall grow it extensively the coming season for an early crop.

BLACK PEKIN EGG-PLANT, introduced the past season by Messrs. Hovey & Co., is a native of China, as its name indicates. It is very distinct in its character. Fruit very large, round, and weighing from five to seven pounds each; plant erect, vigorous, without spines; leaves oblong, and of a dark bluish-black color, quite ornamental. Fruit of this new variety was exhibited at the Annual Exhibition of the Massachusetts Horticultural Society, and attracted considerable attention. Seeds of this new variety can probably be procured of seedsmen the coming spring.

SIMONS'S EXTRA EARLY BEET, introduced last season, fully maintains its reputation for earliness; and is an improvement on the Bassano, being quite as early. Uniformly smooth, of a blood-red color, and turnip-shaped. Valuable as an early variety for the market-gardener.

C. N. Brackett.

NOTES AND GLEANINGS.

HINTS ON HYBRIDIZING FRUITS. — The following notes, published a few years since by Mr. John Standish, the well-known nursery-man and florist, in the *Journal of the Royal Horticultural Society*, may be of interest at a time when hybridization is exciting so much attention. Though the experiments were confined to greenhouse grapes and fruits, there is no reason to doubt their general application; the experience of hybridists generally confirming the principle there laid down, that no constancy can be expected in seedlings.

The rules of variance, however, are by no means understood; the raising of seedlings being one of the strongest arguments for the doctrine of chance. The whole field is one offering every inducement to both the gardener and amateur; and, with the interest already awakened, the next few years cannot fail to show great advance.

“Having been occupied for many years in hybridizing plants, and being very fond of it, I at length turned my attention to fruits. I commenced with grapes.

“My object was to make the Muscat easier to cultivate, and increase the size of the Frontignan; also to make the large coarse kinds of a better flavor, and to improve the early ones.

“I began, in the first instance, with the Muscat of Alexandria, one of the most difficult grapes to cultivate; and the Trovèren Muscat, a remarkably free grower, but a long time in coming to maturity. It is a most delicious grape, though not so highly musked as the former. I expected to obtain grapes less difficult to cultivate, and was partly right; but I was rather astonished at the final results. It should be premised that the Trovèren is a round grape, the Muscat of Alexandria an oval one. The latter I made the female parent; and, out of thirty seedlings, no two were alike. The first three that fruited were black, one being a large early grape, in shape an oval, with a fruit-stalk like a piece of wire: it was of a very fine flavor, with the slightest possible taste of Muscat, and hung well. This was a great success, and well worth all my trouble. The other two were late ones, with large round berries, but nothing else remarkable about them. In the following year, I fruited ten or twelve more from the same lot. One of these was of a beautiful white or golden color, and ripened quite as soon as the Hamburg: its fine vinous flavor was exquisite, mingled as it was with a Muscat taste about half as strong as that of its parents. This also had very stiff fruit-stalks, and kept a very long time. Another, and this astonished me more than any thing else, was a perfect miniature of the Muscat of Alexandria, perfectly oval, and with the strongest Muscat flavor that I ever tasted; but it was no larger than a red currant! I have not as yet discovered any thing very remarkable among the others. The next experiment I tried was with General Marmora (no doubt a white seedling variety of the Hamburg), crossed by Burchardt's Amber Cluster (early white Malvasia). My object was to obtain a very early grape; and in this I succeeded beyond my expectations, as I got a very fine white transparent grape like the Amber Cluster, but as

large as the Hamburg, and fully five weeks earlier than that kind. This, of course, is a great gain, and what has been much wanted, as the sweetwater grapes are very bad setters, and the Muscadine is too small for table use. The next crosses were between Blanc de Saumur and Chasselas Musqué, and Chasselas Musqué and the Citronelle. From these two crosses I have obtained the most delicious kinds that ever came under my notice, — more so even than the old Frontignan and Chasselas Musqué. Two of them are sweet-scented ; smelling, when the sun shines on them, like orange-blossoms. Nothing I have ever seen can compare with them in flavor and productiveness : their size, too, is very large, some of them being as large again as the Frontignan.

“Two other most remarkable crosses are Chasselas Musqué, fertilized by the Long Noir Durant, a large oval black grape, on a very large bunch, but of an inferior flavor. This cross produced grapes of various colors, black, pink, and grizzly, but all quite round. The next time, I made Long Noir Durant the female parent ; and, curiously enough, the result was almost identical with the former, there not being an oval berry obtained. A very slight Muscat taste is observable in a few ; but, in the greater number, it is not observable at all.

“These are the results from about five hundred seedlings that I have raised, and four hundred sorts that I have fruited. I have some more yet to fruit, such as the Canon Hall crossed by the Japanese one.

“As the result of my experience, I am convinced that no one can tell, in raising a lot of seedling grapes, what they will be likely to get, they vary so much.

“I next directed my attention to peaches.

“My object was to obtain peaches with Nectarine flavor ; and I am glad to say I have succeeded. The Nectarines I made the female plants were the Violette Hâtive, Pitmaston Orange, and the Stanwick, crossed with the Noblesse and Barrington peaches. Although the Violette Hâtive Nectarine had a small flower, still, when crossed with the large-flowering peaches, eight out of twelve were large-flowered ; and, out of fifteen kinds fruited this summer, only one was a Nectarine : the others were all peaches, most of them with the Nectarine flavor. Two of them were especially delicious, having a beautiful Nectarine flavor, melting like a peach, but full-colored like the former fruit. The stones that produced the seedlings were sown in the beginning of February, 1863 : the greater part of them flowered in February, 1864 ; but the fruit fell off. I now have one planted out in my peach-house that will have next June ten or twelve dozen peaches on it. It is ten feet high, about the same width, and covered with fine blooming wood.”

PAMPAS GRASS (*Gynerium argenteum*). — The tall-growing male plant is less suitable than the smaller-growing female plant for gardens. The former has a coarse, rigid look : the latter is less liable to injury from high winds, and is far more graceful in its habit. The flowers are different ; but the female is the prettier of the two.

MUSHROOM CULTURE. — As mushrooms are a delicacy most people are fond of, although not so universally grown, I think, as they would be were their cul-

ture known to be so simple that any one possessing the convenience of an out-house or cellar, with a temperature of from 48° to 55° , and a little short dung, may grow them, I beg to offer a few remarks, to those who may not yet have attempted their culture, as to the way they may be produced in abundance with a very little care.

In the first place, if short dung fresh from the stables is to be had, so much the better; but I have grown abundance on beds made of short dung three months old. However, let it be which it may, procure as much as will make a bed sixteen inches deep and any required size; throw the same together for a few days to heat and dispel the greater part of the moisture; then throw it down for a day or two to cool and dry; after which again throw it up together for a few days, — generally about five or six will be found sufficient. It will then be fit to make the bed with; which, let the size be what it may, should be about sixteen inches deep. In making the bed, take care to tread or beat it firm. As soon as the bed shall have risen and declined to 75° , it is ready to spawn. Half a bushel will spawn a bed ten feet square. This, broken in pieces the size of small apples, placed just in the dung, and covered two inches deep, in any garden-soil well beaten down, will produce abundance of mushrooms in six or seven weeks, in a temperature of from 50° to 55° .

No further care is required, except an occasional watering when dry. Mushroom-spawn may be procured of any seedsman. *W. Young.*

THE OLDEST TREE, the age of which is historically determined, is the sacred fig-tree of Anarajapoura, in Ceylon. It was planted by Divinipiatissa, in the year 288 B.C.; and its history from that date is preserved by a mass of documentary and traditional evidence. It was described by the Chinese traveller, Fa Hiam, in the year 414, and by the earliest Europeans who visited it. It still flourishes, and is an object of worship to the Buddhists.

PRUNING OLD BLACK CURRANTS. — The proper way of pruning all old black currant-bushes, and bushes of black currants of all ages, is to get rid of as much old wood as can be replaced with young wood; and to cut but the very top parts from the strongest young shoots, unless it be on purpose to furnish young wood for the next season.

CHAMPION OF PARIS PEA. — This is a rather strong-growing variety, five to six feet high, having generally a single stem; which is, however, occasionally branched, and produces from eight to ten pods. The pods are for the most part single, but sometimes in pairs, about four inches long, nearly three-quarters of an inch wide, and remarkably well filled with from seven to nine large peas. Ripe seed, white, medium-sized, somewhat flattened and pitted.

This pea is also known by the names of Excelsior, Knight's Excelsior, Stuart's Paradise, and Paradise Marrow.

The ripe seed is white, large, smooth, uneven, compressed, irregular, or egg-shaped; skin thick; foliage blotched.

As a table pea, it is excellent, an abundant cropper, and one of the earliest of

the marrows. It is highly recommended by Mr. Burr, in his very valuable article on Peas, in "The Journal of Horticulture" for April.

