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CONTENTS OF VOLUME II.

ON PLANTING TREES, AND STAKING.

Not very long ago, there was in a certain horticultural paper a notice, "*Never stake a tree;*" which, in my opinion, deserves to be quoted at par with the famous *system of "puddling;"* that is, making a liquid puddle in the hole in which the tree is to be planted, and sticking the tree therein.

Can people be serious in advocating such a system? I always thought that the preparation of soil or earth, in about the way used by "puddlers," belonged more to the brickmaker's or pottery line of business than to gardening; although sometimes a gardener may have to perform the operation with clay and water, to mend an oven or a flue in a greenhouse: but no one can seriously believe in planting trees on that principle.

In dry weather, trees may be planted with success after having had their roots placed in a puddle: but the holes will have to be filled with a soil rather dry than too wet; and, even then, watering ought to be done with some care, so as not to consolidate the soil.

Puddling is an operation under which the natural mixture of the soil will and must be altogether changed, by depositing at the bottom the heavy parts, leaving the rich or lighter parts on the surface, where they will be of

very little or no use at all to the roots; and these will find below, in the heavy and hard stuff, a very poor fare.

But to come to the theme of "staking." I have supposed, from long practice and experience, — and facts prove themselves, — that staking trees is far more successful than the many systems of planting without stakes.

I do not pretend that staking need be employed on every occasion. Young trees, shrubs, small evergreens, and, generally, plants of which the tops are not out of proportion to the roots, or on which the wind has no power, do not require staking; but, even in these cases, it may be of advantage.

In growing small, young plants, the foliage of which often bends the leaves downwards by its weight, the staking and tying-up of the leaves will straighten the cells, the sap will circulate more freely, and the plants will grow twice as much in one season. This is even so with weeping-plants. It would seem as if tying them up would bring them out of their natural growth, and check them: but this is not so; experience will prove the contrary.

In planting tall-shafted trees, such as avenue-trees, lawn-trees, and tall standard trees for orchards, staking is of the highest importance: without it, by chance, a plantation of such trees may succeed; with staking, it must succeed; but the staking must be done in the right way.

Suppose an avenue or an orchard to be planted where taste and order require the trees to grow up simultaneously, of the same size, shape, and regularity. If, during two, three, and four years, there are some trees to be replaced, those that succeed the first year will grow over those that will be replaced the second or third year; and how will the last ones be able, between their already stout mates, to attain the same vigor?

The development of the young fibrous roots is essential to the growth of the tree. A tree with a tall shaft may be planted with the greatest care; the ground may be trodden down hard; the surface around the tree may be covered with mulching or with heavy stones: all this will not prevent the wind from acting on the tree as a lever, and shaking it to the very roots.

This power of the wind will be the stronger when the tree begins to show its foliage; which is also the time when the young, delicate, fibrous roots begin to start. A strong blow comes, and bends the tree: the big old roots

will bend with it, notwithstanding the heavy stones and the mulching; and the young fibres, already striking into the earth, will be broken off.

The consequence will be, that the sap will be interrupted in its circulation, the foliage will be without supply, and the tree will have to wait for the second sap in August or September, or perhaps until the next spring, and have, meanwhile, plenty of time to dry up altogether.

To prevent this, staking is the radical remedy; but, as already said, it must be done in the right way, or better not at all.

Procure, first, good straight stakes, pointed at one end, about eighteen inches or two feet taller than the trees to be planted, measured from the roots to the top. Open the holes the required width and depth, and drive the stakes directly down in the subsoil some eight to twelve inches, at about two or three inches in the rear of the line on which the trees have to stand, and at regular distances from each other.

Root-prune the tree, so as to remove carefully with a sharp knife all parts that have been bruised.

In digging up trees during the fall where the soil is very hard, the strong roots are generally cut with the spade, and the fibrous roots are mostly pulled. In this way, it often happens that the small roots seem very sound. In examining closely such small roots, it will be found, that, although apparently sound, the wood inside is torn in pieces, with vacancies of sometimes a quarter of an inch. If so, they are good for nothing, and should be pruned off.

The top must be pruned also; and the more of the last year's limbs reduced or cut back to three or four buds, the better. Small limbs that may happen to be along the shaft may be reduced to one or two inches, and left as spurs.

Once prepared, the tree must be brought as near the stake as possible by introducing the stake somewhere between two roots. In staking after planting, you can never bring the stake near enough to the tree without bruising the roots.

The hole being filled, the tree must be tied in a very loose manner, permitting it to sink down along the stake gradually with the removed earth.

This precaution is the more necessary, as, by fastening the tree directly after planting, the ground will settle right and left of the roots; and the

tree, not giving way, remains hanging; and the earth will sink from underneath the roots, and leave them bare. Rot, insects, and mushrooms will soon breed in these hollows, and destroy the tree.

The final tying must be done only after the ground is fairly settled, and then should be done in preference with osiers, in two or three places, — one near the ground; the second near the top; and the third, required only on tall standards, at about half the distance between the first two.

As a protection against the rubbing of the tree against the stake, some straw, moss, or rags may be introduced between the stake and the tree, on the ties, or between them.

Trees grown up in nurseries, being generally close together, have their shafts shaved, and therefore the bark is fleshy and soft. In removing such trees, they lose part of their roots, and, by this, part of the supply of the sap circulating through the cells of the bark.

Besides this, the tree is generally removed from a shaded place to an open one, where it will be exposed to the sun, the wind, and the frost.

This altogether cannot but shrink the bark, and often to such a degree, that, when the sap begins to flow, it finds the cells dried up.

The tree is soon, as it is vulgarly called, "hide-bound." To prevent this, I have used very often the system of wrapping the shaft from root to top, either with straw, or old slips of carpet or sacking, tied every six or eight inches.

This arrangement will keep the shaft moist for some time after every rain, make the bark more spongy, and prevent the sun and frost from having such an injurious influence on it.

It may be said that such a wrapping of the shaft will afford a retreat for insects injurious to trees. This seems plausible enough: but it is proved, that, in thrifty trees, the strong growth will soon counterbalance any injury such insects may do; for insects generally collect on poor-growing trees, sick from quite different reasons, on which they will find mosses and cracks in the bark.

The second year, the wrapping is to be removed; and insects that may have gathered on it will be removed with it.

There is much more danger in regard to insects from the use of heavy mulching around the trees: there they will find an undisturbed retreat, from which they climb up to feed upon the young leaves.

Mulching may answer for young stock only three to four or five inches in the soil ; but of what use is it to a tree which has its roots from ten to twenty below the surface? Instead of this, I should suggest good soil near the roots, principally rotten sods ; then frequent hoeing during summer to keep the earth open and free from weeds, leaves, or insects ; and a good spading before frost comes, leaving the ground rough or in big lumps.

This last operation — working the ground before winter — is of very great importance in regard to insects ; since all that deposit eggs and larvæ in the soil will deposit them at a depth sufficient to protect them against the frost. Some descend even a great deal deeper, and remain several years in the ground : but, in the fall, they will ascend, and stay during the winter below such a thickness of soil as Nature will teach them ; and, in spring, they will take advantage of the soil loosened by the frost to burrow themselves through, and climb up the next trees. Now, it is natural, that by keeping the ground free from weeds, and by opening it by spading or ploughing, that will penetrate to a greater depth than it would do otherwise, and surprise and destroy a good many larvæ that will be reached by this operation. It may also destroy the roots of biennial plants, and favor the action of the atmosphere upon the roots that will approach the surface.

A great advantage may be obtained in opening holes for trees before the winter by availing one's self of the influence of the frost. Supposing holes required of three feet square and two feet depth, this corresponds to eighteen feet, cubic measure. Admitting such holes opened before the winter, and the frost acting only on the inner surfaces to a depth of six inches all around, the result will be, that there will be twice the cubic quantity of soil, reduced to a much better condition, for the success of the roots. Such advantage must be obvious.

I have been in the United States for twelve years, and in this business from childhood, as were my ancestors for two generations. From our long, united experience, I am led to believe, that, whatever changes in other practices difference of climate may compel, the course here recommended will be found more or less advantageous everywhere.

Eug. A. Baumann.

RAHWAY, N. J.

CYPRIPEDIA.

THE LADIES'-SLIPPERS.

(Concluded.)

THE exotic species have all been introduced within thirty years; and, although most of them have emanated from the East, it is claimed, that, judging from specimens in Dr. Lindley's herbarium, there are many yet to introduce from South America which will vie in beauty with the very handsomest we now possess.

Two species from the Andes, figured in Reichenbach's "Xenia" under the names of *Selenipedium Hartwegii* and *S. Boissierianum*, are much finer, it is said, than any yet discovered in the Eastern Hemisphere.

Some species of *Cypripedium* remain an extraordinarily long time in flower. I find in "L'Illustration Horticole," published in Ghent for 1865, an astonishing statement in proof of this. It remarks in reference to *C. Veitchii* as follows: "At the present time (Feb. 15), many individuals of this species are still in full and fresh bloom since the end of November."

It is claimed by the same journal for 1857, that the flowers of *C. villosum* continue in perfection equally long. It speaks of some as shown at the Fifth Grand Exposition at Ghent, the last of February, in a fresh and perfect state, which had expanded during the latter part of December.

The only other species I know of are as follows: —

C. macranthum, hardy, from Siberia; dark rich purple. I have seen it illustrated in Curtis's "Botanical Magazine." It has a sort of creeping root. *C. Irapœnum*, yellow, from Mexico; resembles a gigantic *C. pubescens*, — our large yellow ladies'-slipper.

C. Calceolus; European; yellow. A friend in New Jersey writes me of this species as follows: "*C. Calceolus* is found, not very far away from my native place, in a small group of mountains of basaltic formation, lying east of the Rhine, but entirely isolated between the Vosges and the Black Forest, — a group occupying about one and a half or two square miles, but cut off from the two other chains by level land, like the Snake Hill on the Newark Flats in New Jersey. In this group, *C. Calceolus* is found, and has been for years, in uncounted numbers; but, outside of the northern slopes of

these basaltic rocks, it is not found in three to four hundred miles all around."

There is a genus among the orchids, called *Uropedium*, which naturalists consider closely allied to, and even perhaps a monstrosity of, *Cypripedium*. It is found in Colombia; and as yet but one species has been described, — *U. Lindeni*. The flowers are produced two on a stem, white and green, with red lines, the petals being prolonged into tails eighteen inches or more in length. I have a plant of this very curious flower with one strong, healthy shoot, which I trust will blossom this spring.

The proper soil for all the exotic species of *Cypripedia* is turfy peat, or any fresh loam mixed with vegetable fibre. Most if not all of them will succeed under cool treatment; and being compact in habit, and easy of cultivation, may be grown by persons fond of orchids who have not much room, nor the convenience of a hot-house. There is certainly no more charming class of plants in the whole floral catalogue. They present great diversity of aspect, and unusual duration of bloom; remaining in flower six or eight weeks, and even longer. None of the orchid race are so exempt from diseases, so free from the depredations of insects, as the CYPRIPEDIUM.

Of the exotic species of the *Cypripedium*, only three are commonly found at the florists'; viz.: —

C. venustum, *C. insigne*, *C. barbatum*.

They all are easily cultivated, and increase rapidly. But I have also other species and varieties, as follows: —

C. caudatum, *C. caudatum roseum*, *C. Fairieanum*, *C. barbatum superbum*, *C. Veitchii*, *C. Hookeræ*, *C. Javanicum*, *C. Lowi*, *C. Schlimi*, *C. Stonei*, *C. villosum*, *C. Maulei*, *C. concolor*, *C. Dayanum*, *C. hirsutissimum*, *C. Bullenianum*, *C. lævigatum*, *C. Pearcei*.

The following are now in flower: —

C. insigne, *C. venustum*, *C. barbatum*, *C. concolor*, *C. Bullenianum*, *C. villosum*, *C. Hookeræ*, *C. Javanicum*, *C. barbatum superbum*.

C. Fairieanum, having a flower of great elegance and grace, bloomed in December. It has narrow, short leaves, and a crisp, pretty habit.

C. lævigatum is the latest discovered, the rarest of the genus, and is said to be the finest. But few plants of it have as yet been introduced into Europe. It was originally found in the Philippine Islands. At the Inter-

national Horticultural Exhibition in London last summer, a plant in full bloom was exhibited, with four flowers to the raceme, and seven in all on the plant. It is said to throw spikes with five to seven flowers on each. It is of the *Stonei* class, but darker altogether, although not so large; its great peculiarity and beauty being the long twisted tails, which are different from all others, but not so long as those of *caudatum*. *C. Pearcei* is a very pretty, distinct, and free-flowering species, lately brought out. It comes from Peru. Its foliage is long and very narrow, of a dark green, the leaves being less than half an inch in width. The flowers are produced several on a stem, and are of a light glossy green and white. It has short tails in the way of *C. caudatum*. It has been called, by some botanists, *C. caricinum*. *C. villosum*, from Borneo, has a very large flower, olive-brown in color, and so glossed as to seem literally varnished. My plant is very vigorous, some of the leaves being eighteen inches in length. It has four shoots, but only one flower-stem, the blossom of which is now fully expanded.

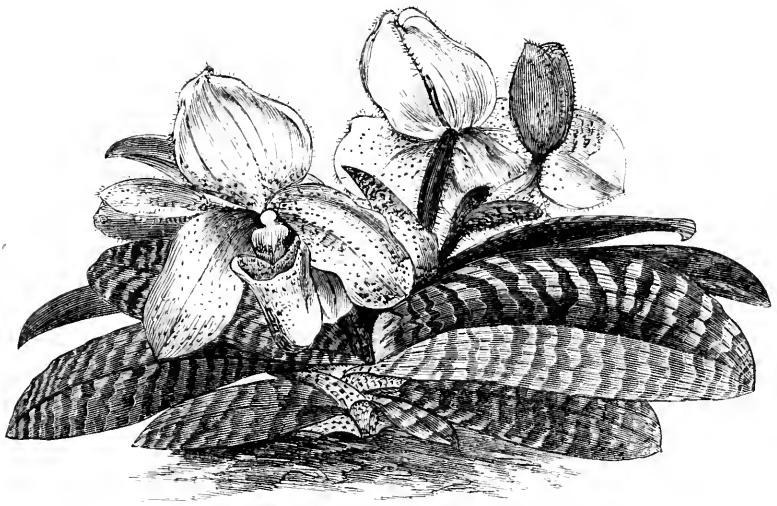
At the International Horticultural Exhibition in London last summer, a single noble plant of this species was shown with thirty perfect flowers. The flower-stem bristles with thick hairs, which are violet at the base, and white or whitish at the ends.

C. Schlimi, from New Grenada, is the most difficult of all to grow. My plant is eking out a miserable existence, and, I am confident, is afflicted with an incurable consumption. It wants to be kept wet and cold; for it belongs to a high range of country, and was found originally at an elevation of four thousand feet above the sea-level. It is crimson and white, and the prettiest of the family in color, though not so large as *C. Stonei*, which is similar in color, but not so brilliant. *C. Schlimi*, however, has not the showy tails which are a striking feature of *C. Stonei*.

C. Veitchii has a magnificent flower; perhaps the largest of the exotic species. Its leaves are boldly marbled with two shades of green, and are very striking. My plant bloomed finely last spring. Its synonymes are *C. superbiens* and *C. barbatum grandiflorum*. It is quite distinct, however, from all the *barbata;* is a lively brown in color, and not purple.

C. concolor is pale yellow, with small purple dots scattered over the sepals, petals, and lip. It has a very short stem, — just long enough to raise

the flower above the foliage. It has two flowers on a stem. It has glaucous-green leaves, purple beneath, and covered with dark-green markings on the upper side, somewhat like *C. venustum*. It is a little plant, very close in habit, distinct from all the related species in having elliptical, blunt



CYPRIPEDIUM CONCOLOR.

petals. The flower is large for so small a plant, being nearly five inches in circumference. Both my plants have shown two flowers on each stem; but the second blossom develops later, and opens just as the first fails.

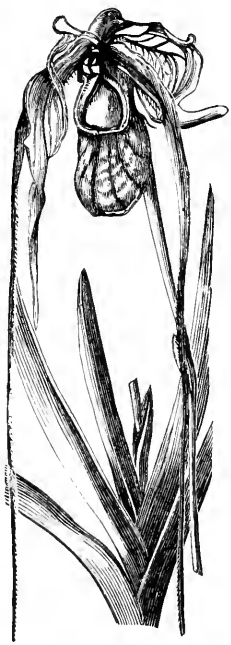
C. barbatum superbum is similar to *C. barbatum*, but larger and finer. Its leaves are, however, of a lighter green, and more distinctly marked. *C. Javanicum* is like *C. barbatum superbum* in every way. The only difference I can discover is, that there is less white in the upper sepal of *C. Javanicum*.

C. Maulei is a variety of *C. insigne*, but an improvement on it. The plant is smaller than the species, and has long, narrow leaves, and flowers two-thirds as large, with green and purple spots. *C. Crossii* is the name which has been attached by some botanist to a variety of *C. barbatum*, and under which it has been figured in a Belgian horticultural magazine.

C. Dayanum is very fine in foliage, its leaves being beautifully mottled with yellow and green. The flowers are in the same way as *C. Veitchii*,

but smaller, paler, and less showy. *C. caudatum roseum* differs from *C. caudatum* in the deep-brown color of the flowers, the latter being more of a light-green color. The flowers of *var. roseum* are also larger and more showy.

C. Bullenianum is very like *C. Hookeræ* in the markings of its beautiful foliage; but the leaves are shorter, and have a peculiar twist to them. They are beautifully mottled, like those of *C. Hookeræ*, with broad white and green bands. The flower is, however, unattractive in the extreme; being composed chiefly of a vile green, accompanied with a little dingy purple. The flowers of *C. Hookeræ*, on the contrary, are very pretty, delicate mauve and



CYPRIPEDIUM CAUDATUM.

green, much lighter in color than *C. barbatum*. The foliage of these two species is very handsome.

The strong family resemblance between *C. lævigatum* from the Old World and *C. caudatum* from the New (South America) makes it difficult to believe they can be essentially different in structure; although Prof. Reichenbach has sought to raise all the species found in intra-tropical America into

a separate genus called *Selenipedium*, on account of a remarkable peculiarity, common to them, of a three-celled ovary.

There is a curious fact in regard to the extraordinary tails of *C. caudatum*, which are the longest belonging to any of the genus. They are not present in the flower-buds, but are developed after the blossoms open, increasing at the rate of one and a half to two inches a day until their full extension (twenty inches or more) is acquired. A plant of *C. caudatum roseum* was shown at the International Horticultural Exhibition in London last summer, with nine superb flowers, remarkable for size and color, the petals of which measured twenty-nine inches in length.

George B. Warren, Jun.

Troy, N.Y., February, 1867.

Note. — All the tropical species of the *Cypripedium* being stemless, like our native *C. acaule*, I use the word "stem" wrongly when speaking of what are strictly scapes, or peduncles.

CROSS-BRED STRAWBERRIES.

Having produced many superior new strawberries by crossing some of the best-known varieties, I herewith present an account of them, and of some of the other results of my experiments with this fruit. It is the general opinion, I believe, that we have few if any sorts, besides the Wilson's Albany, combining all the merits desirable in a variety for general culture. This combination of good qualities the originator of new varieties should endeavor to effect; and it is my experience, that, by crossing the proper sorts, such result can be accomplished. I say not that the *extreme* of every good quality can be united in any one variety, simply for the reason that some of these qualities are antagonistic; and for a variety to be excessively developed in one of them requires that it must be more or less restricted in some other respect. Thus the extreme of productiveness is most always accompanied with insipid flavor; or, if not that, with slow growth. The following descriptions will serve to illustrate this truth. What I maintain is, that varieties may be produced which will approximate perfection, by combining great productiveness, excellent quality, vigorous growth, &c., but not developed to the utmost in *every one* of these respects.

The strawberries here described were grown from seed during the summer of 1863, and fruited in 1865 and 1866. They are designated by numbers at present; but I intend naming several of those proving most worthy of dissemination. The first of the parent varieties mentioned with each description, produced, in every case, the seed from which they were grown.

No. 14. — From Scott's Seedling by Wilson's Albany. Fruit large, conical, glossy crimson; surface firm; flesh red to the centre, sweet and rich. Plant hardy, and a vigorous grower: productiveness not yet determined.

No. 5. — Parentage ditto. A large, light-red berry. Plant hardy, and an excessive bearer; but fruit scarcely of sufficient quality to be valuable.

No. 25. — Parentage ditto. Fruit medium-sized, conical, dark red, sweet, and good; fruit-stalks long and numerous. Plant hardy; forms a thick, high bush, and a prodigious bearer. Does not seem to make runners readily.

No. 39. — From Black Prince by Wilson. Large, roundish, dark crimson; surface firm and glossy, with projecting seeds; flesh dark red, sweet, and rich. Very early; ripens before the Early Scarlet. The plant has large, dark-green foliage, and bears an average crop.

No. 46. — (Hybrid.) From the Wilson by Red Bush Alpine. Fruit full as large as the Wilson, resembling it in shape, but more obtuse at the point; deep red when fully ripe, with yellow seeds; flesh remarkably firm, red, very sweet, with a slight tinge of the Alpine in flavor. The plant is extremely hardy, with foliage slightly resembling the Alpine. Productive when grown in hills. Peculiar for the occasional production of four leaves on a stalk.

No. 47. — From same varieties as 46. Fruit similar in appearance to 46; firm-fleshed, and of a more sprightly flavor. Plant a rapid grower, and productive; foliage large, dark green, deeply serrated, and does not sunburn like many varieties. May prove valuable for its extreme hardiness.

No. 66. — From the Wilson by Triomphe de Gand. Fruit of the largest size, generally shaped like the Wilson; largest berries sometimes wedge-shaped; glossy bright red; flesh tinged with red, — solid, sweet, and good. The plant has large, dark-green, healthy foliage, and stout fruit-stalks; is a vigorous grower, and great bearer. Very promising.

No. 73. — From McAvoy* by Triomphe. Fruit large, roundish conical, with a short neck; largest specimens slightly flattened (i.e., oval in circumference); bright scarlet, with depressed seeds; flesh white at the centre, with a sugary, sprightly, perfumed, and delicious flavor, which, to my taste, is unsurpassed if equalled by any variety I have ever tested. Plant hardy, productive, and of medium vigor of growth; bears its fruit well from the ground. Promises to be a great acquisition.

No. 81. — From Wilson by Victoria. Fruit large, roundish conical, uniform shape, bright scarlet, borne in large clusters on strong, high stalks. Flavor somewhat acid, like the Wilson, but rich. The plant is very productive and hardy, with large foliage resembling the Victoria.

No. 78. — Parentage ditto. A large, roundish, dark-red berry, very sweet, like the Victoria, but richer. The plant is a vigorous grower, hardy and prolific. The fruit-stalks are apt to be too short, like those of the Agriculturist.

No. 85. — From Burr's New Pine by Triomphe. Fruit medium, bright shining scarlet, pointed, curving in outline like the Wilson, and necked; flesh firm, red to the centre, with a rich, perfumed flavor. Plant hardy, and a vigorous grower; has light-green foliage, and is a great bearer. The berries commence ripening at the base, like the Agriculturist. This variety has the desirable quality of continuing productive when grown in the same place several years.

I have many other promising strawberries; but it would occupy too much space to describe them. All that I have described have *perfect flowers*, and were selected from six hundred seedlings, which resulted from crossing the following varieties: —

Scott's Seedling by Wilson; Burr's New Pine by Wilson, also by Triomphe; Wilson by Triomphe; Wilson by R. B. Alpine; Triomphe by R. B. Alpine; Hooker by Wilson; Hooker by Triomphe; Genesee by Wilson; Wild Strawberry by Triomphe; McAvoy by Triomphe; Wilson by Victoria; Victoria by Wilson.

When testing them the first year of fruiting, it was difficult to decide which were the best, there were so many of nearly equal merit; but, upon

* I procured this variety for McAvoy's Superior; but it is not genuine, being a *much better* strawberry. It is of a light-scarlet color, and rich, perfumed, somewhat acid flavor.

close examination, I generally detected some shade of superiority in the size, flavor, productiveness, &c., of those reserved. Many of the seedlings from pistillates were pistillates also, and were therefore rejected, although they were generally more productive than those of the opposite class. Occasionally I observed a pistillate from two perfect flowering sorts. One of the most serious defects of the latter class was the blasting of a portion of the blossoms. I saved none of those having this defect, as I knew it to be permanent. A variety subject to it may produce very large and handsome fruit; and nearly every hermaphrodite sort I have observed is thus faulty in greater or less degree, though with some it is so slight as not to lessen their productiveness. I think the principal reason why pistillates produce larger crops than most of the opposite class is because *all* their blossoms form fruit when well supplied with pollen by another variety. Nature, seemingly, develops their pistils at the expense of the stamens, which remain in abeyance.

Some of these seedlings were very curious, having fruit deeply furrowed from the base to the point, and semicircular and triangular in shape. Several had horned berries; that is, there were pointed protuberances over the surface of the berry. Many of the crosses with the Wilson were productive to a wonderful degree; but they were apt to be inferior in quality, and to have too short fruit-stalks.

There are those who believe the Wilson to be the ultimatum in productiveness; but, could they see some of these cross-breds in bearing, they might have a different opinion. The first year they fruited, the Nos. 5, 25, and others, were loaded down with a mass of berries; so that it seemed scarcely possible for a variety to bear more. The crosses with the wild strawberry were also prodigious bearers; but the fruit, although much larger than the wild strawberry, was smaller than requisite, and of too acid flavor.

As to my statement of the origin of Nos. 46, 47, I am aware it will be doubted by many: nevertheless, it is certainly correct.* My object in hybridizing the two species was to produce a perpetual of larger size than the Alpine, which I did not succeed in doing. There were about fifty seedlings, some of which resembled the Alpine both in fruit and foliage; but none of them produced a second crop as I expected. However, I still

* We see no reason to question the fact, but suspect the hybrid will ultimately run out, or change its character. — Ed.

believe this end attainable, and consider the hybrids as one step towards its accomplishment. I have recrossed them with the Monthly Alpine, and other varieties having a tendency to bear an autumn crop; and shall probably repeat the operation with the second generation of seedlings, if necessary. I think this continued infusion of the ever-bearing quality must finally produce the desired result.

The last year, I fruited a thousand new strawberry seedlings; and have a collection of five hundred or more, which will fruit this season for the first time. I have also several thousand young seedlings which were raised last year. All of these seedlings were produced by crossing the best varieties in cultivation, and recrossing my best seedlings with each other and with the largest native and foreign varieties known. I raise no seedlings according to the *Van Mons* plan, having failed years ago in producing any thing of value by that method. I was thereby led to adopt the true system of producing new and improved varieties of fruits. If I have learned any truth concerning horticulture by experience, it is that the cross-breeding of varieties will produce results far superior to those which can be obtained by the *Van Mons* method. *Jacob Moore.*

ROCHESTER, N.Y., April, 1867.

NEW APPLES.

SAWYER. — In the month of April, there was received from N. J. Colman, Esq., editor of "The Rural World and Valley Farmer," of St. Louis, Mo., a box of beautiful apples. They were reported to have been procured from Mr. Amos Sawyer of Hillsborough, Ill., who asserts that this variety was grown from the seed of the Winesap, which it resembles slightly in shape, and from which it differs in other respects.

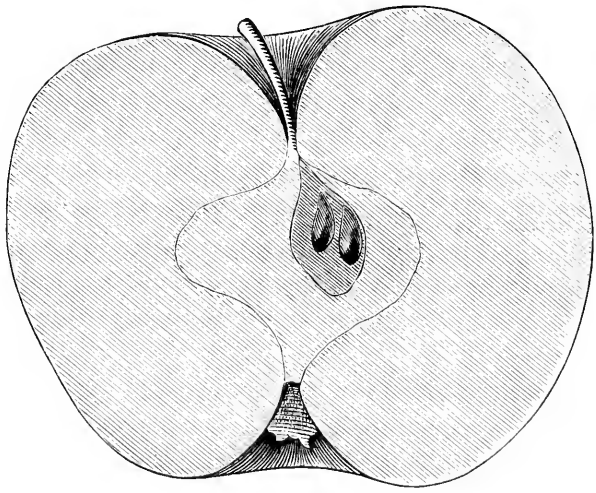
The tree is said to be vigorous and of upright habit, and a very early bearer. It is now but six years old, and has produced three crops of fruit. The apples hang well to the twigs.

The fruit, as received, was in very good condition, of full medium size, conic, truncated, regular; surface smooth, waxy yellow, with a faint blush of crimson; dots small, scattered, gray.

Basin deep, abrupt, regular; eye rather large, somewhat open; calyx reflexed.

Cavity medium, acute, wavy; stem of medium length, slender.

Core small, closed, irregular, meeting the eye; seeds numerous, plump, dark, rather small; flesh yellow, breaking, tender, juicy; flavor sub-acid; quality good. Use, table and market; season, April, "keeping till July."



SAWYER.

This is certainly a very beautiful and attractive apple, and, when tested in other localities, bids fair to become a popular fruit, on account of its quality, appearance, and keeping. It was described in Colman's "Rural World" for May 1.

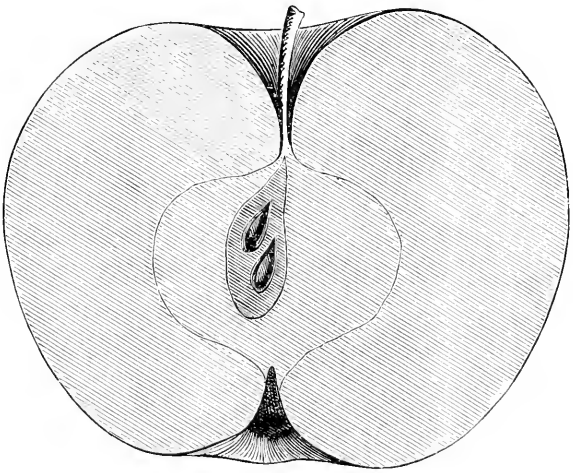
Diagnosis. — Class II., order I., sect. 2, sub-sect. 1.

NELSON. — This long-keeping variety was exhibited before the Illinois State Horticultural Society last December, at Champaign, when it was too green and immature to give any idea of its quality. Mr. W. T. Nelson of Wilmington, Ill., has since sent me specimens of this fruit; which is certainly a rich, long-keeping, sweet baking-apple, different from any thing with which I am acquainted. Mr. Nelson has not been able to trace the history or origin of the variety which is here described with his name.

Fruit of full medium or large size, globular-oblate, regular; surface smooth, dull green, becoming yellow, and sometimes bronzed with dirty brown; dots scattered, minute, dark, with white bases in the immature fruit.

Basin small, uneven; eye medium, closed; calyx reflexed.

Cavity medium, acute, regular, green; stem rather long, slender.



NELSON.

Core medium, regular, closed, clasping; seeds numerous, plump, brown; flesh greenish-yellow, firm, fine-grained, juicy; flavor sweet; quality good. Use, baking and table; season, May to July.

Diagnosis. — Class I., order I., sect. 1, sub-sect. 1.