IREFINE HERBSTII AUREA RETICULATA. — There is no plant of recent introduction about which such different opinions have been entertained as the well-known *Iresine Herbstii*, so called in England and in this country, but known in France and on the Continent as *Æscyranthus Verschaffeltii*, and which we regret has no more pronounceable English name. It is a well-known bedding-plant, and is, in some situations, unequalled for producing a fine mass of red foliage. This difference of opinion has arisen from the fact (which was also ascertained in regard to *Coleus Verschaffeltii*, another foliaged-plant of the same character) that the plants thrive well in a warm, dry soil, and in a sheltered situation; while in retentive soils, and low, damp situations, they generally fail. The foliage of the species is dark purplish-red, marked with midribs and veins of bright red.

The present variety differs in the marking of the leaves, which are dark green, with pinkish-white blotches and red veins. As a greenhouse plant, it may do well in contrast with the species; but we much doubt its being able to stand our summer suns, and its value as a bedding-plant. Figured in "Floral Magazine," tab. 333.

AUSTRALIAN SPINACH. — The new spinach of Australia, *Chenopodium auricomum*, is a tall annual plant, growing nearly six feet high; the stem being erect, branched from the base, channelled, and streaked with violet-red in the solid parts; and the leaves long-stalked, alternate, oblong-triangular, irregularly lobate-dentate, and, when young, bearing a silvery pulverulence, which disappears on the adult parts. The leaves, if put at first in boiling water, and afterwards treated as an ordinary plate of spinach, form a vegetable agreeable to the taste. Its culture is quite easy. The seeds are sown in April, in a well-manured bed; for the plant is a strong feeder, and requires to be watered freely. The leaves are gathered when the plants are a foot and a half high: they push on again; and, in a few days after, another gathering is ready; and so on throughout the season. — *Les Mondes*.

WASH FOR RED SPIDER. — To clear plants in pots of red spider, take two pounds of soft soap; place it in eight gallons of water (mix, of course) heated to 140°; dip the plants infested into it for half a minute; let them stand until dry; then dip again in the water at a temperature of 120° for one minute, and the spiders' days are numbered. If the plants are infested with brown scale, rub the infested parts with the hand, dipping a time or two more than for red spider. By these means, we get rid of the brown scale and mealy bug also. Geraniums and plants having similar foliage should not be treated as above directed, as the plants would be injured.

FRENCH BOTANICAL CONGRESS. — The Botanical Society of France intends to organize an International Botanical Congress during the time of the Great

Exhibition in Paris, to which botanists of all nations shall be invited. The Congress will open on the 26th of July next, and will last for a month. Meetings will be held every Friday evening at the society's rooms, 84, Rue Grenelle St. Germain. On other days during the period, visits will be made to the Exhibition, to the Museum of the Jardin des Plantes, and to private collections; and excursions will be made in the neighborhood of Paris.

GROUND BETWEEN STRAWBERRY-PLANTS. — The ground between the plants, made hard by treading, may be pointed over with a fork to the depth of a couple of inches, but not more: for strawberries like a firm soil; and hoeing or digging the surface deeply is to be avoided, as it injures the roots.

This should be done as soon as the fruit is off, that the runners may root more readily.

LIQUID MANURES. — Urine diluted with five or six waters, or house-sewage, which is better, as including the drainage from sinks and water-closets, is excellent for flower-beds, and especially for roses, and may be applied all the period of growth from early spring to late autumn. Soot, properly diluted, may be similarly applied. Guano is as good for the purpose as house-sewage, but not better. Bone-dust is good, pointed into the surface of the soil. Sheeps' dung makes good liquid manure, but is not so powerful as either house-sewage or guano. If the sinks and water-closets all communicate with the liquid manure well, it will need no diluting; at least, we never mix with it any water. In conclusion, we will add the expression of our conviction, that, for the generality of soils and crops, there is no liquid manure equal to house-sewage. For potted plants, especially if soft-wooded, we use it much weakened with water, and not oftener than once a week. A knowledge of the soil, and of the plant and its health, is needed before any one can say what manure will probably be the most suitable.

LILIUM GIGANTEUM. — A friend in Newark, N.J., writes under date November, 1866, "I had a plant of *Lilium giganteum* in flower beautifully last summer, that had been out in the open ground the two previous winters. I have not heard of one flowering in the open ground before. It is well shaded, the sun only reaching it the very first thing in the morning. It had fifteen flowers, and was eleven feet high."

SALT FOR ASPARAGUS-BEDS. — Salt should be applied twice a year: that is, when the beds are dressed in spring, give them a dressing of a pound and a half of salt per square yard, or twenty-four pounds to a bed thirty feet by five feet, and repeat the application at the end of the cutting, or about the middle of June: one pound per yard will be ample. Weeds will easily be kept under by this means, as few of our most noxious weeds thrive in a salt soil.

CELTIS OCCIDENTALIS (*Sugarberry*, or *Hackberry*). — Can any nursery-man furnish trees of this beautiful species? It is one of our finest native trees, in

appearance resembling the elm ; and may be familiarly described as *an elm bearing cherries*. We have found it in but one catalogue ; and, alas ! it was only there, — not in the nursery.

Its relation, *Celtis crassifolia*, is no less beautiful, and is equally neglected. The former is properly known as the nettle-tree ; the latter, as the hackberry. Will no one propagate a stock of these beautiful hardy trees, and disseminate them among our citizens ? We spend hundreds of dollars in acclimating foreign trees, and neglect those of far more beauty which grow in our own woods.

FRUIT IN GROUND-VINERIES. — I find the best method of cultivating fruits under ground-vineries is as follows : At one end of the vinery, a hole two feet square, and of about the same depth, is dug out, and filled with a compost of good loam, rotten dung, and a little road sand : these should be well incorporated together, previously throwing in about a peck and a half of bones, merely bruised, to afford drainage to the mass ; also to feed the vines during hot weather, or when the heat is so great as to rob the plant of its natural moisture. The bones will likewise absorb the fluids passing down to them more readily by being bruised. All being thus prepared, the vine is turned out about the middle of April, providing the weather is open and mild ; the cane being introduced, and pegged down. Air should be admitted at ten o'clock, A.M., by raising slightly the lights : this, with the additional air from the bottom of the frames, will serve to check the vines from making too quick and premature a growth before the season is sufficiently advanced to assist the formation of the young parts. The cases should be closed again about two, P.M., if possible securing a little atmospheric warmth ; and the vines should at this period be slightly syringed : the moisture will aid the expansion of the bark and the bursting of the young buds and leaves. This treatment should be continued until the flowers are expanded, when syringing must be entirely suspended, and air admitted upon every opportunity. As soon as the flowers are set, I find moisture applied in the form of vapor highly beneficial : this can be obtained by pouring tepid water upon the slates. Atmospheric warmth is secured throughout the day, and causes the moisture to evaporate ; thus charging the internal air with an agent highly beneficial. As soon as the grapes have attained the size of sweet-peas, the bunches should be thinned ; taking out all ill-shaped and deformed berries, also all those which are in immediate contact with others ; taking care not to remove all the interior berries, or the bunches will be loose and ill-shapen. At this period the structure should be kept close, and as much warmth secured as possible ; as the critical time of stoning will have arrived, and a check would prove highly injurious. As soon as coloring commences, as much air should be admitted as is consistent with safety from chilling ; and the vinery should be closed sufficiently early to secure, as before stated, as much natural warmth as possible. If this course be pursued, I feel confident every success will attend the operator, and will well repay him for the pains he may bestow : the weight and quality of the fruit will equal if not exceed that which is grown in extensive vine-houses. — *R. Broome, at Meeting of Central Horticultural Society.*

ASPHALT-WALKS. — The following is the mode of forming them : Take two parts of very dry lime-rubbish, and one part coal-ashes, also very dry, and both sifted fine. In a dry place, on a dry day, mix them ; and leave a hole in the middle of the heap, as bricklayers do when making mortar. Into this pour boiling-hot coal-tar ; mix ; and, when as stiff as mortar, put it three inches thick where the walk is to be. The ground should be dry, and beaten smooth. Sprinkle over it coarse sand : when cold, pass a light roller over it, and in a few days the walk will be solid and water-proof.

These walks do very well during the greater part of the year : they are, however, liable, if the subsoil is not well drained, to be unsettled by frost ; and sometimes in summer the heat of the sun so softens the asphaltum as to make them undesirable for a promenade.

QUINCE STOCK FOR PEARS. — With regard to the quince as a stock for the pear, — 1st, The disposition of its roots is more shallow : hence it is better adapted for thin soils ; also for planting where the subsoil is of an unfavorable character, such as a wet, undrained, stiff clay impregnated with iron. On shallow soils, the quince, having its roots near the surface, can be fed by rich top-dressings ; and, as its roots do not descend into the subsoil, the trees do not die of canker as when the pear stock is employed where the subsoil is calculated to produce that evil. In thin soils, however, the pear on the quince should be planted on a raised mound, which secures roots near the surface ; and any loss of moisture and coolness can be counterbalanced by rich surface-dressings, copious supplies of water, and liquid manure occasionally in dry weather. Further, the shallow disposition of the quince-roots is in its favor where the situation and soil are low and wet, because pear-trees in such soil root deeply, and abundance of wood is produced ; but the prospect of a crop is small, and, if canker do not commence, the trunk and branches of the tree are plentifully covered with moss. The quince on such soils is quite at home, requiring only to be planted on a mound or hillock twice as high as where the soil is shallow ; that is, in a wet soil, the tree should be planted on a mound twice the height of the roots, measuring from the uppermost fibres to the base ; which distance, on an average, I find to be nine inches : hence the mound should be from a foot to fifteen inches above the ground-level ; whilst, on shallow soils, the trees may be placed on the ground, and the roots covered with soil.

2d, The tree is more dwarf in growth. This is an incalculable advantage. An amateur with but a few square yards of open ground can have his pear-trees. They do not grow so vigorously as to smother every thing else ; and though small, and occupying but little space, he has not to wait years for the fruit : whilst, if he were to plant trees on the pear stock, he would probably have no more than room for one tree, growing well, no doubt ; but years must elapse before it can furnish an abundance of fruit, and that coming in all at one time. On the quince, the trees fruit in a year or two at most ; and, as they occupy less space, several varieties may be grown, so as to afford a successional supply.

3d, The quince will grow and thrive where the pear will not. In a cold, wet situation, pears on the quince will ripen fruit when those on the pear stock will

scarcely ever do so. This result arises from the roots of the quince-tree being nearer the surface, and consequently in a warmer medium: moreover, the quince is of earlier growth than the pear. There is no soil in which the quince will not thrive with careful culture. Heavy clays, it is true, are not congenial to it any more than to the pear. On dry, sandy soil, it soon cankers the trees upon it, unless liberal top-dressings and plentiful supplies of water and liquid manure are afforded; but it flourishes in a rich, rather light soil with a wet bottom, in which the pear cannot be profitably grown.

4th, Trees upon the quince come into bearing sooner than those on the pear stock, and the fruit is larger, and better ripened. Upon the quince, pear-trees come into bearing in the first or second year after planting, and produce as many fruit annually, in proportion to their size, as a full-sized tree, and they are capable of bearing one to two pecks of fruit by the time trees on the pear stock come into bearing: besides, the fruit is seldom if ever so fine from trees on the pear stock as from those on the quince in the open ground. The increase in the size and color of fruit grown on the quince is due to the returning sap receiving a check when it reaches the quince: indeed, the effect of the latter is similar to that of ringing. — *G. Abbey, in Cottage Gardener.*

PLANTS PROPAGATED FROM LEAVES. — We have long been in the habit of propagating *Begonias*, *Gesnerias*, *Gloxineas*, and plants of kindred nature, by leaves planted in damp silver sand, but were somewhat surprised a few days since to find some leaves of *Campylobotryes discolor*, which we had carelessly thrust into the sand, well-rooted plants. This mode of propagation is yet in its infancy, and we confidently look for the time when most of our thick-leaved plants will be increased by this simple method. Not only will each leaf make a plant, but every bit of a leaf can be made to throw out roots, and form a separate plant: this is particularly the case with *begonias* and kindred plants.

FORCING LILIES OF THE VALLEY. — The best way is to take up those roots that have large, plump crowns, and such only, potting them in a compost of rich turfy loam, and placing them in a house with a temperature of 40° to 45° for a fortnight, and afterwards, until they bloom, in a temperature of 50° to 55°, and not exceeding 60° at night, affording them a position near the glass, and plenty of water. They never fail to have a plentiful supply of bloom; but none other than the flowering roots should be potted, which is different from taking up patches from the borders, more than half of which are by far too small and weak to flower, and, indeed, have no flower-bud formed. Pot none but the large crowns, and put them in pots or pans at about an inch apart.

This may done in the autumn; indeed, as late as the ground remains open; and, by introducing the plants to heat at different times, the flowers may be had from Christmas to May Day.

APPLES ON PARADISE STOCK. — Apples on the crab are only suitable for orchards, and for walls or espaliers where long shoots are desirable or required; whilst for dwarfs, pyramids, espaliers, and walls, where long branches are not

wanted, trees worked on the paradise stock are better, for they fruit earlier, thrive where the crab is unhealthy, produce finer fruit, and can be grown in less space. The paradise stock is raised from layers; and its growth is not so free as that of the crab, which is raised from seed. The paradise stock has its roots near the surface; and these do not descend so quickly in bad soil as those of the crab, which, from its very nature as a seedling, roots deeply; and in the case of hot, light, shallow soils, the crab stock causes canker in the trees worked upon it, whole branches continually dying off. On the crab, the trees are not more healthy than on the paradise stock: for what suits one suits the other; with this difference, that the paradise lives where the crab will not. For instance, I have some pyramids on the paradise stock, also on the crab, about ten years planted: those on the crab are cankered, and produce fruit as much "pitted" as the branches are spotted with canker; whilst those on the paradise stock bear their half-bushel of fruit without speck or crack. The soil is a shallow loam over gravel. There is no difference in the culture, and yet there is a great difference in the results. A good top-dressing of manure is quickly consumed by the trees on the paradise; but the roots of those on the crab have gone too far down. These trees are seven feet high, and five feet through.—*English Journal of Horticulture.*

SOWING AND CULTURE OF CYCLAMENS.—Who does not love and admire cyclamens? And they deserve to be admired, not only for their beauty, but because they are as easy to grow from seed as the commonest of annuals.

Having a few old plants in good bloom in March, and wishing to increase my stock, I placed them on a shelf near the glass in an airy greenhouse, keeping them dry rather than wet; and by August I had plenty of pods full of good seeds, ripening at different times. I visited the plants every afternoon, taking care not to gather the pods before each had partially burst; and they were then carefully packed, and put away until the time of sowing,—an operation which I perform according to the following directions: Early in March, prepare six-inch pots by three-parts filling them with drainage: over this place a good layer of moss, and above the moss half an inch of loam, leaf-mould, and silver sand passed through a sieve, using the roughest for the bottom. Make the surface firm; place the seeds, which should previously be soaked for twenty-four hours, in milk-warm water, about a quarter of an inch from each other, and cover them very lightly with silver sand; water gently through a very fine rose, always using warm water, or that from which the chill has been taken off; place a piece of slate or glass over the pots, and set them in a warm, close cucumber or cutting frame. In a month, the seeds will vegetate; and, when this takes place, the seedlings must not be allowed to become dry.

When the seedlings are large enough to handle, pot them in small thumb-pots in turfy loam, chopped moss, and a little silver sand, using plenty of drainage; return them to the frame for a week or two, keeping them near the glass, and watering them very carefully. At the end of that time they will want more air, and a little shading will be necessary in very bright days. The plants must not be placed out of doors, but should be encouraged in the greenhouse; and, when

they have filled the thumb-pot with roots, shift into two-and-a-half-inch pots, using the same compost as before. By the following March, there will be enough of them in bloom to amply reward the grower for his trouble. Dozens of my seedlings sown last March were beautifully in bloom in ten months after sowing, and have been so ever since. Many of the corms or bulbs are as large as a two-shilling-piece. The varieties are *Persicum rubrum* and those of the *coum* and *Atkinsii* race. — *H. C., in Florist.*

ASPARAGUS-BED MAKING AND PLANTING. — Choose an open situation, and mark a space twice the width of the bed, or eight feet; and, the soil being good to a depth of two feet six inches or three feet, trench it that depth, working in a dressing of manure six inches thick. If heavy, add a similar quantity of sand. Should the subsoil be bad, and the soil thin, it would be well to take out a trench at one end, and, working backwards, remove the bad soil, and replace it with fresh: that is, taking out a trench, lay the good soil on both sides, and, when you come to the bottom or bad soil, remove it, and place at the bottom of the trench a quantity of fresh soil equal to that removed. The fresh compost may consist of equal parts of rotten manure, leaf-mould, sand, and turfy loam. Commencing another trench, throw the good soil on the fresh soil, leaving that on the sides to finish at the end, or fill up the trench. After moving the good soil of the second trench to finish the first trench, remove the bad soil from the bottom, replacing it with fresh; and in this manner proceed until the whole is finished. You may then spread a dressing of manure three or four inches thick, and fork it in, adding a like quantity of sand if the soil be heavy. Mark out a bed four feet wide, allowing two-foot alleys on both sides, and putting in a peg at each corner of the bed. You may early in April take out a trench in the centre of the bed, stretching a line along it for that purpose, and wide enough to allow of the roots being spread out at full length, the plants being placed at the back of the trench, against the line, with the crowns about an inch from the surface. Fill in the trench after the plants have been placed a foot apart, covering the crowns about an inch deep. A row on both sides of the bed, nine inches from the sides, and a foot between the plants, will fill the bed. Some of the soil from the alleys may be thrown on the bed to level it, and be neatly raked. The plants should be two, and not more than three, years old. The giant is the kind we recommend for planting. A few of the finest may be cut in the second spring after planting.