DAVIS'S SWEET. — This fruit was forwarded by Mr. W. K. Tipton of Jerusalem, Monroe County, O. It is believed to be a seedling of that county, and originated thirty years ago. During that time, it has so won the affections of the people, that it is extensively cultivated; but its unattractive appearance will prevent its being generally admired as a market-fruit, for which its vigorous habit and great productiveness would especially adapt it. In baking, it cooks soft; though its thick skin does not burst like a codling.

Fruit of medium size, "uniform," globular-oblate, sometimes rather conical, regular; surface yellow, shaded with mixed red, splashed crimson, not smooth; skin thick; dots numerous, large, gray or fawn-color.

Basin small, abrupt, russeted ; eye medium, closed.

Cavity medium, acute, regular, brown ; stem long, slender.

Core medium, regular, distinct, and green, clasping the eye ; seeds few, plump, brown ; flesh yellow, fine-grained ; flavor rather sweet, rich ; quality rather good. Use, market and kitchen ; season, from April to July ; will keep for fifteen months.

Diagnosis. — Class I., order I., sect. 1, sub-sect. 2.

John A. Warder.

Cleves, O.

GRAFTING THE GRAPE-VINE.

When this process takes kindly, it is of much advantage to the grape-grower. Vines of questionable value may thus be quickly replaced by other and better kinds. A weak or slow-growing variety, grafted into a thrifty stock, will, if the union is successful, generally produce a much more vigorous growth than the original. The Delaware and Rebecca vines for instance, under ordinary culture, are, in a majority of cases, feeble growers. It is not uncommon for grafts of these varieties to make a growth of from ten to twenty feet in length by from an inch to an inch and a half in circumference the first year. With the stronger-growing kinds, such as Rogers's Hybrids, Diana, &c., a much larger growth is often obtained.

According to popular belief, the stock has an influence on the graft. If this theory is correct, there may be other advantages in this process, such as hastening the maturity of a late variety by grafting into a stock that is early. Possibly one or two weeks may in this way be gained in the ripening of that excellent late grape, the Catawba ; or, on the same principle, the Delaware, Clinton, and others of the species *Vitis æstivalis*, may be made to produce a much larger berry by grafting into the Mammoth Native, Union Village, &c. Experience, however, does not seem to confirm these latter statements ; but that a shy bearer, or an inferior variety, by grafting, may be changed in one or two years to a bearing vine of good quality, or

that a feeble grower can be made more vigorous by grafting into a stronger stock, is not doubtful.

It is the large percentage of failures that occur in grafting the vine, the uncertainty of a successful union between the stock and the graft, if any thing, that makes the utility of this process doubtful.

Some cultivators advise late fall as the best time for grape-grafting; others say very early spring is best; June is also recommended. Failures and successes have followed grafting at each of these periods; but, with good and well-ripened scions that have been properly kept, the middle or last of June has proved to be a more favorable time, according to the experience of the writer, than either fall or spring. The vine is then in active growth, the sap thickens rapidly, and there is less danger from the stock's bleeding. Grape-grafting is not a new process, and is only briefly alluded to here for the benefit of those who wish to experiment. It is easily performed by any person who is "handy" with edge-tools. Probably any of the forms used to bring the scion in contact with the stock may answer; but the common method of cleft-grafting has been quite as successful as any other. It is simply to cut an established vine down to about two or three inches below the surface soil; then to split the stock, and hold it open with an inserted wedge till the scion is fitted. The connection between the barks should be quite perfect, that they may join and assimilate. Scions usually have from one to three buds; and, when set, the lower bud is outward. With small vines, the scion is bound or tied in with a strip of matting or string that will easily decay; but, with stocks of half an inch or more in diameter, merely pressing the earth up firmly is considered sufficient, if the junction is good. When the earth is again replaced, a few shingles, or, what is better, an inverted flower-pot is temporarily set over the graft to shield it from the sun. Finally, suckers coming from the stock are removed as they appear; and although the graft may not start till late in July, if it keeps fresh, the prospects of success are not discouraging.

George Lincoln, Jun.

HINGHAM, MASS.

EVERGREENS.

In a recent article upon treatment of rural grounds, I noticed an allusion to the gloomy effect so frequently resulting from free use of evergreens in planting, and a condemnation — based upon that assumption — of such use.

To my mind, this wholesale judgment betrays want of discrimination. The case is one of many bearings, and I propose briefly to debate it. The scale of planting affects the question seriously. Where wood or park effects are sought, the exclusion, or even very limited use, of deciduous trees, would certainly prove a great error; but in our suburban estates, where the scale is small, it is not in the *use* but in the abuse of evergreen plantations that gloom instead of cheerful shelter can originate.

Nature is the best teacher in this matter; and to her, always keeping one desired object in view, we may turn for suggestion and example. Assuming that we propose to occupy an estate throughout the year, and remembering that our winter is at least seven months in duration, we may proceed with the case in hand.

Suppose, on some sunny winter's day, when the absence of snow permits, we stroll through our grounds. The crackling, husky leaves, the curled, crisp sod, the gray tints and the breezy coolness, of our deciduous plantations, contrast drearily with the warmth, shelter, and balsamic fragrance of our evergreen copses, where around us all is bright in color, while beneath our feet is spread the soft carpet formed by the red needles of the pine and hemlock, varied by an occasional tuft of grass peeping green from its warm cover. Among our cedars, red and white, we often meet birds, the cheery reminders of the summer: not only the hardy snow-bird, or lively chickadee, but even the red-breasted robin, may greet us with a chirp of welcome. Under the feathery branches we may find the beautiful pink kalmia, its fresh leaves resplendent with metallic lustre; the glossy pyrola; the scarlet-fruited partridge-berry; the exquisite andromeda, its buds waiting but the first touch of spring to burst; and the ferns, with their graceful, fan-like fronds. If we gather from this great conservatory of Nature a few branches for our flower-vases, in a short time, as if by magic, the an-

dromeda will be wreathed with its heath-like bells, and will remain for weeks in beautiful perfection, giving us patience through many a tedious, blustering storm. Two snowy clusters now upon my table give token of the coming spring, and rival in their delicate grace the carefully-nurtured exotics of my flower-stand.

Shelter gives us all this with no care, no cost: and, if we wish, we may add to the list of our wintergreens the mahonia, glowing with shades of bronze-green and crimson; the broad-leaved laurel; the stately rhododendron; the holly, clustering with scarlet berries, and dreams of Christmas holidays.

It is an ignorant and indiscriminate use, and only that, which gives the impression of gloom. Ranged in close files or closer clumps upon the southern instead of northern sides of our house or grounds, shutting *out* instead of hugging *in* the sunlight, evergreens are indisputably objectionable; but this may be avoided simply by careful thought, and a consideration of location, size, habit, color, &c. This, unfortunately, is not always remembered before the mischief is accomplished and past remedy, save at great cost of time, money, and vexation.

When, anxious to escape the confinement and turmoil of the city, we yield to that longing, which, early or late, makes *country* men of us all, our first thought is location. This determined, after diligent and anxious search, we come to stumbling-block number two, — plan of house; and, appreciating our need of help, apply to an architect. Profiting by his experience and ready suggestion, we settle, to our satisfaction, this difficulty. Every thing seems in train for the successful accomplishment of our purpose; but we have forgotten and passed over an important and *elementary* consideration, never dreaming that the planting of our house upon the ground, with due regard to exposure, views, drainage, and the many minor details which make or mar a home, peculiarly demands the scrutinizing supervision of a practised professional eye. But consider the house finished. Now for trial number three, — grounds, plantations, driveway, paths, &c.

These questions we almost invariably approach with ignorant impatience, and the conviction, that with abundance of material, and liberal outlay, we shall accomplish the end in view.

Perchance a hazy memory of Fast-day strolls among the pines, cedars, junipers, whortleberries, barberries, and privets of some uncultured hill-

side, suggests evergreens; and their free use is resolved upon. Impatient for immediate results, we urge our nursery-man to their realization. He can but obey; and we plunge darkly on, forgetting, or unconscious of, size, color, habit, and sure that we shall know when and how to thin. Our untutored imagination cannot picture to us our Norway spruces at fifty years, needing as many feet to develop their sweeping limbs; and when, some day, we find the dead wood half way up their trunks for want of light and air, remedy is impossible: the only hope is in a fresh start for a result we may never live to see. We repent our lack of care and courage; but it is too late. We have purchased our knowledge, but at high cost. Long years, the dark shadow of a misplaced clump, whose growth has passed our reckoning, has excluded the morning sun from our breakfast-room and flower-window, and wrung from us the oft-repeated denunciation of gloomy evergreens. But the gloom is not in our trees: it springs from our impatient, heedless, ignorant misuse of them. Our memories of the sunny hill-side were faithful, the example perfect: but we knew not how to follow it; and how should we?

Let us begin again, but this time use reason and common sense, and either take professional advice, — the only way for the busy man, — or if we have leisure, and seek occupation, we can easily go where we shall find example. See Wellesley, the charming country-home of one who has given years of time and thought and study to this subject; a landscape-gardener, who recognizes a good thing, however common, when he finds it; who does not reject natives, though few know as well how to use their foreign congeners: he avails of all that Nature offers. Look there at the evergreens: find the gloom under their shadow if you can. Mark the native and exotic side by side, nestling under the protecting shelter: the rhododendrons, the kalmias, the andromedas, do not seem to find gloom. Color, shelter, habit, all lend their aid; and the result is success such as all may well seek to imitate.

All this has required time, thought, and knowledge; involving more of the former than active men of business can well spare, and more of the latter than they have opportunity to acquire. They must avoid that outlay at least; but they must also seek to escape the vexation, delay, and expense attendant upon hasty and inconsiderate action.

Let them take counsel, or, at any rate, take warning. Do not discard evergreens; but do not plant eighty-foot spruces close under the south windows.

Study, I repeat it, study other people's successes, their blunders, their failures; and try to avoid them as you work out the destiny of your place. Remember the form, the size, the color: they are not all black; they are yellow, golden, blue, brown, red, almost crimson, and purple. Think of all this *before* planting, and there will be little left but to admire and enjoy.

I write this, not as an argument *against* deciduous trees, but *for* evergreens. If you submit it to your readers, they must accept it, not as an attempt to cover the ground, but merely a suggestion to provoke thought upon a subject of great interest to all *country* men. *L.*

April, 1867.

LILY-PONDS.

Some of the most delightful prospects are comprised within a narrow compass; and such, indeed, are all views that have ever been selected for the canvas of the painter. When we ascend a high mountain, we observe that the most enchanting scenes are beheld from some point not far from its base, where the objects of attention are circumscribed by surrounding eminences. A valley of small extent enshrined among wooded hills, if it be not so exhilarating as a scene of wider grandeur, is certainly more satisfactory and more picturesque. Here the imagination finds scope for agreeable exercise, without the weariness produced by illimitable space, and the consequent reaching after something beyond our ken. Nature, as any one may observe, does not surfeit us with beauty or grandeur. She economizes her wealth and her resources, and makes no attempt, like ambitious men when operating with her materials, to dazzle the sight with uninterrupted splendor. She seems to have opened these little valleys among the hills to collect within them a greater amount of beauty than she assigns to ordinary places; and, to crown them with the highest attractions, she has placed a lily-pond in their centre, suggesting to us all that is charming in landscape and pleasant in rural life.

All the beauty of nature and all the life of the forest gather spontaneously about a lily-pond. Here assemble the water-birds of various plume, attracted by the fishes, the insects, and the plants that are abundant near the shore. The singing-birds also make here their tuneful haunts, where vegetation is fully stocked with insect-life. Nowhere is there so much animation, apart from human abodes, as on the grassy banks and wooded eminences that surround the pond; nowhere is there so much beauty outside of human art. The variegated summer-duck finds seclusion here in the umbrage of trees and rushes, and subsistence in the shallows, abounding with Lemna, water-cresses, and other edible plants; and the youthful angler, standing on the shore, watches with delight the little Spotted Tattler as it runs nimbly upon the *lily-pads*, then casts his line over beds of aquatic flowers as sweet as a garden of hyacinths.

If we follow the paths that make their labyrinthine course around the pond, we shall observe the wealth of beauty with which Nature has encompassed it. These paths, the chance-work of cattle, — picturesque artists unconscious of their power, — are ever enticing us into some dew-bespangled nook, fringed with mosses, or garlanded with ferns; or leading us up some gentle eminence that affords a view of the pond and its irregular margin, and, through the openings of the wood, a peep into the neighboring landscape. Nowhere do we meet with so many pleasant surprises, where the precipitous banks, indented with inlets and covered with wood, conceal all intimation of the approaching view.

To one who is any thing of a voluptuary, there is no greater temptation than to float along the shores of the pond in a little skiff, and contemplate the scenery without wearisome toil. From a boat we see only the perfect sides of the trees, where, meeting with no impediment, they spread out their full and natural proportions. Around the water, every outline is perfectly shaded with a pencilling peculiar to Nature, and moulded into a thousand fantastic shapes, without uniformity, and yet without abruptness. Nature uses her different vegetable forms to produce certain effects: the elm and the birch constitute her flowing and drooping lines; the swamp-oak, with its gnarled and sturdy branches, contributes to her expressions of grandeur; and the silver-spangled foliage of the hemlock adds both splendor and grace. All these and multitudes of other species she has distrib-

uted around the pond, and filled the space between the ground and the lower branches with an undergrowth of sweet-scented shrubs ; so that, from the bosom of the waters, the boatman seems to be in an enchanted place, and might fancy himself in the gardens of the Hesperides.

Nature seems to have the same affection for a lily-pond as for the old waysides in the country which have not been trampled by a too-frequent concourse of travellers ; and, on the borders of each, she groups her vegetation in the same wild and fanciful dispositions as we observe in the forms of clouds. Sometimes the pond is elongated at certain points into a shallow, and beauty gives place to weirdness and desolation. In these dank inlets, Nature creates many grotesque forms of vegetation : giant rushes and Typha raise their spears, half buried in water ; and the tupelo-tree, by its twisted and fantastic growth, makes the scenery still more capricious. Here variety and uniformity, wildness and grace, are blended in a charming manner, which is unattainable by art. I speak of those ponds that remain undisturbed by the operations of men ; having neither been made a location for ice-houses, nor modified to suit the taste of the owner of some adjoining villa. I speak of them only as they came from the hand of Nature in all their primitive wildness.

These beautiful ponds are fast becoming appropriated by dealers in ice, or spoiled by improvers who substitute the beauty of cultivation for that of spontaneity, and destroy most effectually their peculiar and delightful features. But there are thousands of them still quietly sleeping in the forest, unshorn of their original attractions. On the boundaries of these virgin waters, Nature is still the presiding deity ; and the nymphs that do homage to her have not been exiled from their arbors. There the Rhodora still harbingers the summer, while shedding its rosy light in tufted profusion upon the shore ; and the Small Kalmia, with more retiring habits and deeper blushing tints, attends her, and wreathes her brows with crimson. The rose, that has dwelt here ever since the hills were raised above the plain, glows with the "purple light of love," of which it is the emblem ; and the mountain-laurel hangs its evergreen boughs over the outer portals and in the inner sanctuary of this, her temple and her paradise.

During all the season, there is not a day when the plaintive song of the Veery may not be heard from the adjoining woods, from the time of the

flowering of the Rhodora till the Clethra and the honeysuckle bring up the rear of the beautiful train of summer, proclaiming itself the chief chorister of the grove; while the fairest flowers, the clearest fountains, birds that dwell in sacred retreats never profaned by the plough, trees that for centuries have spread their harps to the tuneful gales, roses that have annually offered the purest incense to the skies, ambrosial herbs that deck the fields with their verdure, then perish, and offer their leaves as a balm for the sick, — cup-bearers of incense to the dewy even and morn, — all rise and bud and bloom, and scatter their fragrance, and weave an arbor of brightness and beauty in a friendly ambuscade around the dwelling-place of the water-lilies.

The angler, if he be a naturalist or a man of sensitive mind, can deeply feel the influence of all these objects. I can imagine the life of no man more happy than of one, who, after passing the greater part of the day in the occupation that affords him a livelihood, retires to these secluded waters to pay his homage to Nature, to breathe the incense rising to heaven wherever the flowers are bathed in dew, and to gaze upon the charming array of beautiful things that sparkle at the footstool of her benevolent altar. Bright gem of Paradise, translated from the skies like a star of the firmament, and fixed under the brows of these wooded hills for the baptism of the votaries of Nature into her sanctuary of delights! Above thy glassy wave the happy angler may watch the shifting forms of the clouds as they pass languidly over its mirrored surface; while zephyrs, laden with the perfume of violets, hover about him, and fan him with their balmy wings. Among these scenes, how beautiful are the shadows as they sleep on the silvery pond! and how musical the sounds that come up mysteriously from the woods and dingles!

Our lily-ponds, for the most part, are surrounded by hills, that form a basin for their waters, and become the principal source of their replenishment. Every pond has an outlet, that commonly leads into a level field; and it is in the shallows near this point, and in the various inlets, not in the deep waters, nor immediately under the steep banks, that the water-lilies congregate, fixing their roots in the alluvium, and extending their long stems upward to the length required for raising the bud to the surface. As soon as it has gained this height, it is ready to become a flower. The flowers

expand about the third or fourth hour after sunrise, and remain open until the rays of the sun begin to fall obliquely in the afternoon, and cast upon them the shadows of the hills and woods. If at any hour the sky is veiled with clouds, they fold themselves in sleep, and leave the day to the more humble yellow lily, the nodding Sarracenia, the Arethusa upon the shore, and the dark-blue Pontederia.

No green isle of palms in the bosom of Pacific waters can afford pleasures to be compared to those which are ever ready to attend the rambler on these shores. Love finds a paradise in these objects: Philosophy revels in the same haunts as in the ancient groves of Academus. Almost all productions of the region are gathered around these waters; almost every animate thing of the bird and insect host dwells here in a lively and tuneful assemblage. The reflecting and inquisitive mind can never tire of its researches in this studious solitude. For all the seasons have garnered here a portion of their stores; and both to the naturalist who is familiar with the forms and habits of animate and inanimate objects, and to him who studies only Nature's beautiful aspects, the lily-pond is a page written over and over with myriads of lines, letters, and pictures, yet without any confusion, and perfectly legible to those, who, shunning the frivolous pleasures of artificial life, resort here to live nearer to Nature and to happiness. *Wilson Flagg.*

Boston, June, 1867.

NONSENSE versus KNOWLEDGE.

It becomes the seeker after truth in the present day to so qualify himself for his vocation as to be able to discriminate between the crude and erroneous conclusions so frequently given to the community in the public prints and the mature results of elaborate investigations conducted by experts in special departments of scientific research.

I am induced to make these observations by the frequent occurrence, in agricultural journals, of communications on various departments of natural history, more especially that of zoölogy. One writer takes up a quarter-column with a story of the minute insects of a coleopteric form, which, in

his opinion, cause the potato-rot. Another, an M.D., gives an account of finding six insects in the black wart of the plum, which "belonged to the *larva* species," and which he *knew* to be poisonous, because they "seized the point of his lancet" (with which he was whittling down the wart) "with *venom;*" and which he *knew* to be the *cause* of the wart, because he found them *in* it.

In various papers going the rounds at the present time, we find a statement to the effect that a French chemist has made an analysis of the air we breathe, in the following lucid and serious style. A bottle of ice was placed upon a dish, and taken into a theatre at ten o'clock at night. The condensed moisture which collected in the dish had the smell and taste of the water of the most deadly fever-marshes. This water was clear at first, but in a week became filled with fine animalculæ. A little later, these had reached a larger size, and the big ones were seen pursuing and devouring the little ones. Still later, at the end of two months, the water was thick with animalculæ: various forms were seen, the work of destruction still going on. At last, but three "hideous monsters" were visible, still fighting; and, at the end of three months, "the water became clear and *miasmatic* again." These attempts of would-be *savans* to instruct the community are scarcely less painful than amusing when we reflect upon the eagerness with which the public seizes upon and drinks in every item of information in the various branches of science, while it is for the most part unable to discriminate between the nutritious and the poisonous ingredients of this mental pabulum. By what means can we disseminate a knowledge of Nature, save by a careful revision of the most searching character applied to each work, each chapter, each page and paragraph, before placing the subject before the public? Again: there crawl periodically into the various journals a certain class of items, which are evidently prepared by some rural editor to fill a blank in his daily or weekly issue. To this class belong the accounts of various reptiles, chiefly serpents and lizards, which are said to reside in the human stomach; statements of deaths from the bite or sting of divers innocent larvæ, or spiders; detailed histories of supposed spontaneous generation of certain animals in decaying substances. The truths of Nature are sufficiently strange in themselves, and replete with wonder to the faithful student of their mysteries, without any attempt at artificial

and supposititious adornment. Especially does it shock the inspired and earnest seeker after knowledge to see, as it were, the sacred vessels of the temple polluted, and its holy rites desecrated, by the profane hands of these unauthorized ministers. *Francis G. Sanborn.*

Boston, Mass.

PRAIRIE-FLOWERS.

Before agriculture and pasturage spread over Northern Illinois, the flora of these prairies presented pictures of novel beauty. Over these smooth, far-stretching, sub-undulating surfaces, along winding watercourses margined with woodlands, among the burr-oak "openings," flowers were everywhere seen. In some sheltered sunny nook, during the last days of March, your attention fixes on tokens of reviving vegetation. Little purplish tufts, and lobe-leaved, semi-green clumps, seem springing into life. It is our dear old vernal favorite, the Hepatica, quietly unfolding in the quickening sunshine, heedless of the lingering chills. You look around, and presently the eye rests in glad surprise on the opening flowers. Her foreign kindred may be more brilliant, certainly not more pleasure-giving. Nothing in my garden is more truly charming, or of easier cultivation. Perhaps the graceful little pasque-flower (*Anemone patens* or *Nuttalliana*) may claim to be the first spring-blossom: it is certainly contemporaneous with the liver-leaf (*Hepatica acutiloba*).

It is early in April. Patches of bright yellow are seen in little turfy glades, which seem of a sunny morning to look cheery enough. This is the bloom of *Ranunculus fascicularis*. Its golden cups are near the surface of the earth; yet the shining multitudes dotting here and there the open space claim a passing notice. Half the April days are gone. Hitherto the Prairie has kept her garb of sombre gray, except where fires of autumn swept clean the surface. There the soft vernal green appears, hiding the blackened waste, and nourished by its ashes. Bright golden spots in the water-wastes now announce the marsh-marigold (*Caltha palustris*); and presently, in moist grounds adjacent, we see large patches of gay purplish-pink phlox (*P. pilosa*).

A week later, in forest-glades, lance-elliptical and curiously-spotted leaves, with stems of white lily-like flowers, belong to the graceful plant *Erythronium albidum*, or dog-tooth violet. Close by, we see the blood-root (*Sanguinaria*) untwisting its ample leaf-folds and creamy corols; and pretty pink claytonias (*C. Virginica*) and early odorous violets (*Viola blanda*) besprinkle the adjacent grounds. We gain this gentle slope, under these tall and slender iron-woods (*Ostrya Virginica*) and amelanchiers (*A. Canadensis*) gay with white drooping racemes, to find the Twin-leaf (*Jeffersonia diphylla*), just ready to unfold its snow-white petals, and intermingling tufts of *Dicentra Cucullaria* and golden corydalis (*C. aurea*), of charming foliage and flowers. In the open border, we find *Baptisia leucophæa*, bearing its handsome burden of heavy cream-colored blossoms on low-bending racemes. We pass along the margin of the woods, where multitudes of pretty wood-anemones (*A. nemorosa*) nod to our departing steps.

Before the month is quite gone, two distinct masses of attractive bloom will claim our attention,—the blue of the *Viola cucullata*, so common everywhere, and here so luxuriantly rampant; and the red, white, and blue of the *Collinsia verna*. This last is somewhat rare; but I have found it in spreading patches in the sub-shady bottom-lands of the Desplaines and Fox Rivers, making a pretty show for weeks. It occupies a frequented nook in my garden, enlarging from year to year, requiring little care, but giving us an early and protracted pleasure.

And now May is here, and the prairies are teeming with life in bud and blade; but it will be mid-May before we shall be attracted outside the "openings," or much beyond the copses and margins of the woods. The wild plum, cherry, crab-apple, thorn, and many of the shrubs and brambles, are now gay and odorous. Wild hyacinths (*Scilla Fraseri*) are shooting up thickly from their native beds of turfy mould. This is another of our native plants not unworthy a place in the garden.

On this copsy acclivity, and the banks of the little brooklet below, we shall find an interesting group of new-comers. These stout vegetable growths, outspread like green parasols, or scarce unfolded, robust of leaf, yet penurious in flowers, are rather obtrusively prevalent; but we will leave the May-apples (*Podophyllum peltatum*), and pass beyond. We have an agreeable surprise: here is the showy orchis (*Orchis spectabilis*). We

pause long by this "thing of beauty," so crystalline, so fresh from the bosom of spring. Take it to the garden? You must take with it, then, all that goes to make up its *habitat*, or vain will be your labor. In pleasing contrast appear, just above, the dark tufts of that botanical oddity, the wild ginger (*Asarum Canadense*), whose solitary flower, a stout, tawny bell, hangs queerly enough underneath the big, rough-looking, orbicular leaves. Intermingled all around are pretty clumps of Greek Valerian (*Polemonium reptans*), with bells of blue; the straggling vetch (*Vicia Caroliniana*), gracefully supporting its white-and-purple-crowned peduncles by clinging tendrils; half the nice family of bellworts (*Uvularia*), with drapery-like flowers of greenish yellow and creamy hue; trilliums (*T. sessile*), with spotted leaves and dark petals; troximons (*T. cuspidatum*), bright with yellow bloom on naked scapes; and the early avens (*Geum vernum*), and delicate rue-anemone (*Thalictrum anemonoides*) nodding everywhere. Down near the brook we are startled by coming suddenly upon a curious brotherhood of bloom, — Indian turnip (*Arisæma triphyllum*) and green-dragon (*A. Dracontium*). Half the family of toothworts (*Dentaria*), purple and white, rejoice on these green banks; and beyond, in the bog, the blue-flag (*Iris versicolor*) sports its sightly banners: but the loveliest thing of them all is the arethusa (*A. bulbosa*), most elegant of pink-purple flowers, fragrant, and gracefully upborne on a slender scape.

May is far advanced. We will visit these mound-like elevations out on the skirts of the prairie. They are gravelly, thinly overspread on the summit with finest mould, deepening towards the base. Innumerable violets (*Viola pedata*) of vigorous growth, with many-parted leaves and large lilac-purplish flowers, sweet-scented and very showy, are wide outspread all over these smooth surfaces; sprinkled among them are bunches of yellow and bright orange puccoons (*Lithospermum hirtum* and *L. canescens*); tussocks of the large-flowering painted cup (*Castilleja sessiliflora*), of inconspicuous bloom, are scattered here and there; and leafy rock-avens (*Geum triflorum*), with right regal plumes.

Now we are down among the American cowslips (*Dodecatheon Meadia*). Thousands of drooping umbels of pretty dart-like flowers greet the view along these lower slopes; and we linger to enjoy the fair array, till suddenly our eye fixes on another object of marked dissimilitude, — a group of

the larger yellow ladies'-slippers (*Cyprypedium pubescens*). They stand clustered and scattered, nodding their unique blossoms most invitingly. In our eagerness to reach them, we opportunely stumble upon beds of multitudinous liliputians of the same family. Half hid in the grass, they seem at first, to our half-bewildered sight, like little bird's-eggs, some brightest yellow; others purest white; others, again, white with purple specks. We have found the *Cypripedium parviflorum* and *C. candidum*, commonly called moccason-flowers. They make attractive spots in the garden (having right soil and exposure); as does the showy ladies'-slipper (*C. spectabile*), most beautiful of all, which blooms late in June. *Burgess Truesdell.*

Elgin, Ill.

(To be continued.)

Dracæna terminalis Culture. — This plant does well in a compost of turfy loam and fibry sandy peat in equal parts, with one-third leaf-mould, and a free admixture of silver sand, which may amount to one-sixth of the whole. Drain the pot well, and pot rather low, shaking the old soil away. It will root from the stem inserted in the soil. Do not sift the soil, but chop it with a spade, and make it fine. Pot firmly, but not tightly. After potting, keep rather close and moist in a house having a temperature of from 60° to 65° by night; and, when the roots are working in the fresh soil, give a light and airy situation in a warm house, in which a moist atmosphere is maintained by sprinkling of the walls, paths, and all available surfaces, twice daily. Avoid syringing the foliage, also cold currents of air, which will tend to cause the leaves to become brown at the points. Give water copiously whilst growing, but none until the soil requires it. In summer, the plant will do in a moist light stove; and, in winter, it will sustain no injury in a temperature of from 45° to 50°, if the soil be kept rather dry. It requires a brisk heat in spring, and encouragement in the shape of moisture. It does well in a vinery in summer.

NOTES AND GLEANINGS.

W. P. writes from Nashville, Tenn., "The *Lagerstræmia Indica* (Crape myrtle) is, I find, considered a very tender plant, and therefore regarded as unfit for out-of-door culture in the Northern States; but, as this shrub is so highly ornamental and profuse flowering, I am induced to describe its degree of hardiness as it exists here in Tennessee.

"It is cut down to some extent every winter by the cold in its growth, say from six to ten feet to two feet or even a few inches from the ground; but in no instance have the roots been injured. I have this spring, for the sake of procuring more plants, divided one, that had been blooming for ten years, in a very rough manner, by splitting the mass of roots and stems into as many plants as had fibres attached to the stem: all of these, as I have heretofore found, are pushing out young shoots from near the surface of the ground, and will flower this summer, as it usually does in June, and continue to do so till frost. It is common in the gardens about New Orleans; but there, from the neglect of pruning, is not so ornamental as with us, where the frost annually performs that operation. It there grows to the height of from fifteen to twenty feet, with long straggling stems, supporting bunches of flowers and leaves; whereas, here, a plant of two or three years' standing will consist of a dozen or more shoots from the ground, and form a compact bush. If protected about the roots by leaves or straw, I have little doubt but that the roots will do as with us, — keep alive, and put out flowering shoots.

"Tea-roses are much more difficult to protect, and are frequently killed entirely.

"If you think such communications worth publishing, I will with pleasure give my views regarding the hardiness of some other plants."

[We thank our correspondent for calling attention to this plant; for there are few more ornamental, or better adapted to general culture.

We should, however, doubt the expediency of leaving the plant out all winter in the Northern States, even with the most thorough protection. The better plan is, on the approach of winter, to take up the plant with a large ball of earth, and place it in a cellar where the temperature does not fall much below freezing, or rise over 50°. The plant will lose its leaves, and go to rest. If it become very dry, give occasional sprinklings of water during the winter; and, in spring, prune in the plant, and set out in the garden. It will bloom from July until October, and always be ornamental. There is a variety with white, and one with deep-red flowers. *L. speciosa* (showy) is of dwarfer growth, and rose-colored flowers. — ED.]

FRUIT IN NORTHERN NEW JERSEY. — To complain about the weather is one of the foibles of mankind.