VERBENA CULTURE. — After the cuttings are struck, say, at the end of March, a frame about eighteen inches high at the back, and a foot high in front, is chosen: one that you can shut up perfectly close is the best. Inside the frame place nine inches of good light soil, and in this plant the verbenas from the cutting-pots, watering them well with tepid water to settle the soil. When the sun shines, every morning give about half an inch of air, no more, until ten o'clock, when the plants should be watered overhead, and shut up closely for the day. The thermometer will possibly rise above 100°; but you will see, if you try the system, what a black strong growth the plants will make in conse-

quence. When you see a warm genial shower coming in April or May, pull off your lights, and expose the plants to it, shutting them up as soon as it is over, if it is after the time named above: keep them well stopped, and harden them off a fortnight before planting out.

Amaranthus and perilla also do very well in this way; and so will coleus, I believe, although I have not tried it. The plan described saves much of the watering that would otherwise be necessary, and is the easiest I have fallen in with.—*Cottage Gardener.*

MOSS ON LAWNS.—The chief causes of mossy lawns are a poor soil, and its being undrained. Give a dressing of rich soil or very rotten manure, first scratching the lawn with an iron rake, and then applying salt at the rate of half a pound per square yard; finally dress with compost of loam and well-rotted manure, not covering deeper than a quarter of an inch. The first heavy rain will wash it in. When the ground is dry, roll well; sowing, previous to rolling, twenty-four pounds per acre of lawn-grass seeds.

FERNS LOSING THEIR FRONDS.—A house is moist enough for the growth of ferns when there are evaporation-troughs, and the walls and every available surface are sprinkled with water twice daily. Syringing overhead is destructive to the beauty of many kinds, and also to the young fronds. Sprinkle the walls and paths with water twice daily: do not syringe the plants overhead, but afford enough water at the roof, and yet not so much as to saturate the soil; giving also a fair but not an excessive amount of air, and slight shade from bright sun. We have no doubt that the plants would thrive. A temperature of from 50° to 55° is sufficient for the stove kinds, and one of from 45° to 50° for the greenhouse sorts, increasing the temperature in spring; when, after a season of rest of not less than three months, they will start into growth with increased vigor. Remove the pots from the pans of water at once, and place in the coolest and most shady part of the house. If they require potting, the best time to perform that operation is just as they are starting into growth.

ANNUALS FOR LATE BLOOMING.—*Centranthus macrosiphon*; *Alyssum maritimum*; *Erysimum Peroffskianum*; **Dianthus Chinensis* (Chinese pink); *Gilia achilleæfolia*; *Hibiscus Africanus*; *Gypsophila elegans*; *Godetia rosea alba*; Double *Clarkia integripetala*; *C. pulcherrima*; **Prince's Feather*; **Love-lies-bleeding*; White Rocket and Crimson Candytuft; *Centaurea cyanus minor*; *Bartonia aurea*; **Calliopsis cardaminifolia*; **C. atrosanguinea*; **C. Burridgi*; *Campanula pentagonia*; *Convolvulus minor* (Dwarf Morning-glory); **Saponaria calabrica* (Soapwort), and its white variety; *Eschscholtzia crocea* and *E. tenuifolia*; *Godetia Lindleyana*; *Obeliscaria pulcherrima*; **Oenothera Lamarckiana* (Evening Primrose); **Nasturtium Tom Thumb*, scarlet, *crimson, *spotted, and *yellow varieties; *Virginian Stock*; **Tagetes signata pumila* (Dwarf Marigold); **Senecio elegans* in variety. Those marked with an asterisk (*) should be sown in May, and the others not until the end of May, or early in June. Mignonette should not be omitted. There are no flowers that are to be depended on for blooming after October, except chrysanthemums.

WEEDS ON WALKS. — If walks have become dirty at the surface, which is a prolific source of grass and moss, they should be picked up and turned, giving them a sprinkling of fresh gravel. They will then, if well rolled, last until half the summer is over; and, by the time weeds are troublesome, one dressing of salt will serve the whole season. Three pounds per square yard are required to destroy weeds on gravel-walks effectually; and that quantity makes the surface so damp, that it is objected to by many. Salt causes the gravel to wear much more quickly, and so encourages the growth of weeds: hence the prevailing opinion, that weeds on walks come thicker after salting. The time to salt walks is when there are weeds; and its application will be necessary in April or May, and again in July or August, putting it on during dry weather, dependent, of course, on the season.

GRAPES RUSTED. — Grapes are apt to have a brownish skin round them if subjected to a sudden check from a great change of temperature, or if sulphur has been used freely on a heating medium when the berries are young and tender. Under such circumstances, it is best to apply the sulphur during the day, when there is a considerable amount of air on, so that the strength of the fumes may pass off before the house is shut up. Perhaps Hamburgs are most easily thus injured.

CANNABIS GIGANTEA. — This is a large form of the common hemp, and grows six feet or more high, with a beautifully pinnated leaf, clustered in a sort of fan-like form at the top of every branchlet, which are pretty numerous, but not crowded. The whole aspect of the plant is Oriental, reminding one of the palms we are in the habit of associating with Eastern scenery. As a plant, nothing is more easily grown. Seed sown in March, with other annuals, in a gentle heat, and afterwards planted out in May, quickly shows the neatly-furrowed character of the leaflets and the general outline of the plants. I believe there are some other varieties; and possibly some one will be presenting us with one, by and by, having the rich claret-colored foliage of the purple spicant with its own inimitable graceful form. That such may be, I have no doubt: only let public taste intimate its wants, and caterers for it will accomplish much at one time thought impossible.

SPECIMEN CALADIUMS AND ACHIMENES. — For good specimens of caladiums proceed thus: Keep the rhizomes free from cold in winter, shake them out, and repot as soon as they begin to move, potting them singly in small pots, to be afterwards placed singly in larger pots, or three or four plants at once in a large pot. Drain well; use turfy loam and peat in equal portions, with about one-sixth of old rotten cow-dung and silver sand; and give bottom-heat until the leaves come to their best. To grow good specimens of achimenes, select the tubers, place them singly in well-drained pans or pots, using light rich soil, and set them in a temperature of from about 60° to 65°. When the plants are up, and from an inch to an inch and a half in height, plant them in soil similar to that recommended for caladiums, in their flowering-pots (the small kinds at an inch

apart, the larger kinds at from two to three inches apart), and plunge in a gentle bottom-heat of about 75° or 80°, and a top-heat of from 60° to 65°, with a rise from sunshine. No sun must touch the leaves, or those of the caladiums either, when damp. Air should be given early; for if there is confined moist air in the place, and the sun strikes on the plants, the leaves will be spotted to a certainty. When hardened off for conservatory, they will not be so easily affected. Achimenes for late work may be grown well in a cold pit after the end of May.

CULTURE OF ROSES IN POTS IN GREENHOUSES.—The best roses for greenhouse culture are the finer varieties of the China and tea-scented; the latter especially, on account of their peculiar and delightful fragrance; but the Bourbons and hybrid perpetuals must be included. The following varieties I have found good:—

China.—Madame Bréon, Mrs. Bosanquet, Triomphe de Gand, Prince Charles, Henri Cinq, La Séduisante, Infidélités de Lisette, Louis Philippe, Napoléon, Clara Sylvian (generally classed with the Tea-scented), and Fabvier.

Tea-scented.—Goubault, Homère, Devoniensis, Abricoté, Buret, Adam, Barillet-Deschamps, Comte de Paris, Élise Sauvage, Caroline, Le Caméléon, Lays, Madame Bravy, Madame Maurin, Madame J. Halphen, Safrano, Victoire, Souvenir d'un Ami, Niphetos, Madame William, Maréchal Niel, and the finest scented of all teas, the original of this family, Rosa indica odorata.

Bourbons.—Souvenir de Malmaison, Baron Gonella, Acidalie, Queen of the Bourbons, Emotion, Marquis de Balbiano, Reveil, Vorace, Souchet, Rev. H. Dombrain, Louise Margottin, and Catherine Guillot.

The *hybrid perpetuals*, not to be overlooked, are Lord Macaulay, Lord Clyde, John Hopper, Lord Palmerston, Duc de Cazes, Duc de Rohan, François Lacharme, Gloire de Santenay, Charles Lefebvre, Caroline de Sansal, Madame Furtado, Duchesse de Morny, Madame Alfred de Rougemont, Madame Boutin, Louise Magnan, Louis XIV., Sénateur Vaisse, Pierre Notting, Monte Christo, Virginale, William Griffiths, Comte de Nanteuil, Maréchal Vaillant, Madame Vidot, Baronne Pelletan de Kinkelin, Alfred de Rougemont, and Prince Léon.

All the above are good roses, and, for greenhouse culture, should be on their own roots. Most, if not all, of the kinds named, are kept in stock by our principal nursery-men in twenty four or six inch pots, of a size fit for this mode of culture; the cultivator being thereby saved a year in the preparation of the plants. Those, however, who wish to prepare their own plants, should procure them in spring, not later than May; and if in small pots, as they usually are, they may be at once placed in pots six inches in diameter, in a compost of loam and leaf-mould, in equal parts, with a free admixture of sharp sand, amounting to about one-sixth of the whole. The pots should be drained to one-third their depth with crocks; and, in potting, the ball should be gently pressed to loosen it, which is desirable.

After potting, the plants should have a good watering, and be set on slates, or a hard bottom, in an open, warm, sunny situation. The intervals between the pots should be filled with ashes; in other words, the pots should be plunged to the rim. The plants should be frequently syringed, especially in the evenings

of hot days, and well watered at the root ; taking care not to saturate the soil, or make it sour through repeated waterings when it is already wet ; and dryness must be equally guarded against, extremes of either being injurious. All flower-buds as they show are to be pinched off between the nails of the finger and thumb, and any strong shoot stopped at the eighth leaf. The pots should be occasionally lifted to see that the roots are not coming through ; and, if they are, rub them off before they make any great progress.

Towards November, the pots should be lifted, and plunged in coal-ashes in a cold pit or frame. The watering, being discontinued after September, is not to be renewed on the removal of the plants to the pit ; but they are to be kept dry, and to have air whenever the external atmosphere is mild, also protection from rain and frost.

Early in February, the plants may be taken into the greenhouse, the pots having been previously washed clean, and the drainage made good if defective, as no plant will thrive in a badly-drained soil. The surface of the soil in the pots should also be stirred, and, if green, replaced with fresh. The plants may then be pruned. The pruning of the China and tea-scented kinds should consist in moderately cutting out the very weak shoots, and doing little more than shortening those of moderate growth, so as to form a compact bush. The Bourbons and perpetuals should be cut in, — the very strong shoots to four, the strong to three, and the moderately strong to two eyes ; and the weak cut clean out, unless a shoot be wanted in a particular place, when a weak shoot may be cut back to one eye. If tall plants are wanted, any of the tea-scented or China varieties that have made good growths may have a neat stick, or stake, placed in the centre of the pot, and the strongest of the shoots tied to it, the others being shortened to different heights ; that tied to the stake to have merely its end taken off. The plants must be placed as near the glass as their growth allows, and between it and them no creepers or other plants must be tolerated. They cannot have too much light ; it is easy to shade them when in bloom ; and the position should be airy. The temperature need not be altered to suit them, as that of a greenhouse is admirably adapted to their requirements. Due regard must be paid to watering them, avoiding extremes either way ; and yet it is as well to let the soil become rather dry, and then afford a good supply, and not driblets, which, if the soil is dry, do not reach the bottom of the pot, or, if it is wet, only serve to saturate it the more. At first, moderate supplies of water will suffice ; but, when the foliage has become developed, it will be required in abundance. Syringing should be practised morning and evening, except in cold and dull weather, when once a day, and in the morning, will suffice ; and it should be continued until the flower-buds show color.

After blooming, which will be in June, the plants should be removed from the greenhouse, and must be carried to the potting-bench, and repotted forthwith. If the cultivator does not wish for large plants, he will merely cut back the roots a little, so that the pot will hold a little fresh soil, the old pot being clean-washed, and again used. Varieties of compact growth will, of course, be selected for this purpose, — small plants that do not take up much room ; and the best are the small-growing tea and China roses. The others may have pots nine inches

in diameter, which are large enough, and not too large, for holding sufficient soil for a good and yet not ungainly specimen. The pots should be well drained by placing a good-sized crock over the hole, and about half a dozen of less size above it ; then one-third fill the pot (including the space occupied by the crocks at bottom) with pieces of charcoal the size of a hazel-nut, the small dust being sifted out, which may be mixed with the soil, and turf cut thin, and chopped into pieces from half an inch to an inch square. A drainage of this kind seldom clogs, and supplies food to the roots. — *English Journal of Horticulture*.

SPIRAL-TRAINING AND SUMMER-PRUNING OF GRAPES. — There is great difference of opinion among good grape-growers as to the best mode of training the grape. Much has been written to prove this system or that to be the best. It is not claimed that the spiral system is better than all others, but that it works well, and that it is a cheap mode of training the grape. Some, perhaps, do not understand what is meant by the term, and may not have seen this style of training practised. It is really the spur system, for the fall-pruning of the vine is on that principle ; and then the vine is trained around a single stake or post, just as a hop or bean vine runs around a pole. Some of the advantages to be derived from this method are, that the vine is nearly self-supporting when so trained, needing only a good strong rope-yarn tied about it near the top to secure it to the post ; that the ground is easily kept free of weeds, and in good condition, by running the cultivator both ways, or four ways, between the vines, which cannot be done when a trellis is used ; it is less work to tie up, to trim, and to gather the fruit, while, at the same time, the plant gets more sun and air.

If the plants are set to stakes six feet apart each way (which is rather near), or six feet by ten (which latter distance will allow of the driving of a cart or wagon through the rows to take the fruit or to carry in the manure), it will be seen that there will be no difficulty in doing most of the work in the vineyard by horse-power ; which is an important item in these days of high prices for labor. It has been urged by one writer, of late, that the vine should be so trained that its branches will droop, as they do from the top of a tree when they are allowed to run wild. Now, if this be desirable, the object is certainly gained by this spiral method of training ; for after the vine has reached the top of the stake, say seven feet high, the branches then spread like an umbrella, drooping like the branches of a weeping-willow.

The summer-pruning of vines so planted is very easily accomplished. After the laterals have made a growth of two or three feet, and the young fruit is about setting, or has set, then pinch in the ends of the laterals, or branches, one or two joints beyond the outermost bunch of fruit. If they start again, as they will be likely to, especially if they are strong-growing sorts, pinch in again at the next joint ; and so on.

The most rampant growers, such as Rogers's No. 15, will not bear such close pruning, and, when so treated, fail to give the best results ; while, on the other hand, the slow-growing Delaware seems to do very well under such treatment, and even the long-jointed Concord succeeds very well. There is one objection

to this mode of training to single stakes or posts which should be mentioned ; and that is, when the young succulent laterals have pushed out a foot or more in length, and before they have much substance, the wind is quite likely to blow some of them off, causing a loss of the fruit from that branch for the season. The same difficulty is experienced, to some extent, on a wire or wooden trellis, unless they are kept tied up, which is hardly possible in a large vineyard. From some years of experience with different methods of training, we are strongly inclined, for the reasons given, to prefer the spiral system ; and can safely recommend it to others.

THE IONA GRAPE. — This new grape, which has been so highly praised by its friends, and especially by its originator, fruited in different parts of the country last year, and gave the public opportunity to judge of its merits. There can be no question that it is a grape of very high quality ; in fact, we regard it as the best hardy grape yet introduced : but there is still some doubt as to its proving early enough for a large portion of our country.

The vine is a good grower, with good foliage, that remained free of mildew in the same vineyard where the Delaware was nearly a failure on account of the mildew of the foliage ; gives good-sized bunches and berries which *failed* to ripen. It is true that last season was an unfavorable one all over the country for the ripening of the grape-crop ; yet the Concord and Creveling ripened, and a large crop was sold from the same vineyard in which the Iona failed. Now, the Concord is full late enough for the North ; and any variety that will prove considerably later than that will be of little value, however good its quality. It is fully as late as the Rebecca and Allen's Hybrid, which did not ripen with us last year.

It is fair to presume that the Iona is destined to rank very highly in the West, and we doubt not it will prove the best wine-grape yet known ; but there can be little hope of ever producing wine from it in the Eastern States, surely, when it will not ripen sufficiently to be palatable. We hope better results in more favorable seasons, and when the vines become older and more fully established. Those who admire the Catawba will admire the Iona still more ; for it has all the good flavor of that old and favorite sort, intensified, but still delicate and refined.