It is never exactly right to suit everybody, and no one is satisfied with it for any considerable time: consequently, we all feel at liberty to complain, and without fear of being called unreasonable, because the habit is so very general.

The spring in Northern New Jersey has been very cold; and we have had no day, up to the present time, which could be called really warm.

This I consider a very favorable indication of a good season; for what is usually called an early spring, generally places the fruit in a very precarious position. The spring of 1866 was an early one: strawberries were in full bloom on the 1st of May; grape-vines had made a growth of from six to twelve inches by the 13th, on the night of which we had a frost that killed the young shoots, and destroyed the crop. Strawberries and all other fruits were more or less injured.

At this date (May 22), grape-vines have scarcely shown a leaf, and strawberries, apples, pears, peaches, cherries, &c., are in full bloom; and it so late in the season, we have little to fear from frost, and we feel pretty sure of an abundant crop.

Ought any one to complain under such circumstances? No; but some do, nevertheless. One of my neighbors a few days since was moaning over the prospect, and wishing that a frost would come and kill at least one-half of the strawberry-flowers (on his neighbors' plants of course); because, said he, "if something don't happen to injure the crop, it will be so plentiful that it won't be worth gathering."

He was probably thinking of the short crop last year, and the high prices. The old apple-orchards have been very much injured in the last few years by the tent-worm, as very few of the farmers will do any thing to prevent their ravages. The canker-worm is also very abundant, and very few sound apples are seen in this vicinity: still the trees grow rapidly, and the apple-crop would be a large one but for its insect enemies.

The peach was formerly extensively cultivated here; but its culture has been nearly abandoned because it was said that it had run out. True enough; but why? If the trees could answer, they would say, "*Starved out.*"

Every tree, however, that has been allowed to remain in garden or hedge-row, is now loaded with fruit.

The strawberry is *the* fruit of Northern New Jersey, and every farmer has his strawberry-patch either large or small. The Scotch runner is the variety chiefly cultivated; and as it usually gives a return of from one to five hundred dollars per acre, with scarcely any trouble except planting, and gathering the fruit, very few will try any of the new fancy kinds.

Raspberries are but little grown, as very few of the standard varieties of other sections of the country will succeed upon our sandy soils. Some of the newer kinds are being tried, and promise well. The different varieties of the Black-cap and Purple-cane do well; also the Philadelphia: and although the fruit of these are not equal to the better varieties of the Antwerp class, still they are far better than none; besides, they sell well in the New-York market.

Blackberries are grown more extensively than any other of the small fruits, except the strawberry; the New Rochelle being the one principally cultivated. It suffered considerably the past winter, and some of the plantations are almost entirely ruined. But the fruit-crop, on the whole, bids fair to be one of the most abundant ever known; and we confidently expect that it will be so excellent in

quality, that everybody and their relations will go into the country next year and cultivate fruits, and subscribe for "The American Journal of Horticulture."

RIDGEWOOD, N. J. *A. S. Fuller.*

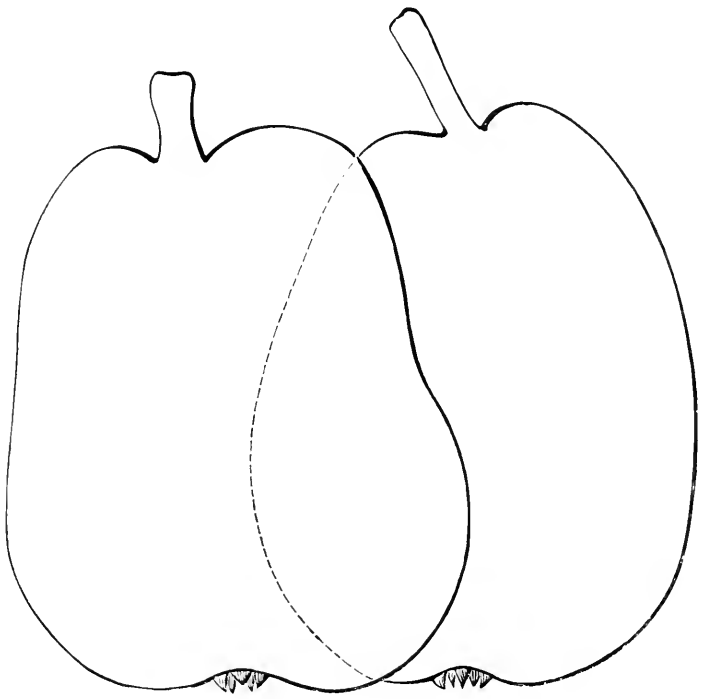
THE APPLE-BORER (*Saperda bivittata*). — Few persons are fully aware of the injury done by this pest among the apple and quince trees, both in the orchard and nursery. In the older States they have become quite numerous, especially in sections where there are many old and neglected apple-trees in the mowing fields and pastures. It is a quiet, silent enemy, but yet one that has the power to, and often does, ruin young orchards. These borers are the larvæ of a beetle called *Saperda bivittata*, which is found about among the apple and other trees during the month of June. It is active in the night-time, when it deposits its eggs on the bark near the ground. These eggs soon hatch, and develop a fleshy, yellowish-white grub, with a small, brownish head. This grub, or worm, soon eats or cuts its way through the bark of the tree into the solid wood, working upwards, and pushing out its castings as it goes, which are scarcely discernible at first, but become more so as the grub increases in size. The beetle will sometimes lay its eggs in the crotch of a tree, or even under the rough bark, along the body of the tree, where the eggs hatch, and the grubs work into the tree. Sometimes they work downwards the first year into the roots of the tree, and the second year work upwards; and sometimes they work nearly round a tree, almost girdling it. Generally the second year, but sometimes not until the third year, they work upwards and outwards near the bark of the tree, and here undergo a change, and become a beetle, when they gnaw a round hole through the bark, and come out, to follow in the same course of the many generations that have preceded them. It is during the months of June and July that the eggs are laid; and the active operations of the insect are wholly in the night, keeping quiet by day. Apple-trees that have been cut down and examined show that the borer had completely riddled the tree for a foot up from the roots, which has often been the cause of the death of the tree. A great many young apple, quince, mountain-ash, thorn, and other trees, are injured or ruined by these insects, often being so completely girdled as to be blown off by the wind. It is, perhaps, one of the worst enemies that the orchardist has to encounter; and the inquiry naturally arises, "What can be done to abate the evil?" The most effectual way to prevent it is to keep the rough bark scraped off the apple-trees, that they may find no convenient place to deposit their eggs; and then, armed with a stout, sharp-pointed knife, and a flexible wire, examine the trees once every ten days or two weeks for a month or two after the beetles have laid their eggs, and occasionally all through the season, and with the point of the knife pick out the little grubs; and, where they have entered the wood too far for that, run the wire up the hole, and punch them to death. Some recommend plugging the hole; others, the use of camphor put into the holes; and still others recommend a gouge with which to dig them out: but this last is severe practice, trees often being injured as much from the too free use of this instrument as they would have been by the grubs. The knife and wire are the very best tools. The castings can readily be seen, especially if the examination be made after a spell of

fair weather: several will frequently be found in the same tree. No good orchardist will neglect to apply some remedy against the ravages of this insect, which saps the life of the tree. Dwarf pear-trees, when not set low enough to cover the quince-stock, are liable and quite likely to be destroyed by the borer; for it seems to like quince-wood even better than the apple. It seldom attacks the pear; though it has been known to lay its eggs on this tree, which have hatched, the larvæ entering the tree, but not seeming to flourish there. Some doubt if it be the same as the apple-borer, but a species of *Ægeria*, — *Ægeria Pyri*. This latter is not so great an evil as the apple-borer. Use every available means to destroy these insects if you would preserve your orchards from injury, or, in the case of apple-trees, from absolute destruction.

Peach-Tree Borer (*Ægeria exitiosa*). — As but few peach-trees have been cultivated in New England for the past few years, little has been said or written on the subject of the peach-borer; though, if a careful examination were made into the facts, it would be found that this insect had much to do with the failure of this very valuable fruit. Now that the prospects of the peach are improving, and people are setting more trees, it becomes quite important that proper attention should be given to the subject, and every precaution taken to protect the trees that are now being or may hereafter be set.

In years past, the disease known as the *yellows* destroyed whole orchards, no doubt; but the failure of many trees has been charged to this disease that were actually attributable to borers. The eggs are laid by the insect in the form of a moth, much in the same way as by the apple-borer, on the trunk of a tree, near the roots. These eggs hatch; and the young borers penetrate the bark and wood, causing the tree to "gum out." The eggs are laid during several months, producing successive generations of borers, which remain in the tree until the following summer, when they emerge in the form of a moth, to carry on the work of destruction as preceding generations have done. The same borer is often found in the warts or excrescences that are seen on the cherry and other trees. Like the apple-borer, they frequently deposit their eggs in the branches of trees, the grubs working into the bark. In order fully to prevent the ravages of this insect, it becomes necessary to examine the trees carefully from time to time, all through the season, using a pointed knife, and picking out the worms of different sizes. This is a sure way to prevent harm. Some use wood-ashes, placing it about the base of the tree, heaping it up cone-like; others use birch-bark or paper, wound around the tree from the ground upwards six to ten inches, which may be removed at the approach of winter, when a careful examination should be made to see if any of the insects have made their way over or through the protector. A story is told of an old lady who leased a place some years ago, on which she set out some peach-trees, which grew and flourished for a while, but, after a time, gave evidence of disease; about which time she was notified by the landlord to quit the premises, which she was very loath to do. In her anger, it is said, she heated some water boiling hot, and poured it around many of the peach-trees; at the same time saying she would fix the trees, so that they would not do the owner of the property much good. The story goes on to say,

that after she left the place, thinking she had killed the trees, those same trees grew and flourished, and bore fruit, as they had never done before, — the hot water having the effect to destroy the peach-borers, which were the only cause of the former decline of the trees. Though this story seems to be absurd, yet there can be little doubt that the entire destruction of the peach-borer in an orchard would often produce as great an improvement as was said to have taken place in the old woman's orchard. These borers seem to sap the very life of the tree ; to poison the sap, and destroy its vitality. See to it that none are allowed to find a breeding-place to perpetuate the evil.



PRINCESS OF WALES PEAR. — This new pear was raised by the Rev. John Huyshe, of Clysthydon (Eng.), from a cross between Marie Louise and Gansel's Bergamot. "About the year 1830, Mr. Huyshe fertilized the former with the pollen of the latter, and from the fruit so produced he obtained three seeds ; which being sown, in due time resulted in the three varieties now known as Huyshe's Prince of Wales, Victoria, and Princess of Wales, the last of which" forms the subject of our engraving.

"Princess of Wales is not one of the largest of these varieties, it being surpassed in this respect both by Prince of Wales and Victoria. Yet it is not a small fruit, but one of good average size, and measuring fully three inches long

by two and a half inches broad. Its shape is variable, as may be seen by the cut annexed, in which one fruit is represented as rather more cylindrical than the other, and with 'a waist,' as Mr. Huyshe happily termed it. The skin is of a smooth lemon-color, mottled and traced all over with thin cinnamon-colored russet similar to that of Marie Louise. The eye is open, with erect, acute segments, and set in a rather shallow basin. The stalk is short and stout, and inserted in a deepish cavity. The flesh is of a deep-yellow color, smooth-grained, very melting and juicy, richly flavored, and with a high aroma. The fruit is ripe in the end of November, and will keep on till Christmas ; so that it is not one of those numerous varieties which are in use in early autumn when so many other kinds are ripe, but comes in at a time when good pears are really scarce and valuable." — *Florist and Pomologist.*

TROPÆOLUM TRICOLORUM. — Twenty years ago, this beautiful greenhouse climber was to be seen at the early summer exhibitions ; but now it is seldom or never shown, and it is rarely that one meets with a well-grown specimen of it even in private collections, — a circumstance which is not easily accounted for, as the plant is very readily increased, easily grown, very beautiful, and lasts a considerable time in flower. Its flowers show to great advantage under artificial light, which makes it invaluable for in-door decoration. I am rather partial to this pretty climber, and beg to offer a few remarks on its culture, in the hope that it may be again as extensively grown as its merits justly entitle it to be.

The tubers, when in a dormant state, should be kept in dry sand, and in a safe place, where mice (which are very fond of them) cannot get to them. In general, they begin to grow during the month of September. As soon as it is perceived that they are starting, they should be at once potted into pots of the size they are to flower in. Pots from eight to ten or twelve inches in diameter, according to the size of the tuber, will be sufficiently large. The pots should be well drained ; and a little sphagnum should be placed over the potsherds, to prevent the soil from getting amongst them: a little rotten dung placed on this will be found beneficial. They will grow in almost any kind of light soil ; but the following compost answers well : One-half turfy loam, one-fourth part fibrous peat, and one-fourth part rotten dung, well mixed together with a good sprinkling either of sand or bone-dust, the latter being preferable. The compost should be in a proper state when used, — neither too dry nor too wet, — and should be pressed tolerably firm in the pots. The roots should be planted in the centre of the pots, leaving the tops just above the soil.

The trellis on which to train the plants should be placed in the pot at once, and made so fast to a wire below the pot-rim that it will not move. This is a matter of some importance, as, if the trellis is not made firm, the least movement of it would, by a sudden jerk, break off the young shoots from the crown. Some attention must also be paid to properly attaching the young shoots to the trellis. The kind of trellis is a mere matter of taste. I have seen a great variety used ; but I like the balloon-shape, or rather a modification of it, as well as any.

A few days after potting, a gentle watering from a rose water-pot should be given to settle the soil nicely around the tubers. The plants will not then re-

quire much watering until they begin to root into the soil and grow freely; and then, when water is given them, it should be in sufficient quantity to go through the entire mass of soil. During the autumn and winter months, they should be kept in the warmest part of the greenhouse, where the temperature during the winter should not be less than 50° by day, and not below 45° at night.

As the days lengthen, and they get more sun, towards spring they will grow rapidly, and will require almost daily attention in tying in the shoots: the plant should also be turned round every two or three days, especially when grown on balloon-shaped trellises, so that all may be well covered. Towards April, their flowers will begin to expand: a little clear manure-water will then be very beneficial to them two or three times a week. By the early part of May they will begin to be pretty full of flowers, and should be removed to the conservatory, where they will continue in great beauty for several weeks.

As soon as the flowers begin to fade, the plants should be removed to the warmest part of the greenhouse to mature their seeds properly. As the foliage and stems show signs of decay, water must be gradually withheld; and, when the stems are quite dead, the tubers must be taken out of the pots, and placed in dry sand until the following autumn. As seeds ripen freely, any quantity of plants can by this means be obtained. I have had them come up as freely as peas. I find the seeds germinate best when the pots are on the hot-water pipes in a pine-pit.

GYMNOGRAMMA CHRYSOPHYLLA (*the Golden Fern*) CULTURE. — This plant requires a night temperature of not less than 55° in winter, and a moist atmosphere without the foliage being wetted. Old plants never do so well as those, which, from being very small, are liberally treated until they become specimens, after which they gradually decline. Take a small plant in, say, a four-and-a-half-inch pot; pot it at once into an eight-inch pot, draining the pot to one-fourth its depth, and using a compost of old cocoa-nut refuse one-half, turfy yellow loam one-fourth, and fibrous brown peat one-fourth, adding one-sixth of silver sand, the whole well mixed and broken with a spade, but not sifted. Pot rather deeply, but not so much so as to cover the crown. The plant should be set in the lightest part of the house, have room on all sides, and be not more than eighteen inches from the glass. The soil should be kept moist, but not wet, until the roots are working freely; and the temperature may range from 60° to 65° by night. By day, it may be 70° without sun, and from 80° to 85° with it, shade being afforded from nine, A.M., to four, P.M., when the sky is clear; but, when cloudy, do not shade at all. No shade will be needed from October to April. The plant must always have the soil moist: but no water should be given until it is really needed; then afford a supply sufficient to show itself through the bottom of the pot. If the plant grow as well as we expect, it will need a shift by the end of July, or at latest by the third week in August, so that the pot may be filled with roots before winter, as it will be in six weeks after potting if a ten-inch pot be given. From this time, no more water should be given than is sufficient to prevent the soil becoming dry; and, if a sufficiently moist atmosphere be maintained, it will winter safely in a temperature of 60° at night, and occasionally as low as 55°, or even 50°; but this degree must be seldom reached. In March, give a shift into

a fifteen-inch pot, and it will make a large specimen by August, and it may remain good a year or two longer. — *Cottage Gardener.*

CULTURE OF GASTERIAS. — The gasterias belong to the aloe section of the lily-worts. They are very nice plants for a succulent collection. They will do well in a house kept from 45° in winter to 60° and more in summer. They flourish best in sandy loam with a little peat and very rotten dry cow-dung, and some lime rubbish and broken bricks, — say two parts sandy loam, half a part of cow-dung, and half a part of broken bricks and lime rubbish. The chief care they require is to keep them nearly or almost dry, when in a state of rest in winter. If the pots stand on a damp stone or damp gravel, they will absorb enough of moisture in the dark months.

SELAGINELLA (*Club-moss*) CÆSIA CULTURE. — The plants growing in wire-baskets become brown because exposed to too strong a light. At best, it is not a very good basket-plant; for it does not continue sufficiently long in foliage. For a few months, it is rather handsome; but, when the frond-like foliage loses its fresh appearance, it becomes of a brown, dingy hue, losing its metallic lustre, and is then the reverse of ornamental. The way we grow it is in pans eighteen inches wide and six inches deep. After placing at the bottom a couple of inches of broken pots for drainage, the pan is filled to the rim with turfy brown peat two-thirds, and one-third chopped sphagnum and charcoal from the size of a hazel up to that of walnut. The plants are then taken from the store-pans and laid on the surface in pieces two or three inches square, and six inches apart, the first row three inches from the rim of the pan. The spaces between the tufts are filled with a compost of turfy sandy peat two-thirds, and one-third loam, broken and made fine, and sifted through an inch sieve, adding one-sixth of silver sand. This compost is put in high enough to slightly cover the tufts; and, the surface being pressed gently, a good watering settles all nicely around the tufts. Placed in a warm and rather dark or slightly-shaded house, such as a vinery at work, if the atmosphere is kept moist, and watering well attended to, this selaginella quickly covers the surface, and hangs over the sides of the pan. Throughout the summer, it forms a fine object in a cool, shaded house; to which it should be removed from heat after a good growth has been made. We pot in spring, when the young growths are an inch or so long. In winter, the foliage is allowed to remain until it dies down, when it is cut off close. We keep it in winter in a house having a temperature of from 45° to 50°, giving no more water than a little now and then to prevent the soil from becoming very dry: it is best kept just moist. We repot every other year. — *Cottage Gardener.*

PROPAGATING BEGONIAS AND GLOXINIAS FROM LEAVES. — Fill a well-drained pot or pan (the latter is best for begonias) to the rim with a compost of sandy peat and loam and silver sand in equal parts, and cover the surface with a thin layer of silver sand. Take a begonia-leaf which is about half or three parts developed, cut away the leaf-stalk to within half an inch of the blade, and insert the remainder of the leaf-stalk close to the rim of the pot or pan. Lay

the leaf flat on the surface, and peg it down closely, so that its nervures may be slightly embedded in the soil, and the whole under-surface lie flat. For gloxinias, the pots should be prepared in the same manner; only the leaves must be put in around the sides of the pots like cuttings, and with their lower ends from three-quarters of an inch to an inch in the soil. Give a gentle watering, and place in a mild hot-bed of from 70° to 75°, and a proportionate top-heat. Maintain a close and moist atmosphere, and shade from bright sun; keeping the soil moist, but not wet. The begonias will form little plants along the midribs of the leaves; and, when of sufficient size, the young plants may be taken with their roots, cutting the midribs on both sides, potted singly, and retained in heat until established. The gloxinias will form tubers beneath the soil, and be well rooted in six weeks. They should then be treated as old plants, and dried off towards autumn. In spring, they may be potted off singly, and shoots will come from the crown of the roots; and, if grown on, flowers will follow in due season.

Sulphur and Snuff for destroying Red Spider and Green Fly.—Dust the leaves and young shoots with the sulphur and snuff mixed: only the foliage must be dry when the snuff is dusted over the young shoots; or, if wet, the snuff will be converted into tobacco-water; and this, if too strong, will injure the tender shoots. The sulphur will not injure the leaves or young shoots in the least; but it will not kill red spider by being brought into contact with the insect: it is the fumes that are destructive to it. A weak solution of soft-soap is the best of all remedies we have tried for red spider; and for peaches, whilst the shoots are young, it should not be stronger than an ounce to the gallon of water: but, after the leaves have attained their full size, a good syringing of soft-soap solution, at the rate of two ounces to the gallon of boiling water, allowed to stand until cool before use, will mostly keep the leaves free, and clear them, if necessary, of red spider. The safest and most certain means of preventing red spider is to proceed against it with its natural enemy,—water,—syringing the plants or trees subject to it freely.

To destroy Green Fly on Rose-Trees.—Syringe the heads of the trees forcibly with water in which soft-soap has been dissolved, at the rate of an ounce to a gallon of water. Continue to do this every evening, wet or dry, for a week; and, on the aphis disappearing, syringe with clear soft water until the blooms open: but, if the aphides do not disappear, syringe the heads in the evening of a dry day with tobacco-water, made by adding five gallons of soft water to every gallon of the tobacco liquor sold by the tobacco manufacturers, wetting the leaves and shoots thoroughly in every part. On the following morning, syringe the trees with clear water. If this should not clear off the aphis, repeat the application next night but one. If tobacco liquor cannot be had from the manufacturer, take the strongest shag tobacco, and over two ounces of it pour one gallon of boiling water; cover with a cloth; let the whole stand until cool; then strain, and apply the liquor to the trees by means of a fine-rosed watering-pot or syringe. The same liquid will answer for the destruction of aphis on all kinds of trees, as the peach, cherry, and plum.

GROWING MIGNONETTE IN POTS. — For early flowering, sow the seed in June or July, in pans in a compost of equal parts loam and leaf-mould; place the pans out of doors in an open situation, and keep the soil moist. When about two inches high, prick off the young plants singly into small pots in the same compost, with the addition of one-third well-reduced hot-bed manure; place them in a cold frame, and keep them close and shaded until established; then expose them to air and light; and, to insure growth, choose a place shaded from the sun between nine, A.M., and four, P.M. An occasional watering is all that will be necessary up to August; and, until then, the flowers should be pinched off as they appear. In August, shift into six-inch pots; and, if the shoots are close together, peg them down and out so as to keep them open. The plants will now grow rapidly, and require frequent stopping, and occasional waterings. Early in October, shift them into eight or nine inch pots; but still keep them out of doors, and continue stopping. House the plants when it becomes unsafe to leave them out longer, and then place them as near the glass as possible, and where they can have plenty of fresh air. They do best in a cool, dry, airy greenhouse. Stop them up to December, and then allow them to go to bloom. Avoid keeping the soil wet, and give air abundantly. In midwinter, you will have nice compact specimens covered with bloom, and in a convenient size of pot. If you wish for later-blooming plants, though these will continue in flower for a long time, you may sow the seed towards the end of July, as before, in pans, placing them on an airy shelf in the greenhouse, where they are to remain until the plants are two inches high; then prick them off in eight-inch pots, four plants in each, in the compost already mentioned. The plants must be kept on the shelf until they show flower, when they may be removed to the brackets or stands where they can have an abundance of light and air. At this stage, clear and weak liquid manure may be given at every alternate watering; remembering always that it and all water should be of the same temperature as the house. As the flowers begin to develop themselves, liquid manure is given whenever moisture is required by the roots. Afterwards the plants are not further potted if the drainage acts well, and watering is not necessary so long as the soil retains sufficient moisture to prevent flagging. It is essential to keep the plants near the glass.

AZALEA CUTTINGS. — Take cuttings three or four inches in length from the growing points when the wood is about half ripe. Cut them transversely below a joint, and remove the leaves from the lower two-thirds of the cutting. Prepare a pot by filling it to two-thirds of its depth with crocks; on these place a thin layer of moss, and then such a quantity of sandy peat, that, when the cuttings are inserted, their base will be the least possible distance above it. Fill the pot to the rim with silver sand, and then insert the cuttings around the sides, putting them in up to the leaves. Give a gentle watering, and plunge in moss, sawdust, sifted tan, or some such material, over a mild bottom-heat of 75°. A close frame is best, and the cuttings are better inserted singly in pots. If there is not the convenience of a close frame, the cutting-pot may be placed in one of larger size, and the interval between the pots filled to within an inch of the rim with

broken pots, and the remaining space with silver sand. The rims of both pots should be on the same level, and a bell-glass put on must rest on the sand between the pots. In this case, the cuttings may be placed in a shady part of a house having a heat of from 65° to 75° or 80°. In either case, keep the soil just moist, and the cuttings close, and shaded from bright sun. When they begin to grow, admit air by tilting the bell-glass or light, and gradually harden off. They will be fit to pot off in six weeks.

ALOCASIA METALLICA CULTURE. — Turfy peat and loam in equal parts, broken up with the hand two-thirds, well reduced leaf-mould and charcoal broken to the size of a pea, and not larger than a hazel-nut, in equal parts one-third, along with one-sixth of silver sand, make a compost that suits this plant well. The drainage must be good ; and there should be a thin layer of moss or the most fibrous parts of the compost over it. It will do with a shift from a six to a nine inch, or from a nine to a twelve inch pot. In potting, be careful to preserve the thick fleshy roots, and keep the base of the bulb-like part rather high. When growing, it requires abundance of water, and should have a very humid atmosphere. This, however, should not be created by constantly syringing the foliage, which is impatient of that. Shade should be given from bright sun from the end of March to October. The plant requires plenty of room, and to be kept near the glass. A temperature of from 70° to 75° by night is essential, and the thermometer may rise to 90° by day in summer : in winter, the plant will do in a temperature of from 60° to 65°. It should not be very firmly potted : the soil should be left free, but not too open.

PROPAGATING AND GROWING DAPHNE INDICA. — As soon as the shoots are two or three inches long, slip them off with a bit of heel, and plunge in a stove or cucumber-bed : they will soon take root. Then pot them off, and keep close for a few days ; and, when the plants are well rooted in their pots, pinch out the top of each, and place them in a house, or, better, a pit. They will soon shoot out ; and, when they have grown three or four inches, pinch off the leading bud of each shoot. By doing this twice or thrice, nice bushy plants can be secured the first season ; and these will always bloom in the following year, if the wood be properly ripened. By following the same plan a second year, the plants will be quite large. This system does not seem to weaken them, as their leathery leaves and strong shoots indicate that they are in good health.

CRANBERRY CULTURE. — Very few fruits so well repay the enterprise of the skilful farmer as the cranberry : certainly none will bear for a long term of years with so little manure ; in fact, none is ever given them except what they get by the annual inundation which their culture requires.

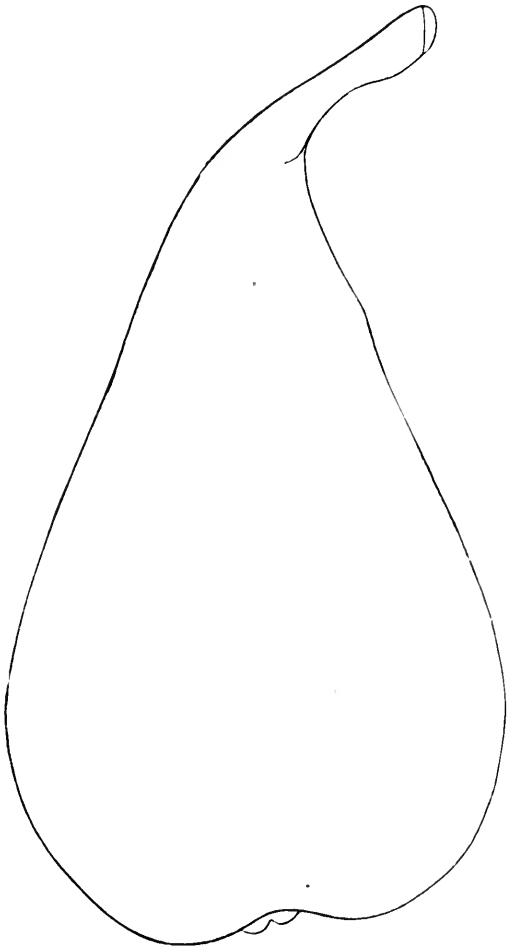
The land best fitted for the culture of cranberries is a peat-meadow. It must be so located that it can be drained eighteen inches below the surface, and flooded the same depth above the surface. If not situated so that these conditions can be attained, it would be useless to expend money on any attempt to reduce it to a cranberry-meadow. But where these conditions can be com-

manded, and a good supply of fine gravel, or sharp, flinty sand, is near at hand, we have the necessary conditions; and operations may safely be commenced. The first thing to be done is to prepare the land for the crop, which is done by draining by ditches about two feet deep, running entirely around the land to be used. The surface must be broken up, and made mellow: if covered with grass and hassocks or bushes, they must be thoroughly eradicated by one or two years' cropping with potato or cabbage, or by carting off the sod and bushes. The land must then be graded to a uniform slope from the middle of the field towards the ditches, just sufficient to allow the surface-water to run off without standing in pools. Any slope greater than this will require increased depth of water in flooding, and should be avoided. The sand is spread on in depth of from two to six inches, — the deeper the peat, the deeper should be the sand, — and the land is ready for the plants, which should be planted in May, or early in June.

The land is marked out with a common garden-marker in rows a foot and a half asunder, and the cuttings stuck in by hand about three or four inches apart; the water is kept eighteen inches below the surface until November; the sand is frequently hoed meanwhile, and kept scrupulously clean of all weeds. In November, the sluice in the dam is shut, and the water raised to at least eighteen inches over the surface. If less depth of water is used, there is danger that the ice will freeze into the plants; and a freshet might lift the whole bed up by the roots, ice and all together. The water is drawn off in May the following year, and the hoeing and weeding followed up industriously through the summer. No crop need be looked for this season, the vines having hardly taken hold of the peat. Flooding is repeated in the same way as the first winter; and, on the third year from planting, we may expect the vines to have made considerable growth, and a small crop to be taken. Some weeding will be needed, as the vines do not get full possession of the land until the fourth year; after which they need no labor and no manure, and no care except to flow and drain the meadow as above mentioned. The reason for flowing the meadow in winter is to protect the vines from severe weather; and it is kept on in spring to drown out the cranberry-worm, which makes its appearance in May. Where the meadow is so situated that it can be flowed suddenly, it is a great advantage, as it enables the owner to draw off the water early in spring to give the vines a good start; and then, if the worm should appear in May, it can be drowned out by raising the water for a few days, which does no harm to the vine. Another great advantage in being able to command sudden flowage is the control which it gives us over the harvesting of the crop. Sharp frosts often occur in October just as the fruit ripens, which render the berry soft, and almost worthless. Where we cannot cover our meadow with water at short notice on a frosty evening, we must pick the crop before frost comes, even if not quite ripe; but, where sudden flowage can be attained, the meadow is put under water on the approach of frost, and drained the next day, to allow the berries to ripen, and the pickers to go to their work. Cranberry-meadows, once established, continue fruitful almost indefinitely: some on Cape Cod have been in constant bearing for over twenty years. After several years' growth, the vines need pruning, which is done with a sharp, long knife;

one man cutting the sod, while another rolls it up like a carpet as fast as it is sheared off. The crop is variable, but often reaches a hundred and fifty barrels per acre, and sells quickly at present for about fifteen dollars per barrel.