THE ADIRONDACK GRAPE. — This new variety has fruited in many collections, and has been tested, to some extent, in various parts of the country. We expected from its origin, or birthplace, if we may use such an expression, that it would prove quite hardy. It was claimed, by those most interested, to be very early. Of its size and quality, many of us had an opportunity to judge before we were permitted to purchase the vines. We are often asked the question, "What do you think of the Adirondack *now* ?" We answer, that it strongly resembles the Isabella in foliage and habit, and very likely is a seedling from it, and is not very hardy. It should receive protection in the North, certainly ; for there is danger in leaving it upon the stakes or trellises entirely unprotected through the winter. For hardiness, we class it with Rebecca and Allen's Hybrid ; though

possibly, when the foliage does not mildew, it will stand the succeeding winter a little better than the last-named variety. The young vines mildew quite as badly as the Delaware, and rather more so than the Isabella. It is not a very strong grower, but perhaps sufficiently so; though the wood does not harden up well, and in this respect is open to the same objection as the Isabella; and hence its need of protection. The fruit begins to color very early; and it really ripens by the middle or last of September, and in this particular fulfils the promises made respecting it. When we tasted the fruit purporting to be from the *original* vine, we set it down as nearly or quite first-rate; but we have seen no fruit of this variety raised elsewhere that has ever equalled that. The fact that this fruit, of inferior quality, was raised on young vines, and that it was grown last year, which was not a favorable one for the most perfect development of the good qualities of a grape, are perhaps sufficient reasons to account for its failure to meet the public expectation. Enough certainly is known in its favor to justify planting it in every city or village garden when it can be sure of protection, and in the country when it can have a favorable location, and be covered in the winter. It is really a great acquisition if it shall give us good crops under such circumstances; and the gentleman who introduced it deserves and will receive the hearty thanks of all lovers of fruits.

THE BENEFITS OF PROTECTION. — Since our forests have been stripped off, allowing the cold winds of winter and spring to sweep over the country so fiercely, some of our finer fruits fail. Time was when the peach-crop of New England was about as sure as the apple-crop; but latterly it has failed two-thirds of the time. The pear often fails for a similar reason, — want of protection. This was fully proved to my mind, two or three years ago, by seeing in a garden, protected on the north and east by a fence some twelve feet in height, a large crop of the best varieties of pears, as fair and handsome as ever, grown during the season when there was a short crop of this fruit generally; and it was a noticeable fact, that, the farther one went from the fence to where the trees were in some degree exposed, the less the crop.

It is true that want of protection is not the sole cause of the failure of the peach; but it would, without doubt, prove a much surer crop if it received protection as of old.

Not only does this apply particularly to the spring and fall months; but shelter is a great advantage all through the year in the protection from winds, by which much fruit will be saved from being blown down.

Most emphatically would this be true of the open prairie country of the West. Protection is absolutely demanded, and positively necessary to successful fruit-growing.

For this purpose, many things have been recommended; but evergreens are doubtless the best. Norway spruce, white pine, American spruce, red cedar, or hemlock (though the latter is of rather slow growth), or most any other good evergreen, will answer the purpose. If a deciduous tree and a rapid grower is required, use the silver-maple, or locust at the West, if it can be grown free

from borers. In short, any decent tree that will come up quickly, and form some protection, will answer.

Few persons are aware of the beneficial results arising from such hedges or screens, unless they have tried the experiment. We have planted, on two sides of our pear-orchard and vineyard, the arborvitæ, white spruce, and white pine, for this purpose, — not the very best, but the cheapest to us, because we had a surplus of those trees. It is not yet too late to plant evergreens; and, if your orchard is in an exposed location, try the effects of protection.

EDITORS' LETTER-BOX.

THE Editors of "The American Journal of Horticulture" cordially invite all interested in horticulture and pomology, in its various branches, to send questions upon any subject upon which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Any queries of this nature will be promptly answered in our columns.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

W. H. — The daffodil is a narcissus. Yours is probably the common kind, botanically known as *N. pseudo narcissus*, but annually imported from Holland, and sold at auction in great quantities under the name of *N. orange phoenix*. A popular name is butter and eggs, from the lemon and orange colored petals. There are, however, many varieties, differing in the color of the flowers, and both single and double. All are hardy, and need only be planted in a deep garden soil to flower well year after year.

The jonquil is a narcissus, botanically *N. jonquilla*, a native of Spain, but perfectly hardy.

J. W. T., Natick. — Buerré d'Anjou, Lawrence, Seckel, will satisfy you in every respect. There are no better pears, and we much doubt if there ever will be.

C. L. M., Vineland, N.J. — The yellow thread-like masses which you enclose, as found in an old garden, seem to be some form of *Usnea*: the only thing which would conflict with this is their being subterranean. That they are not roots, you can readily see by breaking them. All roots have some woody tissue, which these have not, being homogeneous in substance. They are evidently of lichenose growth. Investigate further if you please, and report whether they are found in masses, or threading the soil. They cannot be beneficial; and, though we cannot certainly pronounce them injurious, we should prefer not to have them in a garden.

We are in receipt of reports of the meetings of the Alton (Ill.) Horticultural Society, which show the progress yearly making in floriculture and pomology. The reports have the ring of true metal about them, and show that the members are active, wide-awake, and earnest, zealous in experiment, and ready to communicate for the information of others.

With such elements, success is certain; and that the future may amply fulfil the bright promise of the present, is our earnest wish. Many Eastern societies would improve in usefulness, if, like the Alton Horticultural Society, they would hold regular meetings for discussion, and the reading of essays, in which every member is expected to take a part.

B. T. writes us as follows: "I made a little experiment last year with peas, planting *some* two or three inches, and *others* five inches deep: the result was in favor of the latter, which yielded threefold more than the others, and continued in bearing twice as long."

Experience will generally confirm the truth of this. The general mistake is, that peas are not planted deep enough. They may, however, be planted about three inches, and hilled up as they grow. Sweet-peas, planted and treated thus, give ten times more bloom than when grown as they ordinarily are.

Dr. BENJAMIN F. LING, in an essay read before the Alton Horticultural Society, writes as follows (and truer words were never written): —

"One point only will I make on this branch of horticulture; viz., that the time of day for cultivating gardens is important: the reasons why may be left to science. All of the vegetables of the garden may be cultivated at any hour of the twenty-four forming the day, except beans; and generally for their benefit. If beans are cultivated when there is moisture upon their leaves, the earth adheres to them, and they rust; or they are killed in part or outright, according to the amount of dirt upon their surface. Not so with other plants. If you wish to succeed, and have the garden pay a rich reward for all of your labor, in dry seasons as well as wet, trench deep; manure moderately every year to the point just alluded to; work the ground while the dew is upon it, with the exception above noticed. I know of no plant that we depend on among those of the garden that is not made much better in quality, and more productive, by working the ground when it is moist with dew. When you have thinning of plants to do, be up early in the morning, as soon as you can see, and go at it; and, as far as you thin

out, hoe between the rows, and protect those plants which have been disturbed. If there is no thinning to be done, still I would say, Out early in the morning, as soon as you can distinguish the plants from the weeds, or the rows of plants where there are no weeds, and ply the hoe, sometimes shallow, and others deep; and, my word for it, you will not regret the pains you have taken."

In the proceedings at the Warsaw (Ill.) Horticultural Society, we find the following apples recommended by a committee appointed for the purpose : —

Beginning with the winter class, they unhesitatingly unite in recommending the Ben Davis, Winesap, and Rawles's Jannet, as the three that must take precedence. They place the Ben Davis first, because they find, that for hardiness, growth of tree, bearing qualities, and ready sale in the market, it does stand pre-eminently in the front rank. The Winesap they place second, and the Rawles's Jannet third, though believing them to be about equal in point of value, and both superior to the first in point of quality alone.

In regard to the other three winter apples, they are not quite so decided. The Rome Beauty, Jonathan, Peck's Pleasant, Hubbardston Nonesuch, Pryor's Red, Westfield Seek-no-farther, and White Bellefleur, are all good apples, — quite as good as the three named, — and have all been more or less tested in this vicinity, and prove to be generally hardy and good bearers.

Of fall apples, they name Fall Wine, Rambo, Maiden's-blush, Snow or Fameuse, and Red Bellefleur. The Snow has not been tested, that they can learn, in this region, but has a fine reputation in other parts of the State. The Red Bellefleur is perhaps a local name for a fine and handsome red apple, grown by several persons in this locality. The tree is hardy, and an early and a constant bearer; the fruit good, and very salable.

Of summer apples, they freely unite in placing the Carolina, Red June, and Early Harvest in the front rank. After these come the Red Astrachan and Keswick Codlin.

A fair supply of sweet apples should not be forgotten, as no list is complete without them. They name three, — for summer, Sweet June; fall, Jersey Sweeting; winter, Ladies' Sweeting.

CHERRIES. — Of cherries, they can only recommend the planting of the Early Richmond and English Morello; though the Governor Wood, May Duke, Yellow Spanish, and a few others of the finer sorts, sometimes give partial crops.

The present number of "THE JOURNAL OF HORTICULTURE" contains SIXTEEN pages more than any number previously issued. The publishers thus more than fulfil the promises made at the beginning of the year, that each number should improve upon the preceding in value and interest.

No magazine issued in the country has in so short a space of time presented so much valuable matter of horticultural interest, embracing so vast a field, and upon such a variety of subjects. Both publishers and editors aim to make the Journal AMERICAN. Undue prominence will not be given to any section of our common country; but we work for the interests of all, and to advance the cause of horticulture.

With the July number, the second volume of the Magazine begins ; and, from the articles already in type, we can promise that there shall be no falling-off in interest ; but our aim will ever be to *improve*.