NEWTON. *William D. Philbrick.*



ST. GERMAIN PUVIS PEAR. — This pear is recommended as first class in a recent number of "Revue Horticole."

The tree is of vigorous habit, of pyramidal growth.

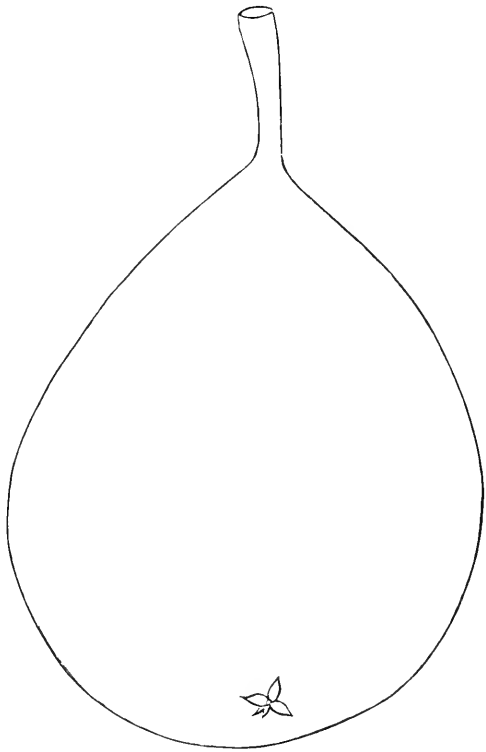
The fruit is about four and a half inches long by two and a quarter in diameter; the stem is large, thick, and forms a club-shaped crook; fawn-colored;

the calyx is open, in five shallow, fleshy divisions, and deeply indented, of a yellowish color.

The skin is clear green, covered with reddish markings, especially towards the stem and calyx, which changes to a citron-yellow at maturity, which is in September and October. The flesh is yellowish, fine-grained, and melting, with abundance of sugary juice.

This pear much resembles the old St. Germain. The form of the fruit is very handsome.

It was obtained as a seedling in 1829, and first fruited in 1842. It has been dedicated to M. Puvis, former President of the Society of Improvement of Ain. It is as yet but little known.



Pear Délices de Froyennes. — This pear is of very vigorous pyramidal growth, and an abundant bearer. The wood is slender, of an olive-yellow color.

It grows equally well upon pear or quince, in open culture. The fruit measures three and a half inches in length by two and quarter in diameter. The stem is straight, stout, and rounded at the end, clear brown, rather more than an inch

long, sometimes on a slight base. The calyx is open, star-shaped, and with brown, unequal divisions, inserted in a wide, shallow cavity.

The skin is thin, a little rough, clear fawn-color, as in the Beze-Quesnoi d'Été, becoming fair at maturity in November and December. The flesh is fine, white, and melting; the juice sugary, perfumed, and of best quality.

This fine fruit was obtained by M. de Courcelle of Lille, near Tournay.

THE FRUIT CROP IN ILLINOIS. — Taken as a whole, there is no State in the Union so well adapted to fruit culture as the State of Illinois, whether we consider the great diversity of its product, the certainty of the crops, the quality of the fruit, the convenience of the market, by river, by lake, and by rail, or in the adaptability of the soil.

Without going into this question at the present time, we will take a glance at the present condition and prospects of the crop in the State.

On the whole, the season is full three weeks behind the average. At this date, we should have ripe strawberries at this point; but they are only in full bloom, and just beginning to reach the market from the south part of the State. In the north part of the State, the apple is not yet in bloom; in fact, the shad-plum (*Amelanchier Botryapium*) has not as yet unfolded its snowy flag, while at Cobden the berries are nearly full-grown.

In the north part of the State, once in eight or ten years, they have a peach crop; but nothing like peach-orcharding is attempted. In the central part, we have this fruit in about four out of five years, though the crop is not a profitable one for market. In the south part, the crop is quite reliable. This year, the trees in all parts of the State are giving promise of fruit. North of lat. 39°, the trees are mostly seedlings; the budding varieties being too tender for general planting. The fruit-buds of the peach were badly killed south of that point; yet, with few exceptions, they have set a fair crop of fruit. Hale's Early, Troth's Early, and Coolidge's Favorite, are very promising; but these have yet to run the gantlet of the *curculio* and the *peach-rot*. The former can be destroyed by jarring and catching in a sort of inverted umbrella, called Dr. Hull's curculio-catcher. In a visit through these orchards last week, I found too little attention paid to this certain mode of protection; and the result will be a fading-away of the crop from day to day from the attacks of this pest of the peach-orchard.

The pear crop gives promise of an abundant one; and the same may be said of the apple. On the whole, the apple, pear, peach, and strawberry promise an unusual yield in all parts of the State. The curculio will destroy most of the plums, although they can be protected.

The early May cherry (early Richmond of Elliott) is being largely planted, and some of the older orchards are coming into bearing. My orchard of six hundred trees is very full. At this point, lat. 40°, they usually begin to ripen June 10; but they are now just out of bloom; at Cobden, half grown, and will follow the strawberry into market. The English morello is another valuable market-cherry, for the kitchen only, but is full a month later. The Heart and Duke cherries are of little value except along the rivers, where the soil is what

the geologist terms *loess*. I saw one tree near Cobden, in Union County, of the Eltons, nearly ripe, May 24; but the tree is tender.

The grape crop has not been so fortunate in all parts of the State. In some localities, the frost of the 12th inst. killed the fruit-blossom; but, on the whole, the vines have wintered well, and the crop promises to be a good one. Vineyard-planting in the south part of the State, and north along the Mississippi River, is largely attended to. Concord is the leading sort. In some localities, the Delaware is healthy and productive, but, for general planting, is worthless. The Clinton is coming into favor for wine; and I should not be surprised to see it take the lead for this purpose. When fully ripened with us, it is a very good table-grape. Trial is being made of several of Rogers's Hybrids; but Adirondack, Iona, Israella, and Allen are already thrown out.

The apricot and nectarine are little grown in any part of the State.

Among the small fruits, the Doolittle and Miami Black-cap Raspberry do well in all parts of the State, and are being largely planted. They are usually cut back instead of tying up to stakes. None of the English raspberries are planted for market. No extensive trial has been made with the Lawton Blackberry; but it gives promise of value. At Cobden, it was just coming into bloom. The native blackberry is so abundant is the chief reason for the want of attention to the improved sorts. I should have said that the Wilson is the only strawberry sent to market from any part of the State. All the new kinds are put on trial; but, thus far, none have succeeded. *M. L. Dunlop.*

CHAMPAIGN, ILL., May 27, 1867.

SEDUM CARNEUM VARIEGATUM (*Variegated flesh-colored stove-crop*). — Permit me to draw the attention of those of your readers who are interested in the cultivation of basket-plants to a very charming plant of this family, well suited for cool greenhouse or conservatory decoration; namely, *Sedum carneum variegatum*, which, as a foliage-plant, has no equal for such a situation. It was introduced from Japan not very long ago. It is a very free-grower, though it does not impoverish the soil in any perceptible degree; and, besides, it is densely clothed with neat and perpetual foliage. The leaves, which are more or less narrow and elongated, are so deeply variegated as to have at least two-thirds of their surface of a light cream-color, the main stalks being tinted throughout with a bright, pleasing tint of rose-color.

The habit of this plant, when grown in a basket, is peculiar; as, when once in process of elongation it has grown over the outer edges of the basket, it falls abruptly down, as if inert, and, with its increasing length, produces a plentiful supply of side-shoots, which push forth from the drooping main stalks, and, in seeming antagonism, grow as abruptly, and perpendicularly upright, as the others grow directly downward: this gives to the plant a most peculiar and elegant appearance. The variety, which has yellow flowers, not very freely produced, is perfectly hardy, and propagates with extraordinary facility. Its complete hardihood recommends it as being well adapted to decorate the humblest form of structure in the possession of any amateur. — *William Earley, in Florist.*

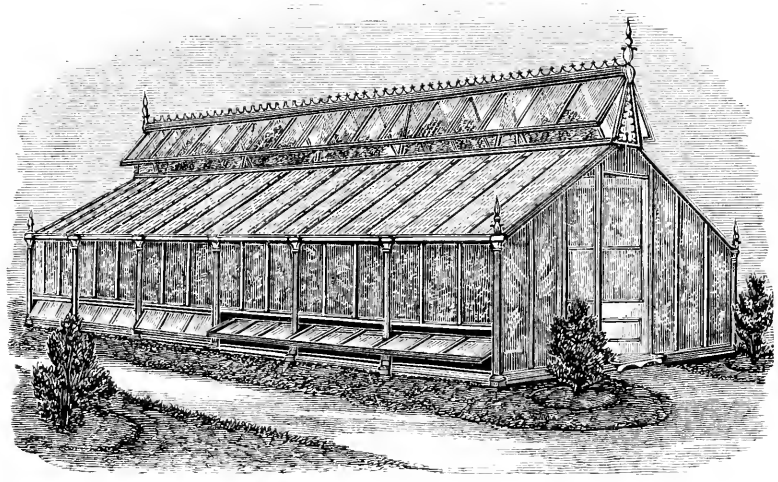
NEW HYDRANGEA. — The ornamental capabilities of *H. Hortensia* and *H. Japonica* are well known ; but these by no means exhaust the floral beauty with which the Hydrangea family is capable of embellishing our gardens, as some recent acquisitions from Japan testify. One of these, shown on a reduced scale in the accompany sketch, is the *Hydrangea stellata prolifera*, a double or proliferous-flowered state of the *H. stellata* of Siebold and Zuccarini, and of which the separate flower is represented of about the natural size. This novelty was introduced to European gardens by M. Maximowicz, and flowered last June in the Botanic Garden of St. Petersburg, where it is regarded as a worthy rival of the old Hortensia. Its habit is shrubby ; its leaves are ovate-oblong, acumi-

nate, and serrated ; and its radiate flowers, which grow in very large terminal globose cymes, are mostly sterile and proliferous, producing several smaller flowers of a similar kind in the centre of each, these opening of a yellowish-green, and changing to rose-color. The inflorescence thus becomes a dense head of double star-shaped, sterile, rosy flowers, and must be of a very ornamental character. Dr. Regel, who gives a good colored figure in his "Gartenflora" (t. 521), states that the plants require the same treatment as the common hydrangea. It is

not only an ornamental plant, but remarkably distinct and novel in aspect. — *Florist.*

Beard's Patent Glass Houses. —We copy from "The Florist" the following article on a new mode of erecting greenhouses which has just been introduced in England. The subject is of great importance, and we trust the improvement may prove all it now promises.

In nothing is it of more importance to draw a clear distinction between absolute and fictitious cheapness than in glass houses. A commonplace wooden house will eat its top off for repairs in ten or twelve years; for, within that period, a sum amounting to its first cost will have been expended on putty, paint, wood, and glass. Of course, the better the materials used, the less will be expended on repairs, and *vice versâ*. Sap-wood left on the deal, putty made of wet whiten-

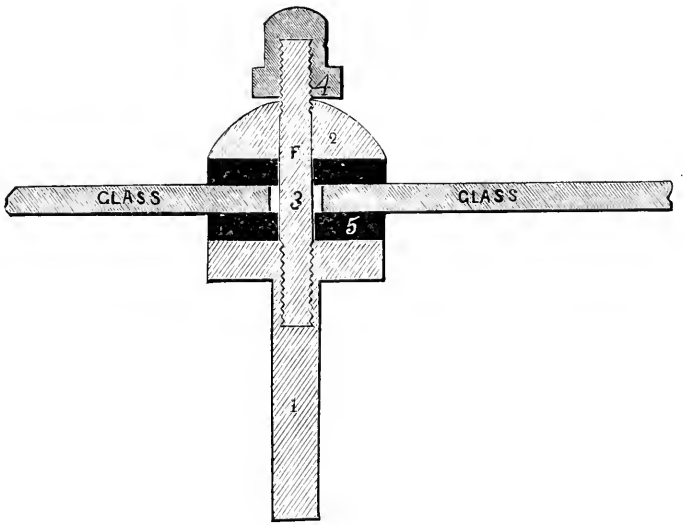


ing or lampblack and worthless oil, and used new, thin twisted glass, and cheap white lead, are so many taxes laid on fictitious cheapness, yielding in the end a full crop of annoyance, and an absolute price of frightful proportions. Even with the best materials, a heavy source of expense originates in the varied degrees of durability of the substances employed. Glass, putty, wood, and paint being all combined to form one structure, the time it will remain perfect, without expensive renovations, must be measured by the durability of its most perishable parts. Hence the importance of making all the materials employed approximate to the most durable constituent. Glass being well-nigh imperishable, let it be combined with equally durable substances, and one of the most troublesome horticultural problems of the day is solved.

The distinguishing feature of Beard's patent houses is, that they may be termed irreparable, in the sense of never needing repairs. The whole of the

substances employed are most durable, presenting an unbroken surface of imperishable iron and glass to both the external and internal atmosphere. Paint is superseded by a hard, smooth, durable enamel. Instead of putty, carefully-prepared slips of asphalted felt, which can be placed or removed in the twinkling of an eye, are used. All the other parts are either iron or glass; and the tooth of time must become sharper than it is before it can make any sensible impression on either of these, protected as the former is by its coat of enamel.

These houses each rest upon an iron wall-plate, that may either be elevated on a wall, or placed on a smooth, solid basis of concrete. The water-troughing constitutes the roof-plate. The roof dips into as well as rests on this plate, and consequently removes the condensed water from the internal surface of the glass, as well as the rain from the outside. The upright supporting pillars are all hollow tubes, which can be stopped up at pleasure, or used for the conduction of the rain-water into tanks either outside or inside the house. Each house is also provided with a complete ventilating apparatus before it leaves the works. This forms the subject of a second patent, and is



rapid, easily worked, and efficient. Its chief merit consists in a skilful adaptation of the endless screw to bear the weight of the ventilators, and lighten the labor of lifting them. The air is also admitted at the base of the house, and discharged at the highest point, as shown in the accompanying figure. In this house, the top ventilators open on both sides. In cold weather, one series of the arms that connect the ventilator with the motive bar could readily be detached, and only the warmest side used; or one side could be permanently fixed in houses erected for stove-plants or early forcing. The ventilator is pitched at a different angle to that of the house itself, to enable it to be opened if necessary in wet weather, without admitting the rain. A similar arrangement of a travelling horizontal bar, with its connecting arms, is used to open the front ventilators; and the system can readily be applied to any description of building.

The accompanying woodcut represents a full-sized section of the rib or bar which forms the basis of the invention. The first point about this bar is that it is T-shaped, thus affording a maximum of strength with a minimum of shade. The next is the smallness of the scantling, so as not to obscure the light. It is made of three-quarter iron, an inch wide, and an inch and a half deep. With skilful bracing, this is found to be

sufficient for all ordinary houses. Another point is the absence of rebates. The top of the bar is quite level and smooth. Along its centre, at intervals of thirty inches, small screw-holes are formed. Into these a small bolt is screwed about three-quarter-inch deep. 1 shows the bar with the bolt (3) inserted; 2 is a three-quarter covering bar; and 4 a small cap-nut, made of hard white metal which cannot corrode. These parts complete the metallic portion of the bar.

The most important part has now to be noticed. On each side of the glass, a dark space, marked 5, will be observed. This is a strip of asphalted felt of the best quality. It forms an elastic bedding for the glass, and separates it at all points from contact with the iron. This is of great importance. Iron is not only an active conductor of heat, but is sensibly altered in bulk by sudden changes of temperature. It expands with heat, and contracts with cold: hence, if it touched the glass at any point, it would probably break it; in fact, it does break it extensively on many metallic houses. The intervention of the felt, and the small space left between the two squares of glass as they lie side by side on the top of the bar, allow of sufficient elasticity in these houses to enable them to endure all changes of temperature without breakage of glass. The felt and glass, meeting on the top of the rafter, perform another almost equally important and useful function: they moderate extremes of temperature in these houses. Such metallic roof-bars are probably about as cool and as warm as wooden ones. The felt and glass break the currents of caloric passing through, and insulate the two portions of the bar from each other. The strength and durability of the fixing power will be obvious. It is composed wholly of iron, or other metal: the felt is simply an elastic padding; and protected as it is at all points, except the thin edge, from the weather, it will probably last good for twenty or thirty years.

The glass used is large, — thirty inches by twenty, — and weighs about twenty-eight ounces to the foot. On steep-pitched roofs, it can be laid on end-to-end without danger of drip. At lower angles than 40°, it will be safer to overlap. The glazing is equally simple on either method. When the glass is lapped, the covering bars are made the same length as the squares. If it is unlapped, they may cover two or three. Whichever mode is adopted, nothing can be simpler than the replacement of a square that may have become broken by accident. Only two or three small nuts have to be unscrewed, a length of bar lifted off, the glass laid on, the bar replaced, and the nuts screwed down again; the whole process occupying less time than the reading of these lines.

The erection of these houses is equally simple and rapid. They might almost arrive in a bundle and crate in the morning, and be furnished with growing plants before night. Whilst the most durable houses that have yet been built, they are also the most portable. This, and their completeness in themselves, render them valuable to tenants. They could be moved as readily as a library or a cellar of wine, with less trouble and interruption to their legitimate functions. The enamelling is also another valuable characteristic of these houses. Just as the felt supersedes putty, so does the enamel promise utterly to abolish the worry, expense, and disagreeable smell of common paint. It is baked on at a high temperature, a sort of flux being thus formed with the metal and the lead, so that the one seems inseparable from the other; and a smooth, hard surface is formed, which will easily wash clean, and promises to endure for years.

Having thus pointed out the most obvious structural merits of these houses, and shown how they do away with the necessity for repairs, while combining the rare merits of strength, durability, cheapness, elegance, and portability, their high cultural efficiency will hereafter be alluded to.

A FEW HINTS ON THE CULTURE OF THE BALSAM. — After having obtained the seed of some variety which has been very highly recommended, and seeing in perspective its beauties developed in summer, nothing is more annoying to the grower of this beautiful plant, than to find, after having grown the plants for a month or two, that they must be put out of sight to hide their lanky stems.

Having procured seed of the camellia-flowered varieties (if a year or two old, so much the better), sow towards the end of March, in light sandy soil, about ten or twelve seeds to a 48-sized pot. Place the pot in a cucumber or melon bed at

work, or wherever there is a brisk heat to start them; taking care, when the seedlings are up, to keep them close to the glass to induce stubby growth. When the plants are three or four inches high, pot them off singly into small pots, using light loam and leaf-mould, with a sprinkling of sand. Place them on a hot-bed, and keep them close to the glass as before, using a little shade in very bright weather. When the plants have rooted sufficiently, they should be kept rather dry and cool for a week or two, which will induce them to show a few flowers; when they can be sorted over, the worthless thrown away, and those with double blossoms and the brightest colors retained. After this, the flowers should be rubbed off, and the plants shifted into 32-sized pots, using richer soil than before, and plunging them to the rim in an old hot-bed, or something of the sort, where there is a little bottom-heat. Keep the lights on, and supply the plants with abundance of water; give plenty of air; syringe them overhead every afternoon; and shut up for an hour or two, tilting the lights a little at night.

As soon as the roots have reached the sides of the pot, and before the plants become pot-bound, shift into the blooming-pots: ten-inch pots are the most suitable for that purpose. Use a compost of two parts friable, turfy loam, one of two-year-old dried cow-dung, and one of leaf-mould and sand. After potting, plunge the plants as before, and shade them till established; when the lights should be taken off altogether, except in rough, stormy weather. They should be liberally supplied with manure-water till they are placed in the house which they are intended to decorate. The flowers should be picked off the main stems, should they appear before the side-shoots are furnished with buds.

A few plants treated as above will give more satisfaction than a larger number grown indiscriminately, and they will be good plants, and of select sorts; and coming in as they do, when the usual inmates of the greenhouse and conservatory are out of doors, they will be as highly appreciated as they are easily grown. — *English Journal of Horticulture.*

[The balsam is generally grown with us as a border-flower; but, grown in pots, they are very ornamental. We have had them grow very large, and they never fail to produce profusion of bloom.]

KALMIA LATIFOLIA (*Mountain Laurel*) CULTURE IN A POT. — Give it a somewhat large pot, drain it well, and use a compost of turfy peat chopped with a spade, but not sifted. If you will do this, and plentifully supply the plant with water when making new growths, and keep it at all times moist, with the pot plunged to the rim in coal-ashes, in a warm, open situation, it will prove a free-blooming shrub. For forcing, take up good, strong, bushy plants, pot them in pots sufficiently large to hold them comfortably, draining the pots efficiently, and use a compost of turfy brown peat or bog-soil; plunge the pots to the rim in coal-ashes in a sheltered, open situation, and keep the plants well supplied with water throughout the summer, and at all times moist, and they will set plenty of bloom, which will open by placing them in a house with a temperature of 50° by night, and not exceeding 55°. Place them first in a house having a temperature of from 40° to 45° for three weeks, and then introduce them into the above temperature. Take them outside after blooming, and place them in the same situation

as before, where they remain over winter. Being potted in spring, they make a good growth, and are eligible for forcing again in the following winter. They require a rather large pot for their size, and plenty of water in summer.

CULTURE OF LILIUM AURATUM. — Repot the bulb every year in spring, being very careful of all growing roots. As regards the compost, use good fibrous loam and peat in equal parts, with a good proportion of sand and leaf-mould; after which add cow or sheep dung, dried and beaten up small, in the proportion of an ounce to every two pounds of the whole of the other soil. After potting, the soil should be kept moderately moist until the roots are thoroughly in action, and the young stems are two or three inches high, when a liberal supply may be afforded. Never give manure-water until the buds have been formed, and it is gradually withheld as the flowers expand. After flowering, give a moderate greenhouse temperature, and reduce the quantity of water slowly and carefully; thereby securing a very gradual decay of the leaves and stem, which is of much advantage to the bulb. As soon as all signs of life have departed from the stem, keep the bulb in the coolest greenhouse, being careful not to allow the soil to become too dry; which may be guarded against by setting the pot on a damp bottom, so as to keep the roots slightly in action. It is one of the greatest mistakes possible to allow these bulbs to be entirely dried off during the winter.

AN ORNAMENTAL FRUIT FOR THE DESSERT. — Every one who has much to do in providing or arranging the dessert is always on the lookout for something fresh, either useful or ornamental; and, to add to those fruits in general use, I would recommend Queen Anne's pocket-melon. This melon, as is well known by most gardeners, is not new, but a variety which has been little cultivated of late years. When neatly arranged with other fruits, it is one of the prettiest objects that can be placed on the dinner-table.

The plant is easily grown like other melons, either in pots, or planted out in the ordinary way. If grown in small pots, with stems about a foot high, and about five or six fruit on each of the plants, these are objects of great attraction, and are sure to please the most fastidious. The average size of fruit obtained by pot-culture is that of a small orange, and they are most beautifully striped with red and gold: the aroma, too, is most delicious. The fruit from plants planted out will be about double the size of those produced by pot-plants, but equally useful and ornamental. This miniature melon is, I believe, of very ancient date; and is like an "old coat" or "old song," — destined to become quite in the fashion again. — *John Perkins, in Cottage Gardener.*

[Can any one supply seeds of this fruit, now so popular in England? It is by no means new, but one of the oldest of melons; but is one of the good old things recently brought to notice.]

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.

MARKET-GARDENER. — How shall I raise celery? — Get the best seed of some good variety of solid celery; start the plants in a hot-bed, or, for late celery, in the open air; then prepare your land by ploughing it deeply. Strike deep furrows every six or seven feet apart, or dig trenches; then manure liberally in the trenches, digging or ploughing it in well; after which it is ready to receive the plants. Some prefer to spread the manure before ploughing. Set the plants in the trench six to eight inches apart; keep the land well cultivated through the summer; and, three or four weeks before you wish to gather the crop, earth it up so as to blanch it. The old way of earthing it up gradually through the season is not so good; for the celery becomes rusty, which injures the appearance and sale of it. Have raised the very best of celery, blanched up twenty inches or more, by the method above described.

HYBRIDIST, Springfield. — I have a seedling pear that has fruited two years; but the fruit, though good, is not quite up to my expectations in quality. Will it improve? — It is not always safe to condemn a new fruit after only two years' fruiting; for pears are always better on middle-aged than on young trees, less woody, and possess more flavor. Sometimes a pear or grape, and even other fruits, will improve very much in quality when the tree gets age. If your fruit is good, hold on to it for a few years, and it may become very good.

SHELDON, Berkshire County. — Does the Sheldon pear crack? — Yes: on some soils, in some seasons, quite badly.

A NEW SUBSCRIBER. — Will it be profitable for me to keep my strawberry-bed, that has fruited this year for the first time? — Probably not. As a general thing, the better way is to plant a bed every year, and plough up the old one. If in hills, and they are well cared for, they will give good results for several years.

HYBRIDIST, Springfield. — How much fruit should grape-vines be allowed to bear that have been set four years? — It depends much on what variety it is. A Concord of that age can safely be allowed to ripen ten or fifteen pounds to a stake; or, if trained on a trellis, the vine might be strong enough to give even twenty or twenty-five pounds. One great fault with most grape-growers is, they allow their young vines to over-bear.

REUBEN, Orange, N.J. — Are cauliflowers difficult to raise? and is there a demand for them in the market? — They are not much more difficult than the cabbage. It is somewhat difficult to get good seed; but, having obtained that, you can raise cauliflowers well. They should be treated in all respects like the cabbage, making your ground quite rich. You can sell all the good cauliflowers you can raise, at fair and remunerative prices. It is very strange that this most excellent vegetable is not grown more extensively.

INQUIRER, Portland. — Is there such a pear as the Goodale? — Yes: it is a new variety, recently introduced by S. L. Goodale, Esq., of Saco, Me., and said to be a seedling of the M'Laughlin. We find, in the Transactions of the Massachusetts Horticultural Society for the year 1866, the following description of this pear: "It resembles in shape the Andrews, though more blunt at the stem-end. It becomes yellow at maturity, with a bright-red cheek on the sunny side. Quality *good*, nearly equal to Beurré d'Anjou; and we think, on the whole, one of the most promising new pears that has been brought to our notice." The fruit is rather large; the tree a good grower, and hardy. It has not yet been disseminated; but the whole stock has been placed in the hands of a nurseryman for propagation.

S. H. W., Boston. — Please inform me as to the best time to trim a buck-thorn hedge; also evergreen hedges. — It should be done in autumn, after the plant has made its growth; or, what is better, in spring, before they make new growth. Should prefer spring for evergreens.

E., Brookline. — Will the white-pine and hemlock bear clipping severely? — Yes: in hedge, or singly.

PORGY. — Is ground-fish from which the oil has been expressed a profitable manure to use, at twenty dollars a ton? — Possibly for a top-dressing on grass land. There is nothing better or cheaper than good horse-manure; and, where it can be obtained at reasonable rates, it is better to use it than to trust to any of the special manures known.

MALUS. — Would it not be better to scrape the apple-trees when they have been tarred to keep off the canker-worm? — Certainly; but it would have been better still not to have put the tar on the tree at all, but in a strip of canvas or tarred paper, which could be taken off at your convenience.

FLORIST, Elyria. — What shall I do with my tuberoses that I wish to have bloom in the autumn in the house? — Put them in pots with suitable soil, and plunge them. If it should be very dry, they may need watering occasionally.

FARMER. — What do you regard as the best time to cut herdsgrass and red-top? — When it is in bloom; but, as haying cannot all be done in a single week, it is better to begin early to secure the crop. There is more loss sustained by allowing the grass to stand too long than by cutting it too early.

SUBSCRIBER. — Can good wine be made from grapes grown at the North? — We very much doubt it. What are or have been called native wines are fixed-up stuff, — grape-juice and water sweetened, not wine. The Iona is doubtless the best wine-grape grown in this country; but it is very doubtful if it will ripen sufficiently at the North to render it profitable for that purpose.

R., Worcester. — Can salt be used to advantage on an asparagus-bed? — It is the popular belief that salt is beneficial to this crop; but we very much doubt it. We have seen a bed where so much salt had been applied, that not a single weed grew in the entire field, and the soil was red, as though burned; but the asparagus was only of ordinary size. Salt will not kill this plant as it will many others; but, unless some positive good comes from its use besides the killing of weeds, it is hardly profitable or best to apply it.

WARSAW HORTICULTURAL SOCIETY. — Through the kindness of the secretary, Mr. N. W. Bliss, we are in receipt of the printed report of the April meeting of this society.

Essays on tree-planting and on native wines were read, and valuable discussions upon grafting and orchard-culture followed. This society meets at the members' houses.

We clip the following note from the report: —

"The secretary read also a letter from the publishers of 'The American Journal of Horticulture' (J. E. Tilton and Co., Boston), announcing a fact of special importance to its Western readers; to wit, 'that they have secured Dr. John A. Warder of Cincinnati for its Western Editor.' This should at once double its Western subscription-list; for all Western fruit-growers know that Dr. Warder is second to no man in the whole country in matters pertaining to horticulture."

We congratulate the society on the wide field of usefulness before it. With officers and members who are all working-men, having the true interests of the society at heart, the future is bright with promise. The more such societies we have, the better.

VITIS. — I have fruited the Concord grape for several years, and think well of it. Is there any better variety to plant for profit? — We think not, all things considered. It never fails to ripen its large bunches of pretty fair fruit.

I. L., Auburn. — Please inform me how I can preserve my fine hardy picotees and other pinks? I buy good plants, and they do well, and bloom the first year; but most of them die during the following winter. — These pinks are propagated by layers, and, if left to themselves, become old, and are easily winter-killed. Layer the grass or new shoots just after the plants are out of bloom, and in this way you can keep your stock fresh and vigorous. The operation of layering is very simple. Bend down a shoot, and cut it partly off by a long slit, or cut, leaving a tongue; cover it up with earth, and in a few weeks it will have become sufficiently rooted to transplant.

L. D. T., Worcester, Mass. — We have, as requested, asked Mr. Rand the reason of your bridal-rose not blooming. He replies, —

"The bridal-rose (*Rubus rosæfolius coronarius*) is rather a capricious plant. I have often bloomed it freely, and again failed to obtain a blossom. I have been led to think that there are two varieties in cultivation, — one of which blooms freely; the other seldom, if at all. The plant is more often killed by kindness than by neglect. It only needs a rather poor soil, moderate waterings, and not much heat. Your plant is probably in too large a pot, and kept too warm. If, however, you have the flowering variety, you will, by reducing the heat and giving a free circulation of air, have plenty of flowers in time. The easiest treatment would be to plunge the pot at once in the border where there would be plenty of sun, and, while not letting it suffer from drought, not watering very freely. This would ripen the shoots thoroughly. On the approach of frost, take up the pot, slightly top-dress the soil of the pot with fresh loam, and place the plant in the coolest part of the conservatory, where it can have plenty of light and air. When it begins to grow, which will be early in January, give more light and heat, and the plant will flower all along the shoots.

"The plant is a native of Prince-of-Wales Island. It is not a rose, but a bramble; and its name is double rose-leafed bramble. Whence it obtained the popular name of bridal-rose, I cannot say. It is often erroneously called *Rubus sinensis*."

E. P. C., Rockland, Me. — I noticed in the "Editor's Letter-box" of the May number the statement, that *Daphne Cneorum* is hardy as far north as Boston. Perhaps it will interest some of your readers to know that it is hardy farther north. I have had one of the plants in my garden three years, and all the protection I have given it is two or three spruce-branches laid on in the fall. I consider it a very beautiful plant, and it is now covered with buds and flowers.

The Editors were aware this plant was hardy, with protection, north of Boston, but preferred to be within the limits; but hardly expected to find it stand as far north as Rockland. We thank our correspondent for his communication, and are always glad to learn facts of such general interest.

We are in receipt of a copy of the address of D. Rodney King, Esq., President of the Pennsylvania Horticultural Society, at the dedication of the new hall of the society just erected in Philadelphia. Mr. King reviews the progress of botanical investigation in the neighborhood of Philadelphia, and gives a sketch of the progress of the society. We extract the following mention of distinguished botanists: —

"Philadelphia and vicinity claim the honor of having given the earliest and strongest impulses to the study and practice of the sciences of botany and horticulture in this country.

"Long before the Revolution, and as early as 1728, John Bartram established a botanic garden and arboretum on the banks of the Schuylkill, which is still in existence. He and his son William, and his cousin Humphrey Marshall, collected, and introduced into England, more than a thousand new species of plants and trees, besides a great number of varieties belonging to species already known. More than a hundred and forty years ago, John Bartram established on the banks of the Schuylkill a botanic garden and arboretum, in which he and his son William cultivated many of the plants and trees collected by them during their travels through the Carolinas and Florida, then a howling wilderness.

"In 1768, Dr. Adam Kuhn of this city was appointed the first professor of botany in the college here.

"In 1777, John Jackson of Loudon Grove, Chester County, Penn., commenced another botanic garden, which is still in existence; and, in 1779, two brothers, Joshua and Samuel Pierce, of East Marlborough, Chester County, Penn., planted an arboretum, principally of evergreens or conifers, which is probably at the present time one of the most complete in the United States.

"In 1803, Dr. Benjamin Smith Barton of this city published the first elementary work on the study of botany in this country.

"In the year 1800, André Michaux, and in 1810 his son F. André Michaux, two distinguished French botanists, visited this country; and both found in this city congenial minds among the members of the American Philosophical Society; and, in gratitude for the many kind attentions received by the younger Michaux from the members of that society, he bequeathed a large share of his fortune to it on the death of his widow, who is now quite aged, in trust, for the formation of a botanic garden and aboretum. I hope most sincerely that this may form the nucleus of an institution of that kind, and that our city authorities may second the excellent institution of this learned foreigner by appropriating one of the public parks — Hunting Park for instance — for the purpose. In 1818, a former president of the society, Zaccheus Collins, together with John Vaughan, William Maclure, and Joseph Corea de Serra, contributed to a fund to enable that remarkable and self-taught genius, Thomas Nuttall, to make a botanical tour of the western part of the then United States and Territories, and afterwards of California, and the British possessions on the Pacific, by the way of Cape Horn. Besides those already mentioned were many other botanists scarcely less distinguished; and among them I may name James Logan, Dr. Henry Muhlenberg, Reuben Haines, Frederic Pursh (formerly gardener to William Hamilton, at the Woodlands), and the lamented Dr. W. Darlington; and, among the many distinguished

living botanists of this city, I may mention Elias Durand, Dr. Leidy, Professor George B. Wood, and Professor Horatio C. Wood, Professor Joseph Carson, Thomas Meehan (editor of 'The Gardener's Monthly,' and corresponding secretary of the society), and many others."

A notice of the hall has already appeared in our columns.

A. R., Dedham, Mass. — The bugs you enclose are a curculio, called *Otiorhynchus picipes*, or the pitchy-legged weevil. It is not described in Harris, and was unknown here in 1855: since then, however, it has increased alarmingly in New England, but is not so common in the Middle States. These weevils feed upon the young shoots of peas, turnips, carrots, and parsnips, and often commit immense havoc.

During the day, they remain in the soil, or in some dark place, but feed at night, attacking the stem of the young plant, and eating holes in it.

They are also very destructive to the young shoots of vines and fruit-trees, to raspberries, and even eat out the buds of pear and apple trees.

The larvæ are also destructive to the roots of flowers and plants in autumn, winter, and spring. The larvæ, or maggots, are fat, whitish, and wrinkled, with horny, hazel-colored heads. They lie generally in a curved position, and, having no feet, remain feeding under ground, pretty nearly in the same spot where they were hatched. Having arrived at full growth, they form an earthen cell, and change to a torpid pupa of a whitish color, with black eyes, exhibiting through the skin the limbs folded up of the future beetle. The horns, rostrum, and legs are compactly arranged; and the small wing-cases are wrapped round the sides, exposing the body. From this pupa issues the beetle, or weevil, which is included in the order COLEOPTERA, the family CUCURLIONIDÆ, and the genus OTIORHYNCHUS, or CURCULIO, described by Fabricius as *C. picipes*, but by Marsham as *C. vastator*.

This weevil is immensely destructive, and it is almost impossible to protect crops against their ravages. The best way is to collect them by hand, and destroy them.

We can see no reason why they should come into the house. They are very hard, and tenacious of life. In England, a family of sand-wasps destroy the weevils, capturing them, and burying them as food for their young.

The insect in various forms is magnified and figured in Carter's "Farm Insects," plate M, page 400; whence the minutes given above are derived.

N. T. H., Abington. — Names of plants. No. 1, *Trollius Europæus*, a small flower. No. 2, *Spirea hypericifolia*. No. 3, *Stellaria longifolia*. No. 4, *Arabis albida*.

BERRIES. — Is the blackberry a profitable fruit to raise for the market? — We think not, generally. About Boston, its cultivation for that purpose has nearly been abandoned. The bushes winter-kill; don't bear every year; difficult to pick; take up a good deal of room; and, for these and other reasons, is not a popular fruit with market-gardeners.

LOVER OF FLOWERS. — The following, which we clip from an exchange, just answers your question. The plant is not of difficult culture, but will not do well if neglected. Bedded out in summer, it blooms well.

"*Gardenia fragrans not flowering.* — We presume your plant casts its buds in consequence of not having sufficiency of heat. If you were to plunge the pots in a mild hot-bed, it would probably flower freely. Pot it, after flowering, in a compost of turfy sandy peat and loam, adding sand liberally, and place it in a moist growing heat, such as that of a vinery at work; and, when the growths are made, afford a light, airy situation. When growing, water liberally; and, in winter, keep moderately dry in a temperature of from 50° to 55° from fire-heat. In February or March, afford an increase of temperature; plunging the pot in a hot-bed, if you have one; if not, keep it well watered, and in a moist atmosphere."

W. H. P., Boston. — When should pansy-seed be sown? — It may be sown either in the spring or fall. Sow in August or September, and transplant into cold frames well prepared, where they can be protected through the winter, and you will get good flowers the next spring. We mean to give an article on pansy culture in some future number.

W. H. R., Baltimore. — The chances of obtaining fine market-fruit by sowing peach-stones and raising the seedlings are very small. If, in a hundred trees, you obtained one bearing fruit as good as the kinds now generally grown, you would be fortunate. If you fear planting diseased trees, and can get good stones, sow the pits, and bud the seedlings with approved kinds, obtaining buds from healthy trees; which, by a little care, you can do.

Your seedlings would not fruit till too large to transplant to the orchard. The peach is a short-lived tree; and, for home use, the true way is to every year plant a few trees, removing those which are old and unsightly.

An old peach-tree is not worth transplanting, even if it could be done successfully.

W. D. P., Newton Centre. — Send us specimens of the cabbage-maggot, and we will identify and report. Meanwhile, try new land for your cabbages.

I have a pear-tree that has been set out several years, that grows and bears well; but there are a good many sprouts, or suckers, coming up about it every year. What is the cause? and what is the remedy for it? — Your tree was probably budded on a sucker-stock; the same as though you should take up some of the suckers about your tree, which have roots, and set them out, and then bud or graft them. They would all have the habit of throwing up suckers. Seedling pear-trees *sometimes* have this habit. It lessens the value of the tree: besides, the suckers are a great nuisance, coming up, as they often do, all over the ground. The only remedy is, if your tree is small, to dig it up, and replace it with a better tree; or if large, and too valuable to be thus treated, cut down the suckers as fast as they appear.

WILL STRAWBERRIES PAY? — The strawberry is one of the most profitable crops cultivated in the vicinity of the large cities; and can even be raised and transported some distance, and then pay better than the majority of crops grown by the farmer. The fact that it requires a large amount of manure, and a great deal of work to weed, cover the vines, pick and sell the fruit, has prevented many from entering upon its cultivation. In Belmont, near Boston, where this fruit has been most successfully raised, the farmers have almost reached perfection in its culture. They dress the land liberally with coarse horse-manure, even at the rate of four to five hundred dollars' worth to the acre, plough deeply, cultivate well through the fruit-season, cover with meadow-hay or horse-manure in the fall, fruit the vines the next year, and then plough them under. By this plan, the largest profits can be obtained; an acre often giving one thousand dollars to the producer, after paying expenses of marketing. The land, after such treatment, is in the best condition for onions, — a crop which is often profitably selected to follow strawberries; or it is in a good state for most any crop except strawberries, which require a change of soil.

It is quite important to have good facilities for getting the crop to market by railroad, express, or, if near the large cities, by one's own market-wagon. Twenty years ago, good strawberries were sold in Boston market for fifteen to twenty cents a box; and it was confidently predicted at that time that the market would soon be glutted with this fruit, and the price would fall below a living rate: but, on the contrary, prices have nearly doubled during the past few years, and the demand far exceeds the supply even at the greatly-enhanced prices. There is little danger that too many strawberries will be grown. It is essential to success that the best varieties should be planted, and that they should receive proper treatment both in the setting and the subsequent management. There is a difference of opinion among good fruit-growers in relation to the profitableness of different varieties; and it is undoubtedly true that a variety which will do well in Massachusetts will not succeed equally well in New York or New Jersey, and *vice versâ*. There are some varieties, that may be ranked as good for market-purposes, that would be found lacking in quality by good judges of this fruit; while some varieties of the very highest quality would fail to please the market-gardener, because they are poor bearers, too soft, turn color after being picked, or are too hard to hull. The Hovey's Seedling is one of the best, and is highly esteemed at Belmont among the best growers. On account of its sex, it requires peculiar treatment; but, when some staminate variety is set near it, the best results can be obtained, other things being favorable. The Brighton Pine is perhaps one of the most valuable varieties for market-purposes, grows freely, bears well, is hardy, hulls readily, good size, bears transportation well, is good flavored, and, take it all in all, one of the best. The Jenny Lind is a good early variety, though not so good a bearer as the Brighton, nor so hardy in vine. The Wilson is a very sour, poor strawberry; but, on the score of profit, a good one for the market. Sometimes it is an utter failure, the whole field blasting, and giving no crop; but, when it escapes this fate, it bears large crops of large berries, matures early, and sells readily. It is a strange fact, that a large majority of the people who eat strawberries and cream (?) at hotels, shops, and eating-

houses, are content with the Wilson. A strawberry is a strawberry with them, whether Wilson's Albany or Boston Pine. While dealers are satisfied to buy, and the people to consume, such berries, the farmer will not be slow to furnish them, especially when he can do it at much less cost to himself than he can furnish the finer kinds. Five thousand boxes of this variety to the acre is not an uncommon crop, and this result has often been obtained with the Hovey's Seedling. Now, this number of quarts, at the prices we have named, would give twelve to fifteen hundred dollars as the proceeds of an acre; from which, deducting a fair price for manure and labor, would still leave a good margin for profit. Larger crops than these are talked about, but perhaps seldom realized. In answer, then, to the question with which we started, we say, Few crops pay better, taking the average for ten years in succession.

Do lightning and thunder have any thing to do with blasting the blossoms of fruit-trees? — No. When accompanied by *heavy showers*, the rain washes out the pollen from the blossom, and thus prevents the fertilization of the germ, without which no fruit can set.

The same effect would follow any rain-storm coming at the time when the trees are in full bloom, whether with or without thunder and lightning. Dry, clear weather, while the trees are in bloom, is the most favorable for a good fruit-crop.

How can I keep my hardy carnations and picotees? I buy good plants nearly every spring, which bloom well the following summer, and die during the next winter. — Layer the grass, and thus get new, fresh plants that will stand the winter with a slight protection. This operation may be performed just after the plants are out of bloom. Bend down the branches, make a long cut, leaving a tongue some half or three-fourths of an inch long, and then draw the earth about it. If the weather is favorable, they will have made roots in four to six weeks, when they can be removed to cold frames, or to the bed where they are to remain during the winter. It is a perfectly simple operation.

Would it be advisable to graft our young thrifty trees of the Windsor or summer bell-pear? — Though the pear named is a poor variety, yet, if the trees are doing well, leave them. The fruit, coming early, sells readily. The tree is hardy, a good grower and bearer, and, like the Wilson's Albany among strawberries, is a profitable variety to grow for market.

Shall I grow Triomphe de Gand strawberries in hills, or beds, to get the best returns? — We answer, In hills, if you want fruit. When allowed to make runners, this variety seems to exhaust itself, and bear but little fruit. Plant in hills, and keep every runner off.

Is it desirable to plant more than twelve varieties of pears in an orchard for market-purposes? — No: perhaps six varieties would be better. Every person who has had experience in planting extensively will concur in this opinion.

Are grape-vines raised from layers as good as those raised from single eyes or cuttings? — The general belief among nursery-men is, that layers are not so good as plants raised from eyes. It is claimed that a plant raised from a single eye comes the nearest to a seedling, and is consequently better. Practice shows no perceptible difference. The roots seem to be better on a single eye-plant than on a layer.

The Editors would apologize for the lack of illustration in the present number, which is necessarily the result of the articles presented.

These are not capable of illustration: but their value is such, that no illustration could add to it; and the reader, we are sure, will recognize this fact.

Several illustrated articles intended for July were not ready at the early day we were compelled to go to press.

A. M., New Bedford. —The native azalea, called wild honeysuckle and swamp-pink, is *Azalea viscosa*. These names may also be applied to the early-blooming azalea, *A. nudiflora;* but not to our knowledge.

There are two other species found in the United States, — *A. arborescens*, a tall shrub, with fragrant, rosy flowers; and *A. calendulacea*, the flame-colored azalea of the Southern States. All these are very ornamental.

The garden hardy azaleas are hybrid varieties of *A. viscosa*, *calendulacea*, *nudiflora*, and *Pontica*. Many of them are very fragrant and showy, and there are double varieties which are very handsome.

They require the same treatment as rhododendrons; similar soil; and, like them, are impatient of drought.

I. A. A., Newburyport. —*Kalmia glauca*, the pale laurel, is hardy; being found indigenous very far north.

The trouble is to keep it; for, even in the soil of a rhododendron-bed, it often dies out. The flowers are very beautiful, resembling a miniature parasol; and come out in early May.

Kalmia hirsuta, the hairy laurel, is a native of the Southern States, and would probably be winter-killed in New England.

NOVICE. — Transplanting annuals does not injure them if the operation is carefully performed in cloudy weather, or the plants are allowed to become used to their new quarters before they are exposed to the sun. This is the general rule; but lupines, larkspur, and many such plants, should be sown where they are to stand, or else in pots, and carefully turned into the border without breaking the ball of earth.

AMONG THE BERRIES.

THE season, throughout the Middle States, has been discouragingly backward; the weather being unusually cold, with a prodigious excess of rain. Two frosts in the first week of May cut off the pioneer blossoms of many acres of strawberries; yet other fields escaped almost entirely. Blight fell upon the careful and cleanly grower, while the slovenly one escaped; for the older beds, wherein the grass and clover had overtopped the plants, suffered less from frost, the grass and clover acting the part of a protector. The later bloom escaped uninjured. Here, at Burlington, we picked ripe berries on the 29th of May; being some days later than the previous year. In this region the strawberry crop is an immense institution, as its collaterals alone will testify. We have two steam-factories running full time in making the small boxes in which they are sent to market, the proprietors of which have found it difficult to keep up with their orders. Probably not less than a million of such boxes are annually made in this city.

One of these factories contains machinery which produces them with marvellous rapidity. A rough log, from two to three feet in diameter, is drawn

up from the river, and sawed into bolts or sections about two feet in length. The bolt, being stripped of its bark, is adjusted in a huge lathe; and a heavy chisel, which reaches across its entire face, being brought up against it as it revolves, it is quickly converted into a perfectly smooth cylinder. Being thence transferred to another lathe, and again made to revolve, a metal cylinder, containing steel punches exactly the size and shape of the box desired, is pressed up against it. The punches penetrate a certain depth into the wood. On the opposite side of the log, a wide chisel being forced up against it, the perforated circumference is shaved off in the shape of a stout veneer, and the complete forms of about seventy boxes fall every minute upon an endless apron, as fast and thick, in fact, as four boys can get them away by the armful. The log is thus unwound, not sawed, until the residuum is a stick of only a few inches in diameter. The machine is a perfect automaton, and consumes log after log with amazing rapidity. The boxes thus cut out are folded together like a pocket-book, with a peculiar combination of interlocking tucks, which keep the box together without a single nail being used. They are made and sold so cheaply, that the fruit-grower can afford to let the box go with the fruit. Nothing but the enormous extent to which fruit-growing is carried on in this region could thus profitably employ an eighty-horse engine in manufacturing what is really a gift-box.

The celebrated Philadelphia Raspberry is now loaded with young fruit. This plant has been thoroughly tested on the two cardinal points of hardiness and productiveness. It passed through the terrible winter of 1865–6 not only unprotected, but uninjured; that winter bringing us the coldest January since the settlement of New Jersey. One grower in this county avers that he has picked two hundred bushels from an acre. Those who see a well-cared-for plantation when in full fruit will be disposed to believe it capable of producing even such an extraordinary crop. The flavor of this berry is good, though not so remarkably fine as that of some others; but the fruit is of good size and color, — a deep purple, — and commands full prices in market. I have never failed in securing from it an abundant crop. The Philadelphia will probably supersede many other varieties, because of its immense productiveness, as quantity rather than quality is the great desideratum with those who grow fruit for market. This plant is

multiplied from suckers only. All attempts, within my knowledge, to propagate from the tips, have failed.

In setting out the raspberry, as well as in the after-cultivation, I have realized surprising results from using the super-phosphates, such as Baugh's Rawbone, especially when in combination with barnyard-manure. I am half inclined to believe this super-phosphate a specific for the raspberry, insuring tremendous canes that need no staking, and a great yield of fruit. Let me here remark, that, in this climate, we never think of protecting either the raspberry, the grape, or any other native plant, from the winter, by laying and burying it.

A new seedling raspberry was originated here some years ago by the painstaking cultivator of a little miscellaneous produce patch of eight acres, now deceased; but the plant still remains in only three or four hands, and these few were permitted to purchase only a few months ago. As it has survived all our late hard winters without protection, its hardiness is assured. I have seen it three seasons in bearing, and eaten of the fruit. The color is a beautiful light purple, and in size it is probably more than double that of the Antwerp. It is a capital market-berry both in appearance and firmness, with the crowning merit of high flavor. It has one disadvantage, — that of propagating itself very slowly, and only from suckers. But it sends up powerfully strong canes, which need no supports. I paid the absurd price of ten dollars each for several plants, so impressed was I as to its value both for private gardens and market-purposes. It is a very abundant bearer; not equalling the Philadelphia in the *number* of berries which one cane will produce, but no doubt yielding as much in *quantity* or *bulk*. In this great fruit region, this berry has been attentively watched by our most skilful horticulturists; and there is but one opinion as to its value. But the two drawbacks of its being a shy propagator, and the absurd price, must keep it in the background. We call it the *Burlington Raspberry*. It originated with the late Benjamin Prosser, who had previously given to the horticultural world two well-known strawberries, — the Lady-finger and New-Jersey Scarlet.

I have an acre of Wilson's Early Blackberry, a plant in which I invested at the savage price of a dollar and a half per root. This berry, like many of the great rarities in horticulture, was discovered by accident. A labor-

ing man named Wilson found it growing in the woods in this county. He noticed its unexampled profusion of blossoms, as well as their having expanded in advance of all the surrounding plants. I discover the same peculiarity on my own ground, as they are in full bloom at least a week or ten days ahead of the Lawton ; the fruit being, in fact, fully set before the Lawton blossoms are generally open, — a sure indication of earliness. From the woods where the original plant was discovered, it was transferred to a garden in which the Lawton had long been domesticated. Here, having an equal chance for sun and air, with the additional advantage of good soil and good care, it developed three strong peculiarities, — extreme earliness, ripening at least ten days in advance of the Lawton ; a profusion of fine large berries, equal in size and quantity with the Lawton, and superior in sweetness ; with the third invaluable merit of maturing its entire crop in about two weeks, while the market-price for blackberries is at the highest. This absence of competitors is of supreme value to the market-grower. With the Wilson's Early, the crop is all converted into cash before the Lawton is at its height, as the latter drags the ripening of its fruit over a period of six to eight weeks, when peaches come in to spoil the price. This slow or long-continued ripening of the Lawton renders it an admirable addition to a private garden, where the family can enjoy a long season of picking ; but something quicker is desirable when one is cultivating acres for market.

My excellent friend Mr. Fuller thinks this plant belongs, to some extent, to the Dewberry family ; and in this opinion I am disposed to agree with him. Its extreme earliness is one point of resemblance, and its fine dewberry flavor is another ; while it has the same habit, during the first year, of trailing on the ground. The latter, however, seems to leave it, as, the second year, it throws up stalwart canes, strong enough to support themselves, and requiring topping like the Lawton. If the plant be really of the Dewberry family, its original habit must undergo beneficial modification by generous manuring, and careful cultivation in the open ground. These divest it of the objectionable trailing feature, but preserve all its valuable qualities while unquestionably increasing its productiveness. So far, the plant has not been generally diffused, as it has been offered to the public only within two years ; but when the price declines to a reasonable

figure, low enough for general cultivation, it must come into extensive demand.

A third candidate for public favor is the Kittatinny, also found growing wild in New Jersey, and also taken by careful hands to the garden, where its merits have been ascertained, and certified to, by those who ought to be competent judges. I am growing it to some extent, but have no personal experience of its value.

Other dawning wonders in the blackberry field are already beginning to lift their glossy heads above the horizon. This heretofore-neglected berry, having latterly taken its place among horticultural staples, is attracting the attention of hundreds of acute and persevering seekers after fresh novelties. Its commercial value has been satisfactorily determined. It fully equals the raspberry in productiveness, and, as a general rule, far outstrips the strawberry. In this section, where the two great city-markets are within a few hours' reach of us, the profit from a well-managed acre will pay for the fee of the land annually. A gentleman within two miles of me, by way of interesting his son (a young lad) in agricultural pursuits, gave him the free use of an acre to cultivate as he pleased. The shrewd boy located a half-acre on one side of his father's barn-yard, and the other on the opposite side. He could thus trundle out a dozen barrow-loads of manure upon his ground whenever so disposed. He planted his acre in Lawton Blackberries; cultivated them himself; and, last year, his gross sales of fruit amounted to six hundred dollars. The year preceding, his clear profit from the same acre was four hundred and fifty dollars. I have walked through this magnificent creation of juvenile care and shrewdness, and must confess that no engineering of my own in the same line has been able to equal it. The contents of the convenient barn-yard told powerfully on the canes, but more powerfully on the quantity and quality of the fruit. The fee of the land, though in the best location, was much less valuable than the annual crop. Within gunshot of this field are ten acres of the same berry, which last year yielded a net profit of four thousand two hundred dollars, — more than the land would sell for.

The father of the lad referred to was engaged in mercantile business in Philadelphia; but he had never realized such profits as he thus saw his enterprising son to be annually securing. The example set before him by

the lad inflamed his ambition to drop some one or two branches of agriculture, and take to raising briers also. He began his plantings several years ago, — for the son has long been harvesting very paying crops, — and has been planting annually from the increase of his own fields, until he now has thirty acres of Lawtons. Last winter, he cut down an apple-orchard of large bearing trees to make room for more briers. The profit from the latter far outstripped the best orchard in the county.

It is thus manifest that the commercial value of the blackberry has been satisfactorily ascertained, in Burlington at least, and doubtless in a thousand other localities. No wonder, then, that we are hearing of new candidates for public favor in the same field. The effort, whether in floriculture or horticulture, is for something new that will pay better than what we already have. Hence the tangled brier-thickets, which line the decrepit worm fences of a thousand fields, are annually searched over by acute and enterprising novelty-hunters for a new blackberry. The woods and the abandoned fields are traversed by others on the same errand. If the superior varieties we now possess were stumbled upon by accident in these waste places of the earth, the presumption is, that as the sea still contains as good fish as have ever been caught, so these will yet be made to yield up to systematic search even more precious contributions to this apparently humble branch of horticulture. *Edmund Morris.*

Burlington, N.J., June, 1867.

Hepatica Propagating. — Early in April, take up the root, and divide it into as many parts as there are crowns: if each division have some roots attached to it, success will be almost certain. Plant the divisions in a situation not overhung by trees, and sheltered from the sun's rays from ten, A.M., to three, P.M.; or shade with a mat placed over them during the midday hours when the sun's rays are powerful. Work into the soil a liberal dressing of leaf-mould, and, if the soil be heavy, of sand also. Plant quite up to and even bury the crown half an inch, and put them in lines six inches apart, and three inches from plant to plant in the lines. Keep well supplied with water until established, discontinuing it and the shading after May.

COLLECTION AND TRANSPORTATION OF ORCHIDS.

As much depends upon the care used in the collection of orchids, and as the most healthy plants may be ruined by careless packing and transportation, a chapter on these subjects may not be out of place. It is easy to collect orchids which grow on the ground or on the lower branches of trees. Those in healthy and vigorous condition should be selected as

CATTLEYA SUPERBA.

offering the greatest chances of exportation in a living state. All which, by their foliage, appear to be of different species, should be collected; for, unless the plants are in bloom, no judgment can be formed of what the flower will be: and the foliage is no criterion of excellence, many orchids with insignificant foliage producing the most gorgeous flowers.

It is not easy to collect orchids which grow upon the lofty trees, where their presence is only known by the brilliancy of the flowers or their powerful perfume. To climb them is almost impossible, on account of the height; and not unattended with danger, because of the poisonous snakes which frequently lurk in the crotches of the branches, or hide in the hollows of the trunk.

The only means of getting them is to cut down the tree, which is by no means an easy task. The wood is like iron, and turns the edge of the best-tempered axe: this, together with the immensity of the tree, presents almost insuperable obstacles to collectors. When, however, the tree has once fallen, the fall dislodges the reptiles which may have harbored there: and the plants can then be collected without danger. The collection, however, calls for care and precaution. If the branches on which the plants are should be broken or rotten, the mass of the plant should be detached, breaking or bruising the roots as little as possible. If the branch is sound, it may be cut on each side of the plant, taking care to leave sufficient wood for its growth on its arrival. It is noticeable that plants, which, in our stoves, are still grown on the same branch on which they naturally grew, are more vigorous, flower oftener, and give stronger spikes of bloom and better flowers, than those which have been changed. Where the plants grow on branches too large and heavy for removal, the bark with the plant attached may be removed, or a portion of the branch sawed off. The roots of the plant should, in every case, be preserved as far as possible, and should not be detached from the bark or wood. The mosses and other little plants which grow with the orchids should in no case be removed from them. They help to keep the plants in good condition during the voyage of importation, and are in themselves often valuable additions to our stove-plants. In this way, many interesting begonias, ferns, and bromelias have been imported.

It is important that collectors should use all possible discrimination in the selection of plants, and, as far as possible, ascertain the character of the flower; though, as we have said, none should be discarded because the flower is unknown. The species most desirable for our hot-houses are those with brilliant flowers; but many with insignificant bloom may be most interesting to the botanist. These should be preserved in herbaria, and notes taken of their peculiarities of growth and location, in order, as

far as possible, to aid in their classification. The points which should be especially observed are the size and the form of the flower; the color of the perianth and labellum; the number of flowers; the height of the flower-stalk; the point from which it springs, whether the base, the middle, or the top of the pseudo-bulbs; the form and disposition of the leaves; the shape of the bulbs and their markings; and, finally, any other peculiarity which may attract attention.

EPIDENDRUM PHŒNECIUM.

The woods or places where the plants occur should be noted, whether more or less shady, warm or cold; the temperature by day and night, and whether wet or dry. All this information is valuable to those who receive the plants, as thereby they are enabled to adapt their culture to the requirements of the plant.

A collection once made should be forwarded as soon as possible. There are many modes of packing, of which the most simple is to envelop the plants in moss, packing them tight in a basket. This method, however,

has but little chance of success, only the hardier orchids surviving the voyage, most plants dying from want of moisture.

They are often sent in wooden boxes instead of baskets, with a few holes bored for air. These retain moisture longer than the baskets, and about a fourth of the plants survive. Importations made in close wooden cases, the seams of which have been tarred, arrive safely if the passage is not very long. Where the plants have been carefully packed, wrapped in moss, the decayed and injured bulbs removed, and the plants placed on open-work of bars running across the case, the results have been most satisfactory.

Where moss cannot be procured, it is better to use shavings than either hay or straw. If the plants should start into growth during the voyage, the young roots would attach themselves to the shavings. The best way, however, to import orchids, is in glass cases.

The larger plants are placed on the bottom of the case, and are held firmly by brass wire. Nails are driven into the sides of the frame and the span roof, to which plants are suspended. All nails and wire should be of brass or copper, as iron rusts. Care must be taken that the plants do not rub against each other, which is easily prevented by securing each one with wire.

These cases must be made perfectly air-tight: all joints should be hermetically sealed. On arrival, care should be taken not to expose the plants too suddenly to the external air. There are many orchids of very small size and delicate growth; such, for instance, as *Comparettia*, *Sophronitis*, *Burlingtonia*, &c. These should be sewed in a mat, and lightly covered with moss. The mat, so disposed as to bring the layers of plants one above the other, is placed in a glass case; and it is seldom that the plants do not arrive in good condition.

When very large masses of bulbs are to be sent, it is better to pack them in a basket, fixing them in position with bars of wood, tying the pseudo-bulbs strongly together, packing moss between to prevent them from touching each other.

The moss used should always be dry: if green or wet, it causes the plants to rot, and almost always destroys them. Before packing the plants, they should be carefully examined. It is necessary to remove all decaying or injured bulbs, and also to dislodge any insects that may lurk among the

plants, and which would, during the voyage, live upon the new roots and young shoots. This precaution is too often neglected.

Orchids should not be packed until the time for embarking them: their stay in the cases is a period of forced repose, and should be made as short as possible. The cases should be placed in a light and convenient place, so that they can be removed on arrival without delay.