We publish with great pleasure the following extracts from a letter from an esteemed correspondent. The evil is widespread, and calls for correction. Not only in catalogues are names misspelled ; but, at the exhibitions of our leading horticultural societies, plants, flowers, and fruit are often incorrectly marked.

“MESSRS. EDITORS,— I write to solicit your aid in correcting a grievance. Incorrect spelling is offensive wherever it occurs. Why, then, should publications connected with the culture of flowers be allowed, without a protest, to misspell the names of plants ?

“ I lately received a catalogue of greenhouse and bedding plants, and a very creditable catalogue too, for the number and character of the varieties, but which was marred by more than three hundred words incorrectly spelled. The common specific name ‘*Corymbosum*’ was ‘*Coromboysium* ;’ ‘*Shoenbrunn*’ was ‘*Shoembrann* ;’ ‘*Farfugium grande*’ was ‘*Farfugum Grandee*,’ and ‘*Dielytra*’ was ‘*Dyaletria*,’ ‘*Dielytria*’ and ‘*Dyalettra*.’ I am sure, if nurserymen and florists understood the unfavorable impression which is produced by these errors, they would strive to be correct.

“ There is another usage, not so offensive as incorrect spelling, but still one which needs correction, — the quite common error of commencing the specific names of plants with capital letters.

“ *Generic* names should commence with capitals : *specific* names should *not*, unless derived from some *proper* name ; thus, *Ageratum cœruleum*, *Ageratum Mexicanum*.

“ Then again, when Latin systematic names are the *specific names*, they should always agree in *gender* with the *generic name*. It is common to see *Ageratum Mexicana* for *Mexicanum*, *Alyssum compacta* for *compactum*.

“ Will it be said these matters are of small consequence ? I cannot think so. These errors, so easily avoided by care, give bad impressions. Catalogues of beautiful plants and flowers should not offend good taste ; and I cannot but think, that, when they do offend, the interest of the proprietor suffers.

“ Will you direct, in your own good time, attention to this matter, and aid in its correction ? ”

W. H. P. — We cannot understand the cause of your failure. An egg-plant treated like a tomato, to which indeed it is own cousin, seldom fails to do well. The trouble must be in the seed : the best are the large purple and black Pekin. Get seeds, or, better, plants, of the latter ; give them rich soil, a warm, sunny place, and do not let them suffer from drought ; and you cannot fail to have fruit. If you require any quantity, however, you must have plenty of plants. Each plant can mature but one or two fruit ; and, when these are well set, it is better to pinch in the plant, and throw the whole strength of the plant into the fruit.

A SUBSCRIBER. — I have a tree that has been injured on one side of the trunk by being run against, and there is a large wound in consequence. Will you tell me how to treat it? — Cover the wound with a composition of clay and horse-dung, and bind a cloth over all. If the wound is a small one, wax will answer a similar purpose. The same remedy will answer when trees are injured by the winter, or are scorched by the hot sun of summer, producing a wound. A healthy young bark will soon be formed over such scars by using the composition spoken of.

I. O. U., Portland, Me. — Will pear-trees bear severe pruning and shortening in? and is it a profitable course to pursue? — Yes, they will bear it, and give good results, but would not be profitable, except possibly in small gardens, where it is important to get a good many varieties on a small space. The trees may be trimmed in several forms, — wine-glass, cone, and column.

TWO OPINIONS. — Is the Wilson's Albany strawberry worth growing? — Not for home use: it is too poor and acid. It is uncertain. Under favorable circumstances, it pays very well; none better. Some would plant the Wilson for market in preference to nine-tenths of the strawberries now cultivated.

SMALL FRUIT, West Cambridge. — Should strawberries be sent to market with, or without, the hulls? in baskets, or boxes? — They bear transportation better if sent to market without being hulled; and this mode is becoming more popular every year. Boston style is hulled, and in boxes. Our friends in Jersey send in small baskets. We think the former preferable for New England.

A WELL-WISHER. — In transplanting large fruit-trees, would it be best to shorten in? How about mulching and staking trees, or placing stones about them? — It is well to shorten in trees of some species when transplanted. Should not do it with cherry-trees; should never transplant a large peach-tree; but, with pear and apple trees, we have no doubt of its utility: should prefer to mulch. Staking may be resorted to sometimes when the top of the tree is large, and holds a good deal of wind. Stones placed about the tree answer a similar purpose. We have an article on staking trees, in press.

A BEGINNER, out West. — In the summer-cultivation of the grape, would you plough among the vines? — It is better to avoid the plough near the roots; for there is great danger, that, by its use, many roots would be destroyed. Use the cultivator mostly.

MARCUS, Bellows Falls, Vt. — How late in the season will it do to plant strawberries? — The last of April, or first of May, is the best time of the year; but if the weather is favorable, and care is taken, they may be planted as late as July, and give fair results the following year. Fall-planting is not profitable at the North.

A. L. B., Lowell, Mass. — You will find the pawpaw advertised by Parsons & Co., or Prince of Flushing, L.I. ; or it may probably be obtained of any nurseryman in the Middle States, — price about fifty cents. It is neither a *pear* nor an *apple*, nor has it the most distant relationship to either. The *fruit* with you would not be worth much, as our autumn suns are not warm enough to bring it to maturity ; but the foliage is fine : it makes a very handsome ornamental shrub, and the flower is pretty.

A friend writes from Ohio, “ One of the wild sunflowers of Ohio has tuberous roots similar in appearance and in flavor to the roots of the Jerusalem artichoke, — the *Helianthus doronicoides* of Gray's Manual, which is probably the original of the artichoke.”

C. L. M. — The “ best green for bouquets ” is not a very definite expression, as different plants best serve the purpose at different seasons, and different styles of bouquets require different “ green.” That in most common use in the vicinity of Boston is the *Lycopodium* of the woods, and the ink-berry (*Prinos glaber*). *Kalmia latifolia*, or mountain-laurel, is somewhat used, as is also box and other evergreen shrubs.

For hanging green, smilax and maurandia are most used ; but any weeping or trailing plant may be employed.

For delicate green, sprigs of diosma, myrtle, and melalauca, are generally employed.

C. L. M. — Cucumbers and musk-melons, if planted near together, will mix : this will not, however, affect the fruit, but only render the seed worthless.

W. P. H., Harrisville, Penn. — In your ill success with ranunculus and anemones, you are not alone. Our climate is not suitable for them, and you are far more likely to fail than to succeed. In the first place, they usually rot in the ground if planted in the autumn in the garden ; and any that survive are generally killed by the hot sun. Your failure, however, was probably owing to too close a soil. In England, the preparation of the soil for ranunculus is a work of years.

The soil for both should be good and light ; though the ranunculus likes a stiffer soil than the anemone. The bed must be well drained ; and, during growth, the plants must not be allowed to suffer from drought, and should be shaded from scorching sun.

Your trouble with those planted in pots came from their damping-off, as the roots were too cold, and the tops too warm.

They are frequently grown in the greenhouse, but are never so fine as when wintered in a cold frame. Roots of anemone kept till spring will probably be worthless. The ranunculus possess greater vitality ; and if they have not been kept in too dry a place, or moulded from too much moisture, will probably grow.

You will find full instructions as to soil and management in “ BULBS,” published at this office.

The Editors have valuable articles on hand upon prairie-flowers, Wardian cases, lily-ponds, cross-bred strawberries, staking trees, evergreens, and many other interesting subjects: these will, we trust, in a great measure, appear in the July number; but for all delays we must ask the indulgence of our correspondents, assuring them we are not unmindful of their many favors, and thanking them for many kindnesses received.

A subscriber, under date of New York, May 1, writes to the publishers, complaining of the want of articles on the treatment of fruit-trees in our Journal. Such articles will appear from time to time, and our endeavor will be to neglect no interest.

If subscriber will, over his own name, communicate any suggestions to the publishers, they will be thankfully received; but anonymous communications merit no notice.

IGNORAMUS, Buffalo, N.Y. — Is it an advantage to mulch strawberries? If so, what would you use for that purpose? — There are benefits to be derived from mulching the strawberry: it prevents the fruit from getting down into the dirt; it protects, to some extent, from drought; and it prevents the weeds from growing. Some use spent tan to mulch; others, chopped hay or straw. Should prefer the latter. Pass meadow-hay through the hay-cutter, and it can then be worked in among the plants nicely.

SEEDLING. — How soon will grape-vines raised from the seed give fruit? — About the fourth year, if they are well treated.

FRUITIST, Newburyport. — Will you please name some of the best summer and fall apples for market? — Williams's, Sweet Bough, Dutch Codlin (for cooking), Red Astrachan, Washington, and Gravenstein.

ALTON (ILL.) HORTICULTURAL SOCIETY.