The insects most injurious to orchids during the voyage are cockroaches, which swarm in every ship. The benefit derived from hermetically-sealed cases is the perfect safety from these insects, and the exclusion of the salt air, which seems fatal to orchids.

Collectors cannot be too careful in packing plants; for often, by a little carelessness in this respect, the acquisitions of months of labor — treasures of almost incalculable value — are totally lost.

Edward C. Herbert.

HOULLETIA BROCKLEHURSTIANA.

GRAPE-CULTURE.

THE subject of grape-culture seems just now to occupy a pretty large share of the attention of the horticultural community; and if I may judge from the conflicting statements which I see in print, and the various opinions I hear from individuals, I must regard the condition of the public mind upon this question as slightly chaotic. For while many express the opinion that grape-growing is not, and cannot be, made profitable in this country, others as confidently maintain, that, wherever it is followed intelligently and persistently, success is as certain as in any other horticultural or agricultural pursuit. With the latter class I emphatically agree. Although it must be conceded that the two past seasons have been generally unfavorable for the grape, with failures in many places, and only partial success in the most favored locations, I still believe success to be the rule, and failure the exception.

I also believe, that by studying carefully, not only the general habits and requirements of the vine, but also the special wants and peculiarities of the different varieties, and selecting such as are best adapted to the soil and location where they are to be planted, much can be done to avoid failures which might otherwise ensue.

There is no great mystery about grape-growing. The requirements of the vine are comparatively few and simple, though imperative; and, in any suitable locality, the vine-grower who heeds these requirements, and performs his work well, and at the proper time, will be rewarded with success, at least as certain as that which follows the planting of corn or any other farm-crop.

The first requisites are proper soil and locality; next, a selection of varieties suited to the locality. It has been asserted that any good soil that will produce fifty bushels of corn to the acre will also make a good vineyard. As a general proposition, I believe this to be true; and if such soil be well under-drained, either by the natural advantage of a porous subsoil or by artificial drainage, thorough and perfect preparation by deep ploughing, subsoiling, and harrowing, will fulfil all the necessary requirements for planting a vineyard.

The selection of varieties to plant is a matter of more difficulty, and, in the present state of our knowledge and experience, may be regarded as the "vexed question" in grape-culture. Upon this subject I must confine myself to general remarks in the present paper; intending hereafter, in giving the results of my experience and observation upon the various popular grapes now prominently before the public, to present my views of their adaptability to different localities and situations.

First in importance is the selection of kinds whose period of perfect maturity is within the limits of the growing season. Late-ripening varieties in localities subject to severe frost early in the fall would be of no value. So also, in situations where late spring frosts prevail, those varieties which start into growth very early in the season should be avoided. Hardiness against severe winter-freezing is also an important requisite, but, happily, not an imperative one. Fall-pruning, and laying the vines upon the ground, giving a slight covering of earth, enable quite tender varieties to endure the severest winters uninjured; and I believe there is no work done in the vineyard which yields a more profitable return than this, even with varieties reputed as hardy.

Another question of importance is, What kinds of plants are best? Much has been said upon this subject; and various are the opinions entertained and expressed as to the relative value of plants produced from single eyes, cuttings, or layers. Much importance is also attached to the questions, whether they have been grown under glass, or in the open air. Good plants can be, and are, produced by all these methods; and a plant is neither necessarily good nor bad because raised in either way. The natural habit or constitution of a vine is not changed by its mode of propagation. A tender variety cannot be made hardy by growing it in open air, nor can a hardy variety be made tender by being propagated under glass. If a plant be well grown, with abundant, healthy roots, and a proportionate, well-ripened cane, I care not how it is produced, but recognize it as good, and feel assured, that, with careful planting and proper culture, it will yield a certain and generous reward.

The principal objections to single-eye plants arise from the fact, that, as they are usually grown under glass, they are crowded, and not allowed sufficient room for perfect and healthy development, and are two small for ordinary vineyard-culture.

Layered plants are also often objectionable for want of roots proportionate to the tops. From their mode of growth, they have not been hitherto self-sustaining, but have drawn for subsistence largely from the mother-plant; and their large, strong canes are not, therefore, always an indication of what they will perform when started upon an independent and separate existence.

Cuttings are oftenest faulty by reason of insufficient and imperfectly-ripened roots and wood. This arises from the fact, that the roots are usually not formed till late in the season; and, the top-growth being also necessarily late, both are overtaken by winter before they have fully matured.

In selecting vines for planting, I would say, Always get the best you are able to procure, and, as nearly as possible, of uniform size and quality. This is especially desirable in vineyards, as all after-culture is much simplified when the vines are of equal or similar growth, and each requiring nearly the same treatment. And the difference in cost between different grades of plants is usually more than compensated in favor of the best by their stronger growth and earlier bearing; the value of one year's fruit and wood being often much more than the original cost of the vines. Good two-year-old vines, or the first selection of those one year old, if strong and well grown, are, in my judgment, preferable to any others.

In future articles, I propose to give my views of the proper treatment of vines after planting, so as to produce the best results, and also to avoid such failures as arise from erroneous and imperfect culture.

DELAWARE, O. *George W. Campbell.*

TWINING STEMS. — Some, as those of the honeysuckle and black bryony, follow the apparent motion of the sun, twisting round their support from left to right. Others, as the great bindweed (*Calystegia sepium*), twist the contrary way; namely, from right to left. They never change the direction of their twisting; that is, the honeysuckle and others never twist from right to left, and the great bindweed never twists from left to right. If grown in the dark, twining plants lose the power of twining; but directly they are restored to the light, and renew a healthy growth, they resume their natural direction in twining.

AMERICAN GRAPE-GROWING.

THE GREELY AND LONGWORTH PRIZES.

No other branch of horticulture or pomology has perhaps attracted so much of the public attention, and given rise to so much discussion, within the last five years, as grape-culture. And deservedly so; for the advances we have made, the satisfactory results already obtained, warrant the most sanguine hopes of its friends. If we look back only ten years, and compare grape-growing as it then was with what it is to-day, we have every reason to feel proud. Then, only the Catawba was considered worthy of general culture: now we number our varieties by hundreds. Then our proudest boast was that we could produce an imitation of hock from the Catawba in *good seasons:* now we have at least twenty-five varieties which will make *good wine*, of all classes, numbering among them the delicate white wines made from the Herbemont, Delaware, Taylor, Cassady, Cunningham, and others; the pale-red wine of the Concord; and the dark-red wines of the noble Norton's Virginia, Cynthiana, Ives's Seedling, Clinton, and others. We begin to think of staking our vintages against the most celebrated ones of the Rhine, the Moselle, the Neckar; and even challenge the famed Burgundy, Roussilon, nay, even the best brands of Port. American grape-culture begins to know its importance; and, with the characteristic energy of the nation, we still press forward, confident that, in a few years, we shall be able to take our place among the foremost of the wine-producing countries.

But, gratifying as the result undoubtedly is which has already been obtained, and glorious as is the promise of the future, grape-growing is yet in its infancy; and we manifest at every step that we are but beginners. A new variety is brought before the public, satisfactory to its originator, tried perhaps by a few friends in the neighborhood: and at once they go into ecstasies about it; it is *the* grape *par excellence;* should be planted over the whole country; and every one who is not willing to join in its praise is put down as an ignoramus. But their costly favorite travels: it is transplanted into a different soil, different surroundings, and a climate not at

all resembling that of its original locality; and, lo! it does not feel at home; its cultivators here cannot see the excellences which its originator claimed for it; they put it down as an imposition, and call its disseminator a humbug and cheat. This is one instance. Another grape is sent out, with no very great pretensions, except that it is hardy and healthy. It travels, and finds a more congenial climate and soil, and develops qualities of which those who have seen it only under unfavorable circumstances can form no idea. It is tried for wine in its new home, and makes an excellent article: its new friends claim for it a reputation as a *wine-grape;* but those who cultivate it under unfavorable circumstances scorn the idea of *that* grape making a drinkable wine; ridicule those who give but their *actual experience*, and call them humbugs and swindlers. These are instances of two extremes. Do you wish examples? You have them at once in Dr. Grant's Iona and the Concord. For the first, its originator and a few friends claim that it combines all the excellences of the native and foreign varieties; is healthy, hardy, and productive. We will grant them, for the sake of argument, that it is all they claim for it, *with them:* but we also *know here* that the Iona will not succeed; that it is subject *here* to every disease the grape is heir to; and we think that it will not afford us a great deal of satisfaction to grow a grape of very fine quality, when we can get only a few scattering berries of it to ripen, and the balance is swept away by rot, mildew, and sun-scald. Now let us look at the Concord. Its merits at the East and North are only that it is hardy and healthy everywhere, is showy, and a good market-fruit. Its pulp there is tough and acid, its flavor repugnant to many. No one would think of making a good wine out of it there. But, as it travels farther West and South, it ripens more thoroughly, its acid pulp dissolves, our warmer sun develops more sugar in it, its flavor becomes more delicate, we make wine of it which can justly be called *very good*, and its yield is all that can be wished. Is it surprising, then, that it should become the "grape of the million," and that hundreds of acres are planted every year? Yet those who have tasted it only at the East turn up their noses in supreme contempt at the "uncultivated tastes of those Western people," and think, because *we* contend that the Concord is a *good* grape, and makes *good wine*, we are to be classed among the semi-barbarians, and do not know what a good grape is.

Now, this is all wrong; and the sooner we see it, the better. The sooner the eyes of the nation are opened to the plain fact, that grape-growing, and the success or failure of certain varieties, depend upon the *locality* chosen, the more rapid will be our progress. Let us glance at the grape-growing districts of Europe. The famous wine of Schloss Johannisberg, which stands without a rival among the Rhenish wines, is grown on but a very small area, and the product of vineyards scarcely a hundred yards distant is sold for less than one-third the price which the product of that celebrated vineyard will bring. The favored locations on the Rhine have acquired a world-wide fame, while those immediately adjoining are not heard of. And yet some of our grape-growers insist, that, in this country, one variety of grapes, which they have tried and are pleased with, should be the choice of the whole nation. Instead of an area of hardly a hundred miles over which grape-growing in Germany extends, and on which several hundred varieties are cultivated, we have several thousand miles here; and yet we insist (or some of us do) that one grape should adapt itself to all these different locations, and succeed well everywhere. They ask impossibilities, and their just reward is disappointment and failure. It is time that we learned to discriminate; that we began to see that the success or failure of our vineyards depends upon a wise choice of varieties adapted to our locality, soil, and climate. Eighteen years of close observation, devoted to grape-growing, have but tended to make me more cautious every year in recommending any grape for *general cultivation*, until I do not feel quite sure in recommending any variety before the other, even to the nearest neighbor. If the idea were more generally entertained and followed, that each variety of grapes requires a peculiar soil and climate, we should also have more charity for the opinion of others whose experience in different localities may differ materially from our own.

It is because too little attention has been paid to this that the premiums offered by liberal-minded men for the encouragement of grape-culture have given rise to so much dissatisfaction. Those gentlemen, laudable as their object undoubtedly was, failed in it because they asked impossibilities. Let us glance at a few of the most prominent, and see what they require. Mr. Greely offered his prize of a hundred dollars, the award of which, both times, has given rise to so much dissatisfaction and comment; which

prize was to be awarded "to that grape which shall, as far as possible, combine the excellences of the native and foreign kinds. The vine must be healthy, productive, of good habit of growth for training in gardens as well as in vineyards, with leaves as well adapted to our climate as those of the Delaware. In short, what is sought is a vine which embodies the best qualities of the most approved American and foreign varieties. I propose to pay this premium on the award of the fruit department of the American Institute; and invite competition for it at the annual fair of the Institute, soon to open: but, if a thoroughly satisfactory grape should not now be presented, the Institute will, of course, postpone the award till the proper claimant shall have appeared." The committee which first met awarded the prize to the Iona of Dr. Grant. But, as soon as this became known, it raised a storm of indignation; and justly so. To give a grape, which had only succeeded in the immediate neighborhood of its origin, such high, indirect praise, was, to say the least, hasty and premature. It may be even exaggerated praise to say that "it combines the excellences of the most approved foreign and native kinds." Its admirers claim it; but, although it certainly is a grape of good quality, it is, to my taste, not as good as a well-ripened Herbemont grown *here*, to say nothing of the best *foreign* kinds. But how is it as to its hardiness, productiveness, and health? Last summer, it was defoliated *even in Dr. Grant's own grounds, where not grown under glass;* and there are certainly *very* few localities, as far as I can learn, where it can be grown with any thing like success. *Such* a grape certainly does not meet Mr. Greely's requirements. This the second committee undoubtedly saw; and therefore, as honest men, they could not give the prize to the Iona. Mr. Mead says in his circular, lately issued, "It is to be regretted that Dr. Grant did not accept the award as made by the committee who originally had this matter in hand, and thus put an unpleasant controversy to rest." I suppose the reason why the doctor did *not* accept was that he felt that the award was indecently premature; and even he, much as he may be prepossessed in favor of *his seedling*, could not in justice claim it.

The second committee at last awarded the prize to the Concord; and at this award, again, there is a good deal of dissatisfaction manifested. The committee very likely thought, after they had summed up all the testimony,

that a grape which behaved so uniformly well throughout the country deserved the highest praise they could give it. Perhaps they also had some remarkably fine samples of Concord grapes before them, such as we often grow here, and which thousands have pronounced *good enough for anybody* (such as Mr. Mead and Dr. Grant evidently have never seen and eaten, or they could not talk so much of the *poor* quality of the Concord as they do); and they awarded the prize to the universal favorite, — the grape which the million have adopted, and are satisfied with. Perhaps they also judged that the "*as far as possible*" of Mr. Greely was meant for just such an emergency. Committees are placed in a very unpleasant position by such requirements, which I will more particularly consider after a glance at the prizes now before the country again, offered by the Longworth Wine House of Cincinnati. They offer, —

"1. A silver pitcher, two goblets, and waiter, to cost not less than $350, to be given to the *best general wine-grape of our whole country.*

"2. A silver cup, costing not less than $100, for the best grape, for wine-purposes, for the State of Ohio; provided it shall not be awarded to grapes receiving the first premium, in which case it will be given to the second best wine-grape of our whole country.

"3. A silver cup, costing not less than $50, for the best table-grape, for general purposes, in the whole country.

"The plants, when generally cultivated for wine-purposes, should be *perfectly healthy*, *hardy*, and *productive;* and the fruit should produce a *wine* of *good quality* as to *flavor*, *strength*, and *quantity.*"

Now, does any one of your readers suppose that a grape can be found which will justly be entitled to the first premium? Let us remember that it covers the ground of "our whole country, one and indivisible," from Maine to California. Let us glance at a few of our leading varieties, which have already been sufficiently tried for wine-purposes, and see how they would fare when competing for the prize.

The Concord is uniformly healthy, hardy, and productive, — more so than any other grape, perhaps; but, good as its wine is *here*, they will not even admit in Ohio that it will make a first-class wine. How would it be in Maine, or even in Massachusetts, where it has that tough, acid centre, and rank, foxy flavor, which has filled men possessed of highly sensitive

palates, such as Dr. Grant and Mr. Mead, with supreme contempt and disgust? Surely the Concord would have to be banished from the list for "the whole country."

The Catawba. — Surely it could not compete; for it is not "uniformly and perfectly healthy, hardy, and productive," but just the reverse, and will not ripen in the North-eastern States.

The Norton's Virginia. — Healthy, hardy, and productive as that noble grape undoubtedly is *here*, and glorious as its wine is, it will hardly do North; and I would not care much to be regaled with wine from it, grown in a location where the summers are two months shorter than they are here. *So that will not do.*

Ives's Seedling has hardly been tested outside of Ohio, consequently could not "come in," and is, I candidly believe, much overrated even in Ohio.

The Delaware will very likely make a drinkable wine all over the country, *where it can be grown;* but these locations are "like angels' visits, — few, and far between." It is any thing but "perfectly healthy, hardy, and productive;" nor will it make wine of "sufficient quantity." So the Delaware would have no chance.

The Iona has hardly been tested at all for wine-purposes, and is, with the exception of a few localities where it may succeed, perfectly *un*healthy, *un*hardy, and *un*productive; would not stand the ghost of a chance.

The Herbemont will make a splendid wine *here;* is healthy and productive; but would not make a drinkable wine at the North, where it will not ripen, and is not hardy enough to meet the requirements.

Here we have the most prominent of the probable candidates. We have a host of other excellent wine-grapes; but they have not been sufficiently tested, and are perhaps, like the others, only adapted to peculiar localities.

In short, we have *no* wine-grape for the *whole country;* nor do I think it likely that we shall ever have one which will meet all the requirements in *every location throughout this vast territory.* Laudable as is the spirit which actuates these men, and generous as their offer undoubtedly is, they are asking *impossibilities*, and will thereby defeat and hinder the very object they wish to promote. No *committee*, however *competent* and *just*, can make

a satisfactory and just award; and, *if they make one*, it cannot fail to create bickerings, jealousies, and unpleasant reflections on their action. No consideration could induce me to serve on such a committee, because I should be convinced beforehand that no satisfactory result could be reached.

Why not, then, confine ourselves, in our actions, to objects within our reach? Why not fix premiums for certain localities? Let us make more of them, and smaller ones. Let us have premiums for the best white wine, the best red wine, and so forth, within the limits of a State, or several States, but not over the whole country, with a climate and soil so very different. Let us require of every exhibiter to state the quantity made from the acre, and the location of his vineyard. Let us have discussions on the subject, freely and fully, and give them to the public through the press. Thus shall we establish *our* famous locations, have our American *Johannisberg*, *Rudesheim*, Burgundy, and Port, if not in name, yet in quality. I am confident we have grapes already equal to the Riessling, Traminer, Burgundy, and Oporto; but we must not persist in forcing them upon an uncongenial soil and climate. Let us drop the "universal" Yankee when it comes to varieties; but let us make grape culture *universal* throughout the land, by making experiments, and planting only such varieties as are suited to each locality. *George Husmann.*

HERMANN, MO., June 4, 1867.

PLANT-LICE AND SCALE-INSECTS.

AMONG the chief pests of the orchard and garden, as well as the greenhouse, are certain insects of small size and delicate structure, but extremely prolific. The creatures with which I propose to deal belong to the second division of the bug order, or *Hemiptera;* and are characterized, among other features, by a nearly uniform texture of wing from base to apex. These have been associated under the name *Homoptera*, signifying "uniform or similar wings;" while the other division, *Heteroptera*, or "differing wings," includes the squash-bug and its kindred, which have the basal half of the wing generally stiff and shell-like, or horny, and the remaining portion

thinner and flexible. Under the former division are grouped many species of singular diversity of form, but all agreeing in their mode of obtaining liquid nourishment by means of a jointed tube, or sucker, called *haustellum*. So far as is known, all, without exception, are exhausters of the sap of plants: many of the *Heteroptera*, on the other hand, live exclusively on the blood or juices of other animals.

The *Aphides*, or plant-lice, of which several hundred species are described (Walsh enumerates seventy from the U. S. Proc. Ent. Soc. Philad. 1, 31), are usually furnished with two honey-tubes projecting from the upper surface of the abdomen. Through these tubes issue the elaborated juices of the plants on which they feed, in the form of a sweet sirup called honey-dew. Where the lice are numerous, this falls in great quantity, spotting the leaves, and attracting various insects of other orders, as wasps, flies, and moths, to partake of it.

The almost romantic attachment shown by certain species of ants for these little honey-makers, and the care and attention extended to them, are known to most readers. I have watched for a long time with great interest the manœuvres of the ants on the hickory or cherry, which are frequently infested, the former with *Lachnus caryæ* (Harris), the latter with *Aphis cerasi* (Fabricius). These are crowded upon the leaves, some with their beaks buried so deeply as to appear as if standing upon their heads, pumping up the sap, and swelling out their delicate bodies till they seem fit to burst; globules of the sweet secretion continually forming at the extremity of each honey-tube, steadily increasing and dropping; the busy ants running hither and thither, now approaching, and lapping the drops, now rushing with menacing air and open jaws at some eager wasp or fly, who, just arrived, desires to share the repast, and whose conscience would not upbraid him should he devour a few of the confectioners with their own sirup. Should a thirsty ant not find a drop of honey exuding ready for his use, his elbowed antennæ gently stroke the body of the *Aphis;* and, responsive to the touch, the little animal jets out a drop for his friend and guardian. The *Aphides*, which Hartig has separated under the name *Pemphigus*, live upon various roots beneath the soil, and are still more carefully tended by the ants than their brethren of the outer air; for these carry them in their mandibles from place to place, bringing them to the surface to receive the warm rays

of the sun after a cold wet day, and returning them again in fine weather in the same manner as they care for their own larvæ and pupæ. I have frequently observed them in April and May, when turning over stones in search of facts and specimens, and noticed the eagerness and activity of an unroofed household of ants in carrying down into their galleries the little root-lice and their own larvæ with equal solicitude.

Mr. B. D. Walsh of Rock Island, Ill., one of the most accurate and thorough-going observers, has ascertained that the ants also bring home to their nests the young *Pemphigus* from the roots on which they are feeding, even at some distance, and, in one instance, when the nest was situated in a decayed stump over a foot from the ground.

The *Aphides*, as a group, differ widely in habits, and detail of structure, those living upon roots never ascending to leaves or twigs, and *vice versâ*. They are readily recognized by their seven-jointed antennæ, two-jointed tarsi, and honey-tubes. The majority of the larger wingless ones we see are females; and many a keen student is now ciphering at the problem of an ovo-viviparous race of animals, living and producing for more than a dozen generations without males. Fig. 1 represents a common species infesting the white birch; Fig. 1, *a*, the head from the front, with haustellum,

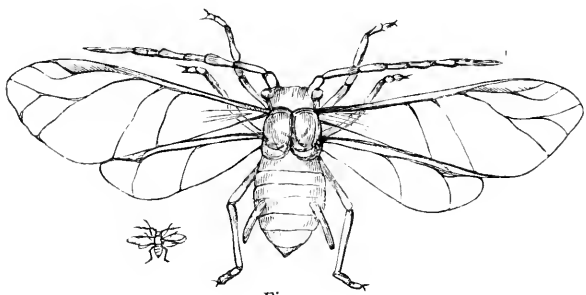


Fig. 1.

or sucker. The color of this species, and of the greater number that I am acquainted with, is light green. The *cerasi* and some others, however, are quite black or very dark colored. All the species are akin in their sensibility to strong soap-suds, tobacco-water, or the fumes of burning sulphur; either of which remedies, as occasion may determine, will be found perfectly efficacious if faithfully applied.

Our best-known representative of the *Psyllidæ*, or jumping-plant-lice, is the species causing what is called the pear-blight. They are distinguished by long thread-like antennæ of ten joints each, terminated by two setæ, or bristles, and their power of leaping many times their own length. When examined under a low magnifying power, they curiously resemble a minia-

Fig. 1, *a*.

ture *cicada*, or harvest-fly. At this date (June 15) they may be found in considerable number upon the young leaves of the pear-tree, in both the pupa and imago stages; and the result of their punctures is already making itself manifest. Persistent syringing or showering the trees with soap-suds is an infallible remedy. Fig. 2 represents the perfect insect or imago of *Psylla*

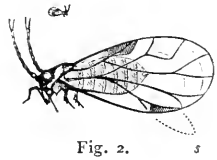


Fig. 2. *s*

pyri (Harris), magnified about ten diameters. The colors are light yellow and black, or dark brown; wings hyaline, save the stigma seen below at *s*, which is yellowish, and the oblong blackish spot on the inner margin of each wing: the antennæ are light, excepting the apical joints; and the feet are varied with blackish. Fig. 3 represents the same insect with the wings expanded; and Fig. 4 the pupa, which is active, and readily distinguishable from the larva by the wing-scales, *w*.

The *Coccidæ*, or scale-insects, sometimes called mealy-bugs, present some anomalous features. As larvæ, they are well formed, furnished with feet, antennæ, and sucker, with the segments of the abdomen well defined. As they approach the adult state, these organs disappear, the distinction of parts is lost, and the animal becomes a mere shapeless mass, finally dry-

ing up altogether, its shell serving to cover and protect its infant brood till they are able to spread themselves abroad on the plant in pursuit of nourishment. The extreme scarcity of the males is marked in this group, few of our most careful students of Entomology ever having met with them. Bewildering are the relationships of their morphology in various stages, as

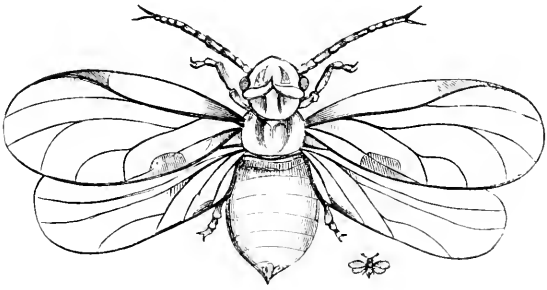


Fig. 3.

in the larvæ of *Dorthesia*, whose regular but extraneous processes of a wax-like substance infallibly suggest the singular lifeless attachments of the larvæ of the hag-moth, *Phobetrum pithecium*, which, strange to say, are left without the cocoon on pupation. The larvæ of some *Aleyrodes* and *Chermes* seem modelled after those of certain libellulæ, or dragon-flies; and the

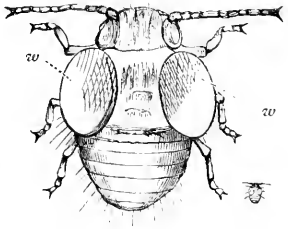


Fig. 4.

male of some species of *Coccus*, according to authors, has only two fully-developed wings, and two long anal setæ, like some *Ephemerides*. The *Coccidæ* are found on various plants, and sometimes in enormous numbers. Fig. 5 represents the most abundant species in Eastern New England, belonging to the genus *Aspidiotus* of Bouché, in which the external covering is not a part of the insect itself, but consists of a substance secreted by it.

This species, called *conchiformis*, or "the shell-like," from its resemblance to a valve of the mussel, infests the apple, and not infrequently other trees. Twigs, as at *a*, are sometimes seen so thickly bestudded with the scales as entirely to conceal the bark: *b* represents the same scales magnified. Fig. 6 illustrates another species of the same genus, — *Aspidiotus furfurus* of

Fig. 5.

Fig. 6.

Fitch, or "the dandruff-scale," where the little brown elliptical shell of the animal itself may be seen overlying its whitish waxy secretions. Fig. 7, *a*, represents the upper, and *b* the under surface of a true *Coccus*, or scale from the grape-vine, magnified five diameters. This species, *C. vitis*, may be found quite abundantly in June and July, between the loose bark and wood

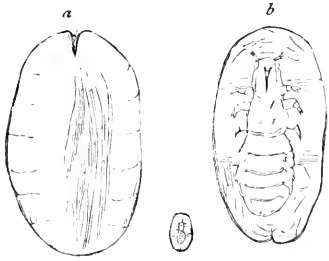


Fig. 7.

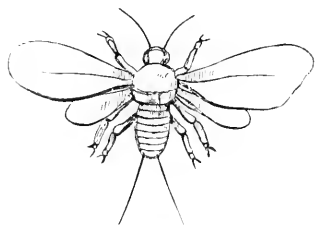


Fig. 8.

of the smaller branches of the vine. The upper surface is often mealy; but, when this coating is removed, it appears of a polished brown, slightly varied with lighter shades: beneath, as at *b*, may be traced the outlines of the head, feet, and abdomen, all very soft, and like a pale jelly. Fig. 8 is the representation of the male of a European species, *Coccus sylvestris*, as given by authors.

The best mode discovered of removing these troublesome insects is the laborious one of going over with a stiff bristle or other brush every branch and trunk attacked, rubbing hard, and occasionally dipping the brush into strong soap-suds or other preparations recommended above.

Francis Gregory Sanborn.

A PLEA FOR THE KITCHEN-GARDEN.

We desire to call attention to this most humble, and at the same time most useful, department of horticulture. We are satisfied that our rural districts are suffering from not appreciating the value of a good vegetable-garden. We should suppose that in the country, where land is cheap, vegetables and fruits would abound; but the truth is, the citizen is far more highly favored in this respect than the countryman. In the neighborhood of cities and large villages, market-gardeners give their attention to these things: the garden is managed with skill, and a great variety and abundance of vegetables are raised, which are furnished to the citizens, much to their comfort and health. But, with the great mass of our farmers, the garden is considered a nuisance, an interruption to the great business of the farm; and consequently their families are treated with meat and potato one day, and potato and meat the next, and so through the year, with an occasional interruption of two or three messes of peas, corn, and beans in the summer, and some cabbages, turnips, and possibly onions, in the winter. Economy, health, and comfort demand that our farming population should give more attention to the raising of culinary vegetables. A good garden will contribute largely to the support of a family. Man was not made to live by meat and potatoes alone. Every production of the garden is good, and should be received with thanksgiving. Americans have a strangely carnivorous tendency. An English laborer is satisfied with his daily ration of bread and cheese, washed down with a mug of ale; and is grateful for a joint of meat for his Sunday dinner. The French and German laborers also live largely on their vegetable soups, and are delighted if they can obtain a hock-bone to give a flavor to their soup, and furnish the oily matter in which the vegetables are deficient. But we in America must have our meat at least twice a day, and very generally three times; and the meat is by no means a mere relish, but forms a principal constituent of the meal. The habit was doubtless introduced when meat was abundant and comparatively cheap; and, once introduced, is continued, though the price has doubled and trebled. We well remember the good old man, that used to supply our father's family with veal, apologizing on

one occasion for asking six cents a pound for it. He had not the least idea of transgressing the third commandment; but he had the habit of using a favorite interjection whenever any thing struck him with astonishment: and on this occasion he said, "Good George! veal never was worth six cents a pound; but I understand it is going at this price." Now we pay twenty-five cents for a pound of veal-steak, and eat more of it than when it sold for six. We hope the day is far distant when the American laborer will be reduced to one joint of meat for his week's allowance. But is there not a golden mean between our extravagant use of meat and the almost exclusively vegetable diet of the foreign peasantry? Economy certainly demands this. It is estimated that it requires fifteen bushels of corn to make a hundred pounds of pork. Now, it is obvious, that, if fed to man directly in the form of "johnny-cake" and baked pudding, the corn would go three times as far in supporting the vital energies as in the form of pork.

Health would also be promoted by a greater intermixture of vegetables in our diet. Meat is highly-concentrated food. It acts on the system much as lard-oil under the boiler of a Western steamboat. It raises the steam indeed, and brings all the machinery into lively play; but there is a limit to the number of strokes each engine can make ere wearing out, and this limit is sooner reached with a rapid motion, and the danger of collapsing the flues is far greater when the steam is up at high-pressure point. The criticism which the English generally make upon us is, that we are a fast nation; and may not our fast habits be attributed in great measure to our meat diet? Should not we wear better if we spent more time in our gardens, and enjoyed more of the products of our labor on our tables? We are no Grahamites, and have full faith in meat in its place, and should be very sorry to have Chinese pusillanimity ingrafted on our American manhood by an exclusively vegetable diet; but we do maintain that we should live longer, and take life more easily, if we took more starch in our food. A person working hard, especially in the open air, may eat his pork and cabbage three times a day, and feel an appetite for it; but let him continue this mode of life a few years, and his vital energies will be found prematurely exhausted. In the summer especially, the juicy, cooling vegetable, rather than the inflammatory meat, should constitute the main bulk of our

food. The unvitiated appetite clamors for fruit and vegetables during the warm season; and it is only by the force of habit that so many are content to live without them. The acid fruits and vegetables serve to counteract the bilious tendency of the summer; and, were the habit once formed of eating more vegetables and less meat, better health and longer life would be the consequence. We have made many a breakfast of bread and stewed tomato, and uniformly felt a clearer head and lither muscle than when we had breakfasted on beefsteak with its bile-producing gravy.

There is solid satisfaction, also, in the care of the garden. It was the primeval employment of man, his normal state; and there is a longing desire in most men to own and cultivate a larger or smaller fraction of the earth; and we should rejoice to see the time when every man could boast of being a lord, a landlord, owning a home of his own, and a garden in which his leisure moments could be profitably and pleasantly spent. There is great pleasure in observing the germination of the seeds sown by our own hand, the gradual development of the vegetables; and, when mature for the table, we can have them fresh, — no small advantage. The partaking of home-grown vegetables has a double zest. It is not the mere gratification of one's palate, but the consciousness that we are partaking of the results of our well-directed skill and energy. The pleasure in raising one's own fruit and vegetables is analogous to that of the Creator, who looked upon the works of his hands, and pronounced them good. The mechanic may also look with pride on his machinery and buildings; but the works of the mechanic do not seem so much like creation as the growth of the mammoth cabbage from the tiny seed. The vegetable grows: the building is made.

The garden is also a school of industry for the children. How the denizens of our cities contrive to find employment for their children out of school-hours has always been a mystery to us. With no garden, no chickens, no pet lambs and colts, how is the leisure time of the boys filled up? But let their ambition be roused in having a neat and thrifty garden, and their attention be called to the laws of vegetable physiology, and "raking among the onion-beds will seem to them but play." Labor becomes a recreation; and health, happiness, and habits of industry, are the result. If every man owned a garden, and kept a cow, the time of himself and children

which now runs to waste could be profitably employed, half of the table-expenses saved, and the comfort of the family doubled.

We commend the vegetable-garden especially to our farming community, by whom we fear it is less valued than by our village mechanics. The farmers, accustomed to their broad acres and cultivators and corn-hoes, think it a puttering business to attend to a garden : and, as a consequence, potatoes, corn, hay, and oats abound for the sustenance of the barn-stock ; but the minor wants of the family are unsupplied. So far as our observation goes, not half of the farmers have an asparagus-bed, and have little idea, that, from a square rod of land, a daily dish of this most delicious vegetable may be furnished to an ordinary family from the 1st of May to the 1st of July. The impression prevails with them, that some little spot must be fenced in as a permanent garden. This is a mistake. The fence is an eyesore in the landscape, an unnecessary expense, and greatly hinders the economical cultivation of the garden. Abolish the fence, and horse-power can be employed in the garden as well as in the field. The currant-bushes, the asparagus, sage, and other perennials, need a permanent location : but most of the vegetables thrive best on newly-inverted sod ; and, with no fence to move, the main garden may be changed by the farmer at pleasure, and beets, parsnips, and strawberries cultivated in long rows, by horse-power, the same as in the field. Such a mode of culture takes away the *petit* look of the fenced garden, and greatly diminishes the expense.

Alexander Hyde.

CYCLAMEN.

Who would think of calling these beautiful flowers by such a name as "Sow-bread"? And yet such is the common name in Europe of one of the most charming species (*C. Europæum*), which, in Middle Europe, is so common, that pigs feed upon it.

The family of the Cyclamen is not large ; but there is not an ugly or ungraceful member in it. Nor, like many floral households, are there one or two ornamental members, and hosts of insignificant poor relations always (as the florist deems it) clad in shabby attire.

The Cyclamen are all naturally handsome, — flowers of which any one would be proud to have a bouquet. Latterly the skill of the florist has added

PERSIAN CYCLAMEN.

brilliancy of color. No power could improve the form of the flower: it is perfection. Admirably adapted to parlor-culture, they have ever been favorites.

The species mostly grown, and those represented in our figure, are *C. Persicum* and its varieties. It is winter-blooming, and flowers and leaves are seen together; many kinds blooming before the leaves appear, which detracts from the beauty of the plant.

The root is a flattish tuber, with a black, rough, wrinkled skin, studded all over with minute knobs: from the top of this proceed the leaves and flowers in a close tuft, or in larger bulbs in several bunches; and from the sides and base, a few roots.

The tubers should be planted in sandy loam in October, placed in a moderately warm position, and slightly watered. When they begin to grow, give plenty of sun, light, and free air, keeping them near the glass. The pots used should be rather small, — about twice the diameter of the tubers, — and must be well drained. The plants should be kept moist, but not wet, and will bloom from February to May. When the bloom has faded, the plants should be gradually dried off, and allowed to rest until the season of repotting. A good way, when the leaves have faded, is to bury the pots, with the tubers, two feet or more deep in the garden, taking them up and repotting when the season arrives.

Seed ripens freely, and should be sown in shallow pans as soon as ripe. It vegetates freely, and seedlings may be forced to bloom in a year: with ordinary treatment, they bloom the third year. A curious provision of Nature is shown in this plant: the flower-stalk, as soon as the bloom is past, curls into graceful spiral coils, and buries the seed in the earth; there it ripens, and then comes forth.

The original colors of *C. Persicum* are white, tipped with purplish crimson and pure white; but the skill of the florist now gives us white, purple, pink, and all the varying shades.

C. Europæum has pink or reddish flowers, on rather short foot-stalks, which are produced in spring before the flowers, and is hardy even as far north as Boston. *C. coum* resembles the last species in flower.

There are other species; but they are rather of interest to the botanist than the florist.

We had almost forgotten to say that the foliage of many of the plants is exquisitely marbled, and the leaves are no less attractive than the flowers.

Glen Ridge, July, 1867. *E. S. R., Jun.*

CRYPTOMERIA JAPONICA. — This a very ornamental, distinct-looking tree. where the plants happen to have assumed a good habit; but sometimes they make only a straggling, naked growth, and have a poor and mean appearance. I have several trees of different habits, and of heights varying from twenty to thirty feet, some very nicely shaded ornamental trees, and one in particular of noble aspect, branched to the earth's surface so thickly, that the bole of the tree cannot be seen without putting the branches aside. This tree, unfortunately, a few years since, had nine feet of its head smashed off by a terrible south-east gale; but by tying its upper branches down, and loading them with stones, it started the second year, a vigorous leader, which has since gone ahead in a most luxuriant manner, putting out its side-branches as it proceeded, so vigorously, that the tree has now almost grown into its natural pyramidal shape, with a bole of four feet in circumference, and a diameter of branches of from twenty-six to twenty-eight feet. It has borne cones for years, and many fine plants of beautiful, close, thick habit have been raised; and even these latter have themselves produced cones.

The cryptomeria is a plant that cones at an early age, and very freely. The cones are about the size of a morello-cherry, blunt, and rather globular in shape. The male catkins are formed in autumn, in great abundance, in the axils of the leaves. The cones first appear at the ends of the branches in the winter months, and are in full bloom in March and April. On a sunny, windy day, the pollen may be seen to fly about as if a dusty bag had been shaken. The cones grow very fast, and soon reach their mature size. They become ripe in September, and are full of seed; but they soon burst open and shed the seeds, which

are small and flattish, of a dull-brown color. The male catkins, when fully developed, are yellow, about half the size and length of a good-sized oat-corn.

Our experience here fully proves that by selecting the seed from well-shaped, fine-habited trees, the plants raised from them will fully maintain the superior habit. It is therefore desirable to propagate only from such as these. — *Florist.*

Slugs and Wood-Lice. — Slugs are best caught by searching for them at night with a lantern. Wood-lice are not easily caught. Their numbers may be considerably diminished by placing a boiled potato in a little hay at the bottom of a flower-pot, and laying the pot on its side near their haunts at night. In the morning, shake the wood-lice out of the hay into boiling water. A number of potatoes may be cut through the middle, the inside scooped out a little, and the pieces placed at night, hollow side downwards, near the haunts of the wood-lice. In the morning the insects will be found secreted under the potatoes, and may easily be destroyed in boiling water. These traps will last a long time. For slugs, fresh cabbage-leaves may be laid at night near the plants eaten; and, early in the morning, the slugs may be found secreted under them. The leaves should be replaced every night by fresh ones.

Pentstemons. — These have much improved of late years. Not only has variety of form and color been secured, but the size of the flower has gone on increasing; and latterly a very great advance has been made by the expansion of the limb segments, which gives to the flowers altogether a bolder character. Some of the new Continental sorts leave the varieties of former years very far behind as regards size and form, while they show also a manifest improvement in foliage and habit. They possess, moreover, what is very desirable in the case of flower-garden plants, — a vigorous habit and hardy constitution. The following varieties are among the cream of the novelties in question, and all first-class flowers: Alfred de Musset, reddish-crimson, with beautifully pencilled throat; Edmond About, scarlet, with large white throat; Georges Sand, bright purplish-lilac, with large white pencilled throat; Indispensable, tinted rosy white, throat veined with rich crimson; John Booth, rich crimson-carmine, with beautiful pure white throat; L'Africaine, white, tinged with lilac-violet, handsome throat; Mélaine Lalaulette, fine delicate rose, fringed with carmine, white pencilled throat, dwarf habit, extra; Pauline Dumont, light rosy crimson, with white pencilled throat; Souvenir de Matthieu Pernet, amaranth-purple, throat white, veined with crimson; Souvenir St. Paul, rich purplish-crimson, with white pencilled throat; Surpasse Victor Hugo, fine reddish-scarlet, with pure white throat, extra.

Rivina Lævis Culture. — This native of the West Indies was cultivated by Philip Miller more than a century since: yet is not so well known as it deserves; for, of fruit-bearing plants adapted for decorating the dinner-table, I would give the preference to it. The plant produces a great number of elegant drooping racemes, four inches in length, of beautiful scarlet berries, throughout the

autumn, winter, and spring months: indeed, its value cannot be overrated. A shilling packet of seed (which we had true from Messrs. Barr and Sugden), sown in April, will produce plants which will fruit well from the following autumn.

The seed readily vegetates in a cucumber-frame; and, when the plants are about an inch high, they should be potted singly in thumb-pots. When well established, they should be shifted into 32-sized pots, in which they will fruit abundantly. In the following spring, if larger plants are required, they may be shifted into 24-sized pots, in which they will produce an immense number of fruit, which is exceedingly useful for garnishing grapes and other fruits, and also for mixing amongst cut flowers for vases. A few sprigs mixed amongst white camellias, white primulas, and other flowers, for bouquets, give a most enchanting appearance.

The soil which the plants require is peat, with a little loam and sand, well blended together; and they may be grown either as standards, pyramids, or bushes. A warm greenhouse or stove suits them best from October till March: and, in the summer months, they will grow well in a cold pit or in the open air. — *John Perkins, in Cottage Gardener.*

A ZONALE PELARGONIUM may now be seen in the garden of the city of Paris, at Passy, which produces rose-colored and scarlet flowers in about equal proportions on the same plant. The rose-colored are like Christine, and the others are of a brilliant scarlet: there are some, too, which may be called intermediate, being of a deep red. On several of the rose-colored trusses, there is here and there a solitary scarlet flower. The plant is a seedling of 1865; and the young plants that are propagated from it maintain the same remarkable characteristics.

We gladly insert the following article. The waste of fertilizing material is very great; and any one who aids in calling attention to the subject, and shows how waste material may be utilized, is a public benefactor.

RUBBISH-HEAPS. — I have generally two or three rubbish-heaps, which I treat differently; and much future labor as respects weeds would be avoided, were they always kept distinct by the workmen. The first or regular rubbish-heap, the never-failing help to the kitchen-garden and the rougher flower-borders, consists of the remains of all vegetables and plants that are useless for other purposes, balls of temporary plants that are of no more use, weeds that are seeding, and, from the lawn, short grass that is not needed for heating-purposes or mixing with litter. By this time of the year, there are generally two such heaps; and much of their future utility depends on the mixing of their constituents, and when, as in the case of much green grass being added, there is considerable heating, on the covering all over with a coating of the most earthy part, to keep, as much as possible, all gases from escaping. This can scarcely be done in the additions that are made day by day, as there will be baskets of this, and barrow-loads of that, thrown down in the easiest emptying-place. If these heaps are near the working-sheds, all work connected with them may well be done between the showers in such uncertain weather as that

which we have lately had. One such heap has, therefore, been finished ; a good lot of grass in a heating state had been mixed with vegetables, weeds, earth, at different times ; and now all such grass available has been added, and the heap has been covered over with the earthiest matter at command. Inside, the mass is fermenting strongly, and little or no gases are escaping ; and, when cut down in winter, such a heap will only be inferior to the best half-decomposed farm-yard-manure.

My second kind of rubbish-heap is one that undergoes the fiery process. It consists of prunings, that, either from their spines and thorns, cannot be handled, or are so small and leafy as to be unfit for furnace-lighting ; as cuttings of ivy, periwinkles, and all sorts of root-weeds and seed-weeds, such as the white convolvulus and the sow-thistle, which would not do to be taken to the above rot-heap, as the roots would just be in the best position for extending themselves throughout the mass ; and if chickweed, groundsel, thistle, had the flower-buds formed and opened, there would often be moisture enough in the stems, and heat enough in the heap, to perfect and scatter the seeds, and not enough to destroy them : consequently, up they would come again when taken out to the garden, and placed near enough the surface for sun and air to act upon them. In such cases, the useless spray comes in well for a fire, on which a great heap of such half-rotting weeds is piled : and when fairly heated, and the heat kept in with old-used earth mixed with the weeds and rubbish of prunings, a large heap of burnt earth and ashes is obtained ; and such, for surface-dressings and keeping vermin at bay, is little inferior to lime. The smouldering of the heap, when fairly started, tends to char instead of quite burning up much of the vegetable matter. The fire is the best means for reducing all such rubbish into little space, and securing from deleterious materials a good dressing for any, and especially strong loamy and clayey ground.

A third heap, but scarcely a rubbish-heap, consists of larger prunings more free from leaves, dried hollyhock-stems, pea-stakes too rotten for further use and for lighting furnaces, for which purpose they are inferior to fresh dry fagots ; in fact, any thing wooden, from small twigs to shoots as thick as the thumb or wrist. These, firmly packed together, may be charred. One of the easiest modes of doing this is to cover the outside with a few inches of large weeds, tree-leaves, or even long grass, or any thing of that kind, and then cover this over with the commonest refuse earth. The rough inside covering prevents the earth falling through into the charring mass, and will be more easily obtained in a garden than a covering of turf, which is next to essential to charring large lumps of wood for kitchen-purposes. To char this twiggy rubbish, much the same process must be gone through as for charring wood for stove-purposes. The charring can only take place when enough of air is admitted to keep up a smouldering combustion without flame. For this purpose, light where you will, the fire will take hold at the top of the heap ; and, when it has taken good hold, it must be securely banked up with earth there, to prevent flame issuing forth ; and a few holes farther down in the heap must be made to let a little air in, to keep up the smouldering combustion. As the matter there becomes charred, the upper holes are shut up, and others made lower down until you

reach the bottom, and the whole is charred, smoke and vapor issuing freely from these holes : but, if ever as much air is admitted as to cause the materials to flare and flame, then the charring is exchanged for burning ; and, instead of valuable charred material, you will have a much less bulky and much less valuable material in the shape of ashes. When charring, therefore, is attempted, the heap must not be long left from the time of lighting the fire to that of removing the charcoal. A slight neglect — the opening of a rent or vent in the covering, so as to create flame inside — will soon, as respects charring, render all the labor abortive. When I practised much of this sort of rubbish-charring, the earth and weeds used in covering were afterwards burned up in the weed-heap.

By these three modes, almost every thing cast out from a garden can be made the most of for useful purposes. — *R. Fish, in Cottage Gardener.*

Dwarf Banana (*Musa Cavendishii*) is the most tractable of the family, as well for fruiting as for growing. Procure a sucker, say in March, as it will then have the summer before it. Supposing the sucker to be three or four inches in height, pot it in a middling-sized pot, say a sixteen or twenty-four, in a compost of peat, loam, and sand, well draining the pot, and potting rather lightly. Do not give much water till the roots have reached the sides of the pot, when the plant should be watered freely. Let it remain in the same pot, and in an ordinary stove temperature, for six or eight weeks ; by which time, if all go well, it will be a good strong plant of two or three feet in height, with well-developed foliage.

The plant is then ready for the fruiting-pot, the size of which, with me, is three feet in diameter at the top, and about two feet deep. The pot should be placed where it is intended to grow the plant, and drained with six inches deep of oyster-shells, charcoal, and crushed bones. Placing the young plant upon the drainage without disturbing the ball more than can be avoided, fill in at the sides of the fruiting-pot with strong yellow loam and rotten tan ; which compost is most suitable for fruiting. The plant will now be ready to be pushed along, and should receive rather liberal doses of liquid manure twice a week, — say four gallons each time, and the same quantity of clear water in the week as well. This treatment, and a temperature of about 80°, not shading more than can be avoided, should, by September, produce a plant eight or ten feet in height ; and, with its beautiful foliage, it will have a very good appearance in the stove, for which it is an excellent centre plant. By keeping it dry for a week or two at this time, it will throw up its flower-spike, which is a beautiful object ; and, as it continues to grow, the rows of fruit will appear overlaying each other. When the first row of fruit is half developed, the watering should be recommenced as freely as ever ; and, with ordinary success, there will be by Christmas a bunch of fruit as long as the arm, or thereabouts, and weighing eighteen or twenty-four pounds, which should be ripe about the end of February, or beginning of March, making a very unique addition to the dessert.

Rhubarb Forcing. — A warm, dark cellar will answer admirably for forcing rhubarb. The temperature should be not less than 50°. Put roots there in

January, and they will produce long before stools in the open air unheated and uncovered. You may pot the roots in vine-pots, or spread a little soil on the floor; place the roots on it, and then cover them with moist soil There is this advantage in forcing rhubarb where it grows, — the roots are but little injured, and may be forced every other year without any great deterioration; whereas, if they are taken up, and placed in a cellar or elsewhere, they are of little value afterwards, requiring more time to recover than is needed to raise from offsets roots of greater strength, and in every way better for forcing-purposes.

SEEDLING GLOXINIAS, AMARYLLIS, AND ACHIMENES. — Gloxinias and achimenes flower the same year the seed is sown. If sown early, say in February or March, on a hot-bed, and grown on in the bed, with liberal treatment they will flower in autumn, but better in the second year. It usually requires three years to bloom seedling amaryllis, and then the treatment must be such as will encourage growth.

DESFONTANIA SPINOSA CULTURE. — The greatest drawback to blooming this plant is keeping it in too close and warm an atmosphere. It requires a cool, airy situation in a light house, a fair amount of pot-room, and perfect drainage. A compost of good hazel or yellow loam suits this plant, — that from rotted turves is the best material for potting; and it then needs no manure: add, however, one-third of well-reduced leaf-mould, and a free admixture of sharp sand. Drain the pot thoroughly, and pot with the neck or collar rather high in the centre of the pot. Keep the plant well watered whilst growing, and at other times moist. It requires about as much water as a camellia. Age is all that is wanted to make it flower profusely.

PROPAGATING HARDY FERNS FROM SPORES. — Choose a pot which a bell-glass will just fit within the rim; place a large crock over the hole; half fill the pot with smaller pieces, and on them place half an inch of moss; then fill the pot to the rim with the following mixture, — viz., sandstone broken in all sizes, from that of a grain to a hazel-nut, sandy fibrous peat, and yellow fibrous loam, of each equal parts, adding to the whole one-sixth of silver sand. Put over the surface a very small quantity of sifted soil, and make it firm by pressing it with the hand. Put on the bell-glass; and, if it fit closely on the soil, it is all right. Remove it, and stand the pot in a pan in a rather shady but not dark part of the greenhouse; for what is wanted is a diffused, though not a strong light. Give a good watering all over the surface through a fine-rosed watering-pot, filling the pan with water. Now take the frond with the spore-cases open; and, holding it over the pot, rub it with the hand on the under side, and a kind of brown or yellow dust will fall on the soil. You may scrape the spore-cases from the back of the fronds; but, if the dust fall so as to make the soil brown or yellow, it is enough. Press the surface gently with the hand, and put on the bell-glass, taking care that it touch the soil all round. Keep the pan or saucer full of water; and give none on the surface except it become dry, which it never ought to do, nor will it if sufficiently shaded, and the saucer be kept full of water. When the

surface becomes green, tilt the bell-glass a little on one side at night; and, as the soil becomes greener, tilt it higher, giving a gentle watering now and then to keep the surface from becoming dry. When the plants have made two or three fronds, gradually remove the bell-glass, and pot off the ferns when they can be handled safely. The pots may be placed outside, exposed to frost; but then the vegetation of the spores will not be so speedy and certain as when the pots are placed in the greenhouse.

PLASTER FOR BUDDING ROSES. — Perhaps the following remarks on budding roses may be of use to some of your readers. I have adopted with complete success a plan which has been new to all those to whom I mentioned it, and by which much expenditure of time and trouble is saved, and, I think, a great amount of certainty obtained.

Instead of either bast or worsted, I use some common adhesive plaster. With this I can bud three roses in the same time that I can bud one with bast. The plaster adheres at once exactly where it is required. No tying is necessary; and the operation can be performed with great neatness and exactness, as well as rapidity. The plaster I used was some common white adhesive plaster, bought at the chemist's (called diachylon), and cut into narrow strips. I do not know whether my plan is absolutely new, but it has been so to all those to whom I have mentioned it; and I feel sure that your readers who try it will find it thoroughly successful.

Another plan, which was shown to me by a lady, has proved so useful to me, and is so little practised, that I think it worth while to mention it also. It is that of budding any convenient branch of a brier, either in a hedge or elsewhere, and, when the bud has taken, cutting off the branch, and planting it with the bud on, like any ordinary rose-cutting. In this way, shapely plants, especially suited for pots, may be obtained; and the plan is very useful if you happen not to have sufficient stocks ready for your buds. I now seldom bud a stock without inserting some additional buds higher up on the branches, which I can afterwards cut off, and plant as cuttings. — *Amateur, in English Journal of Horticulture.*

LILACS IN POTS. — After the leaves have fallen, choose the most dwarf and best furnished plants having a number of flower-buds, which may be distinguished by their being larger and more prominent than the wood-buds. Take the plants up with good balls of earth, and place them in pots of sufficient size to contain them, but not larger than is necessary to admit a tolerable ball. A pot twelve or fifteen inches in diameter will, in most cases, be sufficient. The pots should be efficiently drained; and the soil may be any moderately light, rich loam. After potting, give a good watering, and plunge the pots in coal-ashes in a warm, sheltered situation. The plants may be placed in the greenhouse shortly after Christmas; and, if well exposed to the light, they will flower in due season: but, if wanted to bloom early, they may, in the middle of November, be placed for a fortnight in a house with a temperature of from 45° to 50°, and then transfer them to a heat of 55°. If sprinkled overhead morning and evening, and properly supplied with water, they will come into fine bloom in about six weeks.

PELARGONIUM AND GERANIUM. — The genus Geranium has been divided into three genera, — geranium, pelargonium, and erodium ; but geranium is such an old-established name, that every one is liable to apply it indiscriminately to geraniums and pelargoniums. They all belong to the natural order Geraniaceæ. Pelargonium is characterized by having usually seven stamens, and unequal-sized petals ; geranium having ten stamens, and equal-sized petals ; and erodium having five fertile anthers usually.

RAPHANUS CAUDATUS, OR LONG-TAILED RADISH. — It is a native of Java, and is much used in some parts of India in salads ; and, being perfectly hardy here, it is likely, I think, to prove very useful. It appears to be one of the radish tribe ; but, unlike that esculent, the seed-pods, not the root, are eaten : these are very curious, attaining an immense size in a wonderfully short space of time, sometimes growing five or six inches in twenty-four hours. The pods are usually from two to three feet long when full grown, — some being straight, others curled into the most fantastic shapes. They are of a most agreeable flavor, and, when half grown, can be eaten in the same way as a radish ; which root they greatly resemble in taste, though their flavor is more delicate. It is, however, when the long pods are boiled that they are most delicious, tasting then much like asparagus, with a slight green-pea flavor. They should be served on toast, and will form a most agreeable addition and novelty for the table.

The plant is easily cultivated. The seed should be sown in slight heat about the middle of May, and the young plants, when fairly up, planted out in the open air in good rich soil. No further attention is needed, except to keep the soil well watered in dry weather, and to keep the ground clear of weeds. In two months from the time of sowing, the plants will begin to produce most freely their long pods, which must be gathered young, i.e. half grown, if required for eating raw or for salad. For boiling and pickling, they should be suffered to attain their natural size.

It is called *Mougri* in Java ; and the specific name, "tailed," refers to an appendage of the pods.

ROSES, RAISING FROM SEED. — Take some pots or pans about nine inches in depth, drain them well, and fill to within three-quarters of an inch of the rim with rich sandy loam two-thirds, adding one-third of sandy fibry peat. The hips should be broken, and distributed over the surface from half an inch to an inch apart, and covered with half an inch of soil. The pots or pans may be placed in a warm, open situation in the open ground, plunged to the rim in coal-ashes. Water should likewise be given in dry weather. Some of the plants will, in all probability, make their appearance in May, if the seeds are sown in March ; but very often the seed does not germinate until the following spring. When the plants have made three or four rough leaves in addition to the seed-leaves, take them up carefully with the haft of a budding-knife or some such implement, pot them singly in small pots, and place in a cold frame for a few days, or in a shady situation. In three weeks or a month, they may be planted out in good rich soil ; and by August they will have grown strong, some of them of sufficient strength

for budding. Two stocks may be budded with each seedling. These will make strong shoots in the following year, if the budding prove successful; and these, if left unpruned, will produce flowers in the following or third year. On their own roots, the seedlings will not flower until the fifth or sixth year.

PLANTING CYCLAMENS. — Plant the corms of Cyclamen Neapolitanum in June in pots, and they bloom in autumn; of C. coum in pots in July, and they will bloom in January and onwards; of C. Atkinsi at the same time, and they will bloom in winter and early spring; of C. persicum in August, and again in September, and they will flower from November to April, according to the temperature. Pot the varieties of C. Europæum in spring, and they bloom in summer; and they are the sweetest of all. C. repandum, which blooms late in spring, should be potted in autumn.

RHODODENDRONS FOR FORCING. — The best of the early-flowering hybrid rhododendrons are Russellianum, crimson-scarlet; Wellsianum, bright scarlet; Stamfordianum, rosy scarlet; Caucasicum album, white-spotted; Nobleanum, in scarlet, rose, and light varieties; Perspicuum, white; Campanulatum hybridum, white; Altaclerense, scarlet; and Broughtonianum, rosy red. Varieties of R. Catawbiense: Everestianum, lilac, spotted and fringed; Glennyanum, whitish; Grandiflorum, bright deep rose; Roseum elegans, bright rose; Roseum superbum, deep rose; Purpureum elegans, purple; and Album elegans, waxy-white, green spots. Of the late-flowering hybrid scarlets: Victoria, dark plum; Blandyanum, deep crimson; Atrosanguineum, blood-red; Alarm, white, deeply edged with light scarlet; John Waterer, glowing crimson; Maculatum purpureum, purplish-rose, much spotted; Towardii, rosy lilac; William Downing, rich dark puce, intense blotch; Lefevreanum, purplish-crimson; Coriaceum, white; Brayanum, rosy scarlet, with lighter centre; and Hogarth, rosy crimson. Of the dwarf small-foliaged kinds: Ponticum odoratum and myrtifolium, and R. hirsutum, — all pretty, free-blooming, and sweet.

TAGETES SIGNATA (*Dwarf French Marigold*) is the best yellow bedding-plant. — This plant promises to be a rival to the yellow calceolaria, which it resembles in size and habit; but it is even a more abundant bloomer than that very popular flower. It makes an excellent edging to larger-growing plants; and, for a line in a ribbon border, is equally valuable. The individual flowers are small; but they are produced in such abundance as to clothe the plant completely over, and this not for a week or two, but for three or four months, ending with severe frost. It can be strongly recommended for all purposes except bouquet-making.

DIELYTRA SPECTABILIS FORCING. — Keep the plants in the greenhouse until after they have flowered, giving them a light and airy situation; and, when frosts are over, remove them to a warm, open situation out of doors; plunge the pots until July, and then remove them to a south aspect, and give no water except to prevent the foliage flagging. The plants will go to rest in good time; and, from the time of the foliage decaying, they must be allowed at least six weeks' rest.

To make them flower at Christmas, which is very early, they should be plunged in a hot-bed of 60° or 65° in October, and be gradually withdrawn from it by the end of the month. This will make the roots active. The plants should then be placed in a house having a temperature of 50° from fire-heat; and in a fortnight increase the heat to 55° at night, allowing a rise of 5° on dull days, 10° on those which are cloudy with clear intervals, and from 15° to 20° on clear days. In these temperatures, with a moist atmosphere, gentle bedewing overhead, sufficient but not excessive waterings at the root, plenty of light, and abundance of air on favorable opportunities, your plants will flower by or soon after Christmas; but the bloom will not be nearly so good as on plants started at a later period. If the plants are in small pots, and require potting, do it immediately after flowering, using a compost of turfy loam two-thirds, leaf-mould one-third, and a free admixture of sand. Provide good drainage.

ÆSCHYNANTHUS SPLENDENS CULTURE. — It requires a compost of very fibrous brown peat two-thirds, and one-third very turfy loam broken with the hand; to this add one-sixth each of charcoal, broken from the size of a pea up to that of a hazel-nut, and silver sand, and thoroughly incorporate. Good drainage is essential, not less than one-fourth the depth of the pot. The plant should be trained as a bush, putting in stakes two or three feet in height; and, after the shoots reach that height, allow them to hang loose. Shoots will be produced plentifully from the bottom, and these must be staked; for the plant, so far from being a climber, is of pendent habit, looking extremely well as a basket-plant. Do not stop the shoots, nor cut away any of the old wood, except where dead; but, when the shoots reach the tops of the stakes, allow them to hang loosely as already stated. In spring, encourage growth by an increase of temperature, and a constantly moist atmosphere, being careful not to over-water, and yet afford a plentiful supply whilst the plants are making new growths: but, after the growths are made, keep rather dry at the root, and expose to light and air; for on the well ripening of the wood depends the flowering. In winter, the plant should be kept dry at the root, and have a dry atmosphere. A temperature of 50° in winter is ample, the soil and atmosphere being dry; and, when growing, a temperature of from 65° to 70° by night, and 85° to 90° by day with sun, is desirable. It blooms from the points of the shoots and the axils of the leaves at the upper part of the shoots.