THIS society met at the residence of John M. Pearson, Monticello, on Thursday, Jan. 3, 1867; W. C. Flagg in the chair. The election of officers being in order, John M. Pearson was elected *President*. A committee to nominate the remaining officers was appointed, consisting of Messrs. Hull, Long, J. E. Starr, Huggins, and M'Pike; who presented the following report, which was adopted by a unanimous vote: —

Vice-Presidents, D. E. Brown, H. G. M'Pike. *Secretary*, J. E. Starr. *Treasurer*, B. F. Long. *Executive Board*, E. S. Hull, H. G. M'Pike, W. C. Flagg, J. Burton. *Chairmen of Standing Committees*, — Orchards, — W. C. Flagg. Vineyards, — D. Stewart. Fruits, — E. S. Hull. Flowers, — Mrs. J. M. Pear-

son. Vegetables, — E. A. Riehl. Entomology, — J. Huggins. Botany, — Mrs. E. S. Hull. Ornithology, — W. E. Smith.

Dr. Hull reported on the vineyard of J. E. Starr. This vineyard contains by far the largest collection of grapes yet planted in this region; but, not being within convenient distance of our regular Vineyard Committee, it has received but casual observation from them. I have, therefore, consented to give the impressions of two days spent in it during the time of ripening, gratifying the pleasure of sight and taste. The most prominent varieties cultivated are the following: —

Rogers's Hybrids, No. 1. — A late grape; the leaves much injured by the shade of trees. The maturity of these grapes doubtless was retarded by the proximity of forest-trees. These consume the gases in the atmosphere, and thus starve the vines.

No. 2. — Vines healthy. In bunches, berries, and color, it resembles the Concord. The grapes, with the exception of a few scattering berries, were hardly ripe; skin thick; a highly spirited grape, of good quality.

No. 3. — Strong grower; foliage coarse; bunches loose, about the size of Catawba; berries one-third larger, of a dark amber; quality nearly or quite equal to the Delaware.

No. 4. — Should this grape continue to prove nearly as productive as the Concord, its abilities to resist disease, its great productiveness, and the superior quality of its fruit, combined, will make it one of the most desirable dessert grapes. To our thinking, it has just the right blending of sugar and acid to suit the majority of tastes. Bunches of medium size; berries large, purple; ripening evenly.

No. 5. — Vines vigorous; bunches of medium size; berries large; Catawba flavor.

No. 9. — Canes of medium strength; foliage thick; healthy; a good bearer; bunches rather above the medium size; berries loose; color of Catawba. From the thickness of its skin, it ought to keep well, and bear distant transportation. Quality very good.

No. 13. — Strong grower; bunches small and loose; berries medium to large; slightly foxy; tough; seeds large; hardly as good as Concord.

No. 15. — Mr. Rogers, I believe, considers this his best number yet sent out. In canes and fruit, it is about as vigorous and productive as the majority of the Rogers's. Hybrids quality best. To our taste, it would be preferred to either of the others but for a slight unpleasant flavor about the skin; pulp a little hard. The slight roughness about the skin, and firmness of pulp, were, we think, due to the overcropping of the vines, as we found specimens free from both.

No. 38. — A high vinous, spirited grape, with excess of acid; bunches small, compact; berries medium to large; color purple, covered with a thick bloom.

This and others of Rogers's seedlings, in foliage, are closely allied to the Concord. The leaves, though not quite so large, are as thick, and seem to resist the attacks of thrips as well as that celebrated sort.

Rebecca. — Here as elsewhere in this region, under vineyard culture, it is worthless. Mildew and thrips defoliate the canes.

LITERARY NOTICES.

THE AMERICAN DICTIONARY OF THE ENGLISH LANGUAGE. By NOAH WEBSTER, LL.D. Revised, enlarged, and improved, &c. Springfield, Mass. : C. & G. Merriam, State Street, 1867. Pp. 1765.

WEBSTER'S DICTIONARY is received as authority wherever the English language is spoken. Even in the old form, it left little to be desired ; but this new and revised edition surely leaves nothing for us to ask in elegance and accuracy.

What would have been said a few years since to an illustrated dictionary ? Our present purpose is, however, not to review a work which is well known to all our readers, but simply to call attention to the beauty and accuracy of the illustrations relating to agriculture and horticulture.

Botanical terms are often hard to be understood, and a definition is but a roundabout way of coming to the true meaning ; while an illustration, appealing to the eye at once, conveys the true meaning, and satisfies the understanding.

The illustrations in the present edition of the dictionary are generally all that we could wish, not only those explaining botanical terms, but the figures of different plants and those illustrating modes of growth.

We congratulate the publishers on the production of a work of such general usefulness, and which must be so popular.

AMERICAN POMOLOGY : APPLES. By Dr. JOHN A. WARDER. New York : Orange Judd. With 290 illustrations. 744 pages.

THIS book is particularly written for the great North-west, — that part of the country where the author resides. He says, in his preface, that he was called upon to furnish a work on fruits peculiarly adapted to that region ; though he claims, and justly we think, to have furnished a book that meets the wants of the "orchardists of all portions of our country." He has most successfully accomplished his task, and given us a treatise on the apple, beginning with its early history, and following it down to our own day ; giving practical directions for the propagation of the trees by seeds, budding, grafting, layering, &c., with very minute and careful directions for the successful performance of all operations connected with the same. Then follows the dwarfing of the apple ; a practice, by the way, that is growing in favor with our horticulturists, as it furnishes, like the dwarf-pear, a greater number of varieties on the same space than can be obtained on standards. Other subjects are considered, — such as the diseases of trees, and their treatment ; the site for an orchard ; preparation of soil ; selection of varieties ; planting the same ; the philosophy of pruning, thinning, ripening, and preserving fruits ; with some statements concerning Prof. Nyce's new method of preserving fruit ; the insects injurious to trees and fruits ; followed by several hundred outline engravings of apples, with a minute and particular description

of each variety. Select lists of varieties adapted to the several portions of the country are given ; closing with the addition of a table, with varieties alphabetically arranged, giving size, origin, class, season, and quality, and a general index. While we recognize most of the old and well-known sorts, we notice the names of many varieties entirely new to us in New England, but none the less valuable on that account for those portions of our widely-extended country where they seem to flourish.

We regard this book as a valuable addition to the list of works on American pomology, and cheerfully accord to our friend Warder a place in the front rank of American writers on the fruits of America. With this book before him, the novice may perform every operation connected with fruit-growing, from the planting of the seed to the successful harvesting of a remunerative crop of the very best varieties. It is well gotten up on good paper, and well printed in clear type, and is a credit to its publisher. It deserves to find a place in the happy homes of thousands of our farmers on the hillsides of New England, in the rich and pleasant valleys and along the rivers of the Middle States, on the broad and fertile prairies of the West, and onward over the Rocky Mountains to the Pacific slope. Everywhere, from the rising sun of the east to the setting sun of the west, let all such books be received with welcome.

THE AMERICAN GARDENER'S ASSISTANT: In Three Parts, &c., &c. By THOMAS BRIDGEMAN. New edition, revised, enlarged, and illustrated, by S. EDWARDS TÖDD. New York: William Wood & Co. 1867. 1 vol. Pp. 152, 211, 166.

MANY a time in our younger days we have left work in the garden, and wandered into the house to consult our old copy of Bridgeman, in order to see whether we were going on right or not ; and we are consequently very ready to welcome an old friend in a new and handsome dress.

This edition divides the book, as before, into three parts, which treat of the kitchen, fruit, and flower garden respectively ; and each division is replete with useful and trustworthy information. The beginner can find here directions about almost all operations connected with the cultivation of fruits, vegetables, and flowers, written in a pleasant and attractive style. Specialists — people who are looking for exhaustive treatises upon particular varieties of fruit — will, of course, understand that this book has not been written for them ; but, as a general *vade-mecum* for the ordinary affairs of the garden and orchard, this manual answers every purpose. It is practical in its tendency, and every thing laid down in it appears to be derived from the author's actual experience. He neither brings forward nor originates many theories : and on this account we are the more disposed to speak well of it ; for, though we can make no true progress without theories, beginners and amateurs, who consult text-books to know just what they must do in a given case, do not want to be befogged by endless and unprofitable discussions, based often on very doubtful premises.

Theorizing to excess is, we think, the fault of too many modern works on

horticulture, where the writers devote page after page to elaborating some favorite notion,—important in their estimation it may be, but of no interest to their readers, who want information and guidance.

Never having served an apprenticeship under a scientific gardener, we know little of the high mysteries of the art ; but, for nine people out of ten, we believe the book named above will be a safe and satisfactory guide. In some future edition, we hope to see a fuller list of strawberries and grapes ; but these multiply so fast, that any manual soon gets antiquated. Lindley's " *Outlines of Horticulture* " makes a valuable appendix to the book ; which makes us forget for the time the backwardness of the season, and see in imagination rows of peas pushing their way to light, beans sprouting, and the ten thousand signs that show summer at hand and the gardener busy.