CUTTING IN ORANGE-TREES. — Orange-trees may safely be cut in to the old wood; but it is by far the safer plan to thin out the old wood, leaving the best situated of the young fresh growths of preceding years. From the thinning out of the old wood, more light and air will be admitted, and those left will grow the more vigorously for it. By placing them in a vinery at work after cutting in, or in a house having a temperature of 55° at night, and which is kept moist, they would push more surely and freely. Keep them in the same house until the growths have been made, when a lighter and more airy structure will be preferable. If you cut them in to the old wood, plunging the pots in a hot-bed of 70° would help the trees to break: withdraw them from the bed by degrees after

they have broken well; maintain a temperature of 55° at night, and a rather close, moist atmosphere; and syringe overhead twice daily.

Removing Leaves from Cuttings. — The propriety of allowing leaves to remain on cuttings, or removing a good portion of them, depends entirely on the treatment you are able to give them. Remove not a leaf, say some; and right enough too, if you can so arrange, that by a close atmosphere, shading from sun, you can keep these leaves from flagging, — in other words, force them to absorb rather more than they perspire: then, the more leaves on the cutting, the sooner will roots be formed, and the plant established. Remove most of the leaves, say others; and, if enough are left to keep on growth, the cutting will be longer in striking; but it will require less trouble in preventing flagging from extra evaporation. Generally, the medium mode is resorted to: a few leaves are removed from the base of the cutting, and some of the other larger leaves are shortened, the smaller allowed to remain to keep on the growth. In the case of calceolarias, we generally remove the two leaves at the bottom, or the joint at which we cut across, and leave the others mostly as they are. If the cuttings are made in the end of October, they suffer little from the evaporation of their juices; but, in making cuttings of similar plants in April, it is necessary to reduce the foliage, or shelter them.

Prospects of the Fruit Crop in New England. — The cool weather and late season have proved very favorable for the fruit crop. No frosts have occurred to injure the blossoms or young fruit, and the frequent showers have not prevented the fruit from "setting well." The crop, especially of apples, was very short last year; and it was confidently hoped, that as the trees had enjoyed a long season of comparative rest, and as last season was so favorable to the growth of the trees, and formation of buds, the yield this year would be large. This will not, perhaps, be entirely true; though there is every appearance of a tolerably fair crop, except of the well-known Baldwin, which persists in bearing almost wholly in the even years. The Roxbury Russet, American Golden Russet, Rhode-Island Greening, Seaver Sweet, Hubbardston Nonesuch, and many others, have shown a good bloom; and, on the whole, the prospect is pretty good for a crop of this indispensable fruit. In some localities, the canker-worms still continue their ravages, destroying the fruit, and permanently injuring the tree.

The pears were nearly a month later than usual in blooming, as were all the fruits: but the weather was favorable, and the fruit "set well;" and the trees are full of small pears, giving promise of a very large crop. If nothing unusual occur to prevent, the yield of this fruit will far exceed any crop we have had for several years.

The cherries have advanced rapidly, and give promise of a fair crop. This fruit has not been plenty for three or four years, though it was better last year than for a few years previous: good cherries sold for a high price in Boston market, the very best bringing twelve dollars a bushel. This is not so healthful a fruit as some we cultivate; still it is relished by many. It is reasonable to

suppose, from present appearances, that the markets will be well supplied this season.

Of plums, we can only say that there was a good bloom on the few trees that have withstood the black-knot; and there will, no doubt, be something of a crop. We can spare this fruit pretty well, there are so many that are better. It never was a healthful fruit for one to eat; and it costs more than it is worth to fight curculios and black-knot, in addition to other difficulties, in order to obtain it.

There never was a better show for peaches than there is this season: every tree, large and small, bloomed profusely; and the young peaches look exceedingly well. At this, every lover of good fruit must rejoice; for none is more luscious and healthful. Those who have been discouraged about ever growing the peach again successfully are feeling better at the prospect this season, and have planted more trees. This is right; and the only way is to keep planting every season, and good results will follow.

Of currants, gooseberries, and raspberries, there will be no lack. The prospect for the two former is exceedingly fine. The bushes seem to have entirely recovered from the effects of the severe droughts we have had; and they really appear strong, vigorous, and fruitful, as in former times.

The blackberries withstood the winter well; and though it is too early yet to determine in regard to the fruit, yet there can be little doubt but that there will be a good supply of this berry.

The grapes are looking very well; though they are backward, like every thing else. Plenty of warm weather will bring them up, so that they will ripen probably as early as in years past. The Concords, Delawares, and Hartfords left up on the posts and trellises, came through the winter full as bright as other varieties that were covered. There will be more than enough young fruit, and the vineyardist will be obliged to thin it out to save his vines.

The strawberries never looked better than they do this year. They withstood the winter finely; and, the weather having been very favorable, the vines have grown strongly, and bloomed profusely. If strawberries are not cheap this year, it is fair to conclude that they never will be.

In addition to the above, we observe that there are appearances of a great crop of wild berries; so that it would seem clear, from present appearances, that the markets are to be well supplied with fruit of all kinds this season. We hope it may be so; for nothing is more healthful or agreeable than good ripe fruit.

J. F. C. H.

The Small Fruits in Illinois. — *Wilson's Albany, — the great Market Strawberry. — Picking and Shipping.* — The growing of the strawberry as a field crop has made rapid progress in this State, and is now reduced to a very simple process.. This season, the market in all our villages and cities will be pretty well supplied, and at very reasonable prices.

Chicago is the great distributing point, and along the Illinois Central Railroad are the great fields of supply. A daily fruit-train of five cars runs from Jonesborough — a point forty miles north of Cairo — to Chicago. The cars are such as are used by the express-companies, and carry six tons, or two hundred

bushels, of strawberries each; making, at this time, a thousand bushels daily. These do not all go from Jonesborough; for South Pass and Mallaud are the two largest points of shipment.

The strawberry season lasts from three to four weeks, and is followed by the raspberry, Early-May cherry, and the blackberry; these, in turn, by early apples and potatoes. If you will look over the map, you will see that this fruit-train passes over three hundred miles of latitude: hence you see, that, in a few days, the cargo here will be an assorted one. Now it is almost exclusively of the strawberry, with perhaps a few baskets of the gooseberry and the more early cherries. As the season of ripening fruits makes its march northward, new stations add to the freight; while the later fruits fill up the places left vacant by those passing out of season. At Chicago, the strawberry is not in full bloom; while at this point they are half grown, and the raspberry is just beginning to open. By next week the train will contain more cars, and the freights will be fully assorted.

Chicago will raise strawberries until August, when the peach, apple, and pear will supply its place.

Alton has its fruit-train also, or rather will have it in a few days. Besides these trains, the express-companies carry a large amount of fruit. But this is not all; for, at all the landings on the Mississippi River, the steamboats do a large business. The result is, that the dwellers in the great lumber-forests of the Lake region, and the miners of copper, of iron, and of lead, can have these luxuries at a reasonable price.

The Wilson is the only market-berry, and, if properly picked, will keep nearly a week. In picking, two points are observed: First, To retain a part of the stem with the head: this is done by the picker nipping off the stem with the thumb and second finger-nail. Without this precaution, the fruit will begin to decay in a day or two. When the weather is hot, and the fruit has a long distance to go, it must be picked over to see that none is sent on which the stem is not retained. Second, To pick the berries that are just red, but not too deeply colored.

The box used for shipping holds a quart, dry measure; and is called the "Halleck Box," but is a different thing from the old Halleck Patent. Three forms of the box are made, but all of them so near the same thing, that there is no real practical difference. All claim to be patented; but it is not probable that any of the patents would be found very valuable in law, and it is probable that fruit-boxes will hereafter be sold at a reasonable price. They now cost, for the material ready to be put together, eight dollars per thousand. The boxes are square in form, and are put in crates of twenty-four or thirty-six quarts: the former is the best size to handle. The material for these crates costs, for twenty-four quarts, about fifteen cents; freight, nails, and making, five cents. One boy will put up about four hundred boxes in a day. They are put together with two-and-a-half-ounce tacks made of soft iron, so that they will clinch as they are driven through the thin stuff on an iron anvil of peculiar construction made for the purpose. Cherries and other small fruits are also shipped in these boxes and crates, with the exception of gooseberries, currants, and grapes. The two former go in barrels, and the latter in shallow boxes holding some seven pounds each.

Field culture of the strawberry is very simple. The plants are set in rows four feet apart, and one foot in the row. This requires about ten thousand plants to the acre. A large part of the fields now in fruit have been set much closer; but the above is now the most approved mode. During the first season, they are thoroughly cultivated, and allowed to make all the runners they choose.

At the south part of the State, the late annual grasses give them all the mulching they need; but, in the north part, they must be mulched with prairie hay or straw. In the spring, the mulching, if too thick, is turned from the plants; but it is intended to be put on just thick enough for the plants to grow up through it: this keeps the berries clean, and the soil moist,—a very important item in strawberry culture; for a drought is highly disastrous to the crop.

No attempt is made at culture until the crop is harvested; when narrow furrows are run through one way about three feet apart, and the weeds are pulled out by hand, or cut off with a scythe. If blue grass (*Poa compressa*) or June grass (*Poa pratense*) gets a strong hold, it is better to give up the plantation, and make a new one. In the south part of the State, these grasses are not natural, and, of course, not in the way.

Whatever may be thought of the Wilson at the East, here at the West it is not only the market-berry, but is rapidly becoming almost exclusively the one for family use. Our hot suns appear to elaborate its rich acid juice; and although it may require more sugar than the soft varieties, yet it suits the taste of our people.

The heart-cherries commenced blooming May 1; Early-May, 5th,—dropped the bloom May 19. Apples in full bloom, May 20. Pear and plum out of bloom, 20th. Strawberry beginning to bloom, 10th; bloom killed, 12th; in full bloom, 20th. Purple-cane and Doolittle Raspberry beginning to bloom, June 4. Pear crop moderate; plum crop the same. Early-May cherry, full crop; large English Marvels, the same; other cherries of little value. Gooseberry and currant, partially injured by frost. Apple crop, full. Peach, fair crop. Grapes promise full crop. Season full three weeks late: weather improving.

CHAMPAIGN, ILL., June 5, 1867. *M. L. Dunlap.*

GLADIOLUS CULTURE. — *Bulbs.* — Be sure that the bulbs which you save yourself, or those which you purchase, are thoroughly well dried; and, in planting, reject any that have black spots around and on the base of the bulb. They may be planted in a separate corner of the garden, if you are anxious to save the variety; for such a bulb may produce a tiny offset that may be planted: but it is sure to make a blank in your best bed, if you plant it there. Do not choose, for planting, the largest-sized bulbs, but those of a medium size: they will flower better, and give more satisfaction.

Soil. — Manure highly in the autumn; dig in plenty of old cucumber-frame dung, and let it remain until planting-time, unless there be much frost, when turning it up, and sweetening it by exposure, will be of great benefit.

Planting. — Let this be done according to the season. The end of April, or middle of May, is a very good time. Even if the bulbs have speared a

little, do not be afraid to keep them out of the ground until you have a favorable opportunity. When planting, open the place where the bulb is to be; put in a little light soil, with a considerable quantity of silver sand, and plant the crown of the bulb about three inches below the surface. Let the space between the bulbs be about a foot each way. You will lose nothing by giving them plenty of room: it is more easy to go amongst them. Of course, you may plant them more thickly if you are pressed for room.

After-Cultivation. — Keep all clear of weeds. If the weather is dry for a long time, give copious waterings: they are of great value. Top-dress if you think your soil is not good enough. The effect of shading has not been much tried: I am inclined to think, if judiciously managed, it would be of great advantage. Tie up the flower-stems by placing stakes, and then weaving list in and out amongst them.

Propagation. — You will generally obtain, although not always, an increase of large bulbs, some breaking into two or three: but this cannot be expected from small bulbs; and, indeed, some large-sized ones never break, and only one large corm is again formed over the old one. Where there is an increase in the small fry, what is done with them must depend on the sorts, and the desire to increase stock. If it is a scarce or good variety, my plan is, immediately on taking the bulbs up, to separate the young bulbs, and at once plant them in small pots, using good light soil, and keep them in a cold pit during the winter. This gives them a great advantage, and insures, I think, their starting. If the kind is a common one, and yet increase is wished for, then keep the young bulbs, and sow them in drills, in the spring, like onions; and, if no increase is desired, simply cut them off, and throw them away.

AQUILEGIA FORMOSA. — Several years ago, I received from an English seedsman a packet of seed, marked with the formidable name, *Aquilegia formosa violacea plena*. Of the seedlings which resulted, only one was handsome enough to be worth keeping. This answered to the name, being perfectly double, and of a clear violet-color. It was, moreover, very symmetrical. I sowed all the seed which it produced, and obtained more than a hundred young plants. These flowered in due time. The greater part were like the parent, and equally handsome; but others showed an interesting diversity. Some were of a deep blackish purple, two or three were of a pure white, several were flesh-colored, and others of a light purple. The form was in every case similar to that of the parent, and often quite perfect. I have no doubt that the best specimens of each color, planted apart from the rest, will produce seedlings of the same shape and color. At all events, I shall try the experiment. *F. P.*

MAGNOLIA SEEDLINGS. — It may be worth while to note the time of blooming of magnolias raised from seed. *M. macrophylla*, sown six years ago and twice transplanted, is now four feet high, and just coming into flower (June 12), with one large bud to each plant. *M. glauca*, sown at the same time, is four feet high, and covered with flower-buds. *M. tripetala*, also six years old, from seed, is ten feet high, and bears six or eight large blossoms. *F. P.*

Durand's Columbine (*Aquilegia Durandii*). — The flower of this variety is white, streaked with a bright maroon approaching crimson. It is clearly a hybrid. I saved seed from it two years ago. Some of them were white, and others black. The white seed produced the true Durand; but the black produced a "self-colored" variety, of a uniform maroon-color. All the flowers alike were double, and very handsome. Durand's Columbine is one of the most ornamental of its race. *F. P.*

The New Weigelias. — For most of these we are indebted to Van Houtte, the celebrated horticulturist of Ghent, who has raised seedling Weigelias by the acre. Having tried most of his new varieties, my experience may be of use as a guide to others. He has taken as his parent stock *Weigelia rosea* and *W. amabilis*, of which the former is universally known; and the latter, after extraordinary puffing from nursery-men interested, has deservedly fallen into the background. But, though a rather poor thing in itself, is has given birth, probably with the aid of hybridization, to good offspring.

W. Desboisii (named after Desbois, one of Van Houtte's foremen, who raised it) is a very fine variety, being covered with an immense profusion of flowers, far surpassing, both in number and color, those of *W. rosea;* often hiding the foliage, and wrapping the whole bush in crimson. *W. Stetzneri* is much like it; but *W. Desboisii*, contrary to the experience of Van Houtte, is, with me, the better of the two. *W. splendens* is even more robust in growth. The flowers are remarkably large, and very abundant. They appear to the most advantage in a slight shade. They are marked, like those of *W. Desboisii*, with a deep crimson streak in the throat of the corolla. These three varieties are all of extremely vigorous growth, and partake largely of the habit of *W. amabilis*, from which they are no doubt sprung.

W. Isoline is a very distinct and beautiful variety; for the flowers, when first open, are pure white, though the sun afterwards tinges them with pink. Another white Weigelia, under the name of *W. hortensis nivea*, has lately been introduced, and is now in bloom before me. The flowers, though small, are of the purest white, which remains unchanged under the hottest sun.

There is a dwarf variety of *W. amabilis* with variegated leaves, and also a dwarf variety of *W. rosea* with the same peculiarity. The last is much the best, and is a very striking variegation.

W. striata, *W. Van Houttii*, and several other varieties, are also in bloom here; but there is nothing in them very distinct. The foregoing are much better. I have raised about a hundred seedlings of my own, but rejected them all, as being no better than the parents. *F. P.*

Raspberry Culture. — The cultivation of this fruit seems rather to have diminished than increased during the past five years. Many of the market-farmers are now neglecting it who formerly raised large quantities of this excellent fruit. The reasons assigned are, that it is a good deal of trouble to raise them; that they usually sell at a rather low price, — lower than strawberries, which can be raised at less expense; that they require protection in winter; and that

the crop is not very certain then. Now, it cannot be expected that one can raise any fruit without pains; but the raspberry requires as little care as most any of the small fruits, and gives good results. The fruit comes just after the strawberry has disappeared from the market, and before the blackberry has made its appearance to any considerable extent, and fills up what would otherwise be a gap or break in the succession of summer fruits. The fruit is certainly delicious; second, it is true, to the strawberry, but still good enough for the season; and may be used in every form that the strawberry is used. The Red Antwerp was formerly raised to considerable extent for market, but gave way to the Franconia, which has been the variety principally raised for Boston market. The Knevett's Giant is a very much better variety as respects quality of fruit; but the berry will not bear transportation equal to the Franconia. For home use, it is difficult to find better varieties than Knevett's Giant, Fastolff, and Brinckle's Orange. The fruit of the Fastolff is red, like that of Knevett's Giant, which it resembles somewhat. The color of the Brinckle, as its name indicates, is a beautiful orange; a great bearer, and moderately hardy; though, like all we have named, it needs protection in winter, which is easily given by laying down the plants, and covering with earth.

Some new kinds of great promise have recently been introduced. Judging from the representations made concerning them, —

The *Clarke* is one of these; a red raspberry of fair size, vigorous grower, productive, and quite hardy. Whether it will endure the winter without protection, we are not yet informed.

It is claimed that the Philadelphia is hardy enough to stand the winters without protection. It is a large purple fruit, of pretty good quality. This variety is quite extensively cultivated about Philadelphia.

Among other new ones of which we have heard are the *Ellisdale*, *Surprise*, *Fancy*, *Naomi*, and two or three new foreign varieties. We have no doubt but great improvement is yet to be made in this fruit; that it still remains for some successful horticulturist to originate a raspberry, of large size and excellent quality, that shall prove fully able to endure all ordinary winters. But even now, with what varieties we have, it seems possible to make the raspberry a profitable fruit to raise for the market, as we know it is for home use. It will doubtless be with this, as it has been with many other things, that, in years of great plenty, the price will be low, — perhaps lower than they can be afforded; but this should not at all discourage the grower. We well remember when apple-trees were a drug at twenty to twenty-five cents each, and many were destroyed on the brush-heap for want of purchasers; and yet, within five years from that time, they were very scarce at *fifty* cents each. And so it has been with many other things. And this is true of fruits. Currants sold so low a few years ago, that they were hardly worth picking; and yet, since that time, there has been a very good demand for this excellent fruit. The true way is to lay out to raise a certain amount of fruit every year; and in this way the grower will get the sweet with the bitter, and, in the long-run, will receive an ample reward for all his trouble. Let this course be adopted in relation to the raspberry, and our markets will be better supplied, and this fruit will be seen on our tables much oftener than it

now is. This fruit may be grown pretty well under trees where most every thing else refuses to give any returns ; so that it cannot be called difficult in regard to location. It prefers a cold moist soil rather than a dry one, and, in many locations, is greatly benefited by liberal mulching. Brother fruit-grower, please take hold of this matter of raspberry-growing with renewed zeal and courage.

Culture of Hoya bella. — Of the several species of this genus, none is more worthy of careful cultivation than the subject of the present notice. It requires a free, porous soil, composed of loam and turfy peat, the latter chopped up with the spade, or broken with the hand, but not sifted ; one-fourth leaf-mould ; and as much white or silver sand as will give the whole a grayish appearance. In this compost the plant will grow luxuriantly, and produce its lovely wax-like flowers in profusion. The pot must be carefully and efficiently drained, as a sour soil occasioned by an undue retention of moisture is extremely detrimental to the plant. Bits of broken bricks and lime-rubbish form a superior drainage ; and, if a handful of the latter is mixed up with the soil at the time of potting, all the better.

During its season of active growth, the *Hoya bella* delights in a moisture-laden atmosphere, and a temperature of 70° and upwards. With plenty of moisture in the air, only a very limited supply will be required at the roots ; and hence the moist atmosphere of the plant-stove or orchid-house is that most congenial to the habits of the plant. In a well-managed vinery, however, the plant may be pretty successfully cultivated. If grown in the stove or any other glass structure where a high, moist temperature is steadily maintained, the plant should be removed to a dryer and somewhat cooler atmosphere ; say, one with a temperature of 65°, when the flowers are on the eve of expanding. The blooming season will thus be very much prolonged ; the high, moist temperature of the stove speedily causing the flowers to drop off.

In order to secure a proper ripening of the wood, a late autumn growth should not be encouraged ; but, if the plant has been kindly treated during summer, this important result will, in general, have been pretty well accomplished by the time its blooming season is over. In winter, it should be accorded a dry shelf pretty close to the glass, where the temperature ranges from 55° to 60°.

When grown as a specimen pot-plant, it is not unfrequently trained to a balloon-shaped wire trellis ; and, for certain purposes, it suits very well. It is also occasionally used to cover the end wall of a stove ; but, if we are desirous of showing flower and leaf to the greatest advantage, it should be plunged in a wicker basket of moss, and suspended from the roof of the stove or vinery. It here assumes a semi-pendent habit, and has an extremely graceful appearance.

Almost the only management which the plant requires is to pinch the points of the leading shoots or branches during the growing season, so as to induce the production of laterals, and thereby secure a bushy habit. If this pinching be duly attended to, a severe knife-pruning will rarely be necessary. Early in spring, the plant should be top-dressed or repotted, as may be necessary, and then placed in moist heat, and treated as above directed. It is propagated from cuttings, which root freely in moist heat.

GRAFTING ORANGE-TREES. — From the middle of March to the end of April is a good time to graft orange-trees. The most eligible method is inarching; but whip-grafting will also answer. In the latter case, the stocks should be plunged in a hot-bed of about 70° in the middle of March, and in ten days they will be ready for grafting. It is not necessary to pot the stocks, as doing so only makes them take up more room. The atmospheric heat should be from 50° to 55° at night, and the atmosphere close and moist. Leave on the stalk a few eyes above the graft to draw the sap into the scion. Employ whip or side grafting with a tongue; and, in addition to covering with clay, cover with moss over the clay to keep it moist. The best soil for orange-trees is loam from rotted turfs a year old, with one-fourth well-rotted manure; adding sand according as the soil is light or heavy, so as to render it friable. Keep in heat until the grafts begin to grow; then cut the head off the stock down to the graft, and loosen the matting, covering, however, again with moss; and, after the growth has fairly commenced, remove the plants to an airy greenhouse.

DESTROYING WEEDS ON GRAVEL-WALKS. — Dissolve one pound of powdered arsenic in two gallons of cold rain-water; put it in an iron pan over a fire, and stir until the liquid boil; then add nine gallons of cold water and two pounds of crushed soda, stirring all the while until the whole boil; and then keep boiling slowly, and stirring briskly, for half an hour. Apply the hot liquor to the walks in dry weather by a watering-pot with a rose that will allow of its equal distribution. A good soaking is necessary; but the liquid should not be poured on so long as to run to the grass or box-edgings. The quantity named is sufficient for thirty square yards. It should be applied before the weeds have grown much, — in April or May. To keep it from the box-edging, a board should be laid against this, and inclined, so as to throw any water that may fall upon the board on to the gravel; and the same on the other side next the grass, the boards being supported from behind. Where the walks are wide and extensive, a water-barrel with a tap behind may be used, and a perforated tube to distribute the water; and in this way the work is expeditiously performed. Care should be taken to protect the edging, as already directed. Those employing this liquid should be careful to keep it beyond the reach of animals.

DAPHNE INDICA CULTURE. — Provide good drainage; for, if that is not secured, the plant soon loses its roots, assumes a sickly appearance, and eventually dies. In potting, use a compost of turfy sandy peat and turfy yellow loam in equal parts, with one-sixth of sand intermixed. Care should be taken not to over-pot; for the plant seems to thrive best if rather under-potted: and it should not be over-watered; for, if the soil be kept too wet, it will perish. Allowing the soil to become dry is equally injurious. Do not place the plant in a moist growing heat after blooming, but in front of the greenhouse, where it can have plenty of air, which all the Daphnes require. Placing the plants out of doors in a shady position to ripen the wood is wrong; for plants in the shade can never have the wood ripened; and, the pots being exposed, the evaporation from their sides will dry up the roots, and destroy the delicate fibres of these.

If the pots are plunged, the soil is apt to become too wet at times. For the plant to bloom well, it requires a temperature of from 50° to 55°, and an abundance of air and light after the growths have been made, in order to ripen them thoroughly.

"SALT AND LIME AS MANURES. — To garden soil of the usual staple, about fifty bushels of lime per acre are a sufficient quantity. If the soil be clayey, the quantity may be doubled. A very excellent manure is formed by mixing one bushel of salt with every two bushels of lime. Lime cannot be applied to the soil too fresh from the kiln ; for, if allowed to absorb carbonic acid from the air, it is rapidly converted into chalk.

"When crops are devastated by the slug, dress them some evening, so as to render the surface of the soil quite white, with caustic lime, during the promise of a few days' dry weather. It is instant destruction to every slug it falls upon ; and those that it misses are destroyed by their coming in contact with it when moving in search of food.

"Mixed in the proportion of one bushel of salt to two bushels of lime, it is an excellent manure for potatoes, dug into the soil at planting-time. Twenty bushels of lime and ten of salt would be enough for an acre sown over the surface.

"Salt, applied in the spring at the rate of twenty bushels per acre, has been found very beneficial to asparagus, broad-beans, lettuces, onions, carrots, parsnips, potatoes, and beets. Indeed, its properties are so generally useful, not only as promoting fertility, but as destroying slugs, that it is a good plan to sow the whole garden every April with this manure, at the rate above specified. The flower-garden is included in this recommendation ; for some of the best practical gardeners recommend it for the stock, hyacinth, amaryllis, ixia, anemone, colchicum, narcissus, and ranunculus ; and in the fruit-garden it has been found beneficial to almost every one of its tenants, especially the cherry and apple. On lawns and walks, it helps to drive away worms and to destroy moss."

GOODYERA DISCOLOR CULTURE. — The pot ought to be one-third filled with crocks ; and the compost should consist of turfy or fibrous peat and chopped sphagnum, with a free admixture of silver sand and broken charcoal from which the dust has been sifted out. The sand and charcoal together may form one-third of the compost. If cocoa-nut refuse can be had, it may be used in place of the sphagnum. The goodyera should be potted when it recommences growth ; and water must be somewhat sparingly given at first, but increased with the growth, abundance being afforded both at the root and in the atmosphere when the plant is growing freely. In potting, press the compost firmly. Free ventilation should be given day and night ; and a temperature of from 60° to 85° in summer, and from 45° to 50° in winter, will suit it. It should be shaded from bright sun. When at rest, but little water is needed ; yet the plant should not be allowed to suffer : it should have a little now and then over the pot, — a gentle bedewing to keep it plump and fresh. Avoid cold currents of air ; and do not allow cold air to come in contact with the leaves whilst wet, as they may thus become discolored.

DWARF POINSETTIAS. — There is, perhaps, no inhabitant of a stove, in winter, of such striking beauty as *Poinsettia pulcherrima*, with its terminal disk of spreading bracts of the most glowing scarlet; but it has one great drawback, — the shoots always grow to an unsightly length before the bracts are formed. Having kept the store-plants in a greenhouse during the summer that the growing wood might be hardened, cut off, at the beginning of August, about six inches of the tip of each shoot; thrust the cut end into dry silver sand to stop the bleeding; and immediately strike them in silver sand, taking special care to prevent the leaves from flagging. Bottom heat may be used, but is not necessary. By the first week in November, when they have attained from eight to fifteen inches in height, they will begin to display the scarlet bracts.

Of course, the best tops must be selected for striking; and the process might, perhaps with advantage, be delayed to the middle of August.

MESSRS. EDITORS, — In reply to your question in the June number of the Journal, "Can any nursery-man furnish trees of this beautiful species?" (*Celtis occidentalis*,) I would say that "I am the man," and can supply a reasonable demand. There is such a slight difference in the two species, that I am inclined to think they are generally confounded.* The *C. occidentalis*, with us, hardly makes a tree; whilst the *C. crassifolia* makes a low, very spreading one, — often reaching sixteen inches diameter of trunk. Probably Mr. Fuller does not know the latter, when he says of the former, page 136 "Forest-tree Culturist," "A small tree, of no particular value or beauty."

I have noticed the large annual deposit of wood to be sometimes as much as a half-inch in thickness.

I was under the impression I had inserted it in my catalogue sent you in May, but, on reference thereto, find I was mistaken. It *is*, however, *in the nursery*. Yours truly, &c., *Edward Tatnall.*

WILMINGTON, DEL.

CURCULIOS AND COAL-TAR. — Having read a statement some time since, that corn-cobs saturated with coal-tar, and suspended from the branches of plum-trees, would keep the "little Turk" away from the plums, I resolved to try the experiment. By the way, is he or she a Turk because his or her device is always a crescent? But, leaving the question of ethnology for the present, I will give the result of my experiment.

I procured a keg of coal-tar, and a quantity of cobs, and, after tying a string around each, put them into the tar, and repaired to a favorite plum-tree, prepared to carry the war directly into the enemy's dominions. I first spread sheets under the tree, hammered and shook the rascals out, and gave them the most affectionate treatment. Then, after much tribulation, arising from the fact that the vile stuff would keep dripping from the cobs, and would get upon the strings, reducing my hands and person to much the condition of the cobs, I got them suspended: I mean the cobs, not the hands or the person. I also tied a newspaper loosely around the body of the tree, and smeared it also with the tar; then set the keg at the foot of the tree, to heighten, as far as possible, the effect

* Prof. Gray considers them only varieties, and is doubtless correct.

of the performance; and retired from the field, feeling in several respects as though I had been and *done it!*

After some hours, I concluded again to visit the scene of operations, and found the whole region suggestive to the olfactories of as vile an odor as it was ever the lot of man to inhale; and, while noticing the artistic effect of the dripping tar upon the leaves and fruit, I observed a queer-looking gray excrescence upon one of the half-grown plums. A nearer view revealed the appalling fact that it was a CURCULIO, "pegging away" at his favorite pursuit, as much at home in the vile atmosphere around him as if it were the spicy breezes wafted from "Araby the Blest"! Need I say, I left the scene in disgust, feeling that coal-tar as a remedy against curculios was a failure?

DELAWARE, O. *George W. Campbell.*

WINTERING CANNA-ROOTS. — After a frost, take up the roots, and store them in sand in a place secure from frost. Pot them in February, and bring them forward in a gentle hot-bed. Harden them off in May, and plant out in June. If you have a greenhouse, and can find room for them, take up the plants, and pot them in sandy loam; but do not cut off the tops until they decay. A temperature of from 45° to 50° is suitable. They may also be kept dry until the middle of April; then planted in a frame, started into growth, and planted out about June 1. The different species differ much in hardiness. None will bear frost; but some perish if chilled: of these we may mention *C. Nepalensis*, *Anneii*, and *discolor*, which need the warmest part of the cellar, and even then are preserved with difficulty.

C. Indica, *Acheras*, *gigantea*, and *limbata* are among the hardiest and most easily kept.

There is little dependence to be placed on the names given to any cannas by florists. Imported species are very often wrongly named, and the error is perpetuated. An article from some one familiar with the subject, describing the different species, would be a public benefit.

No reliance can be placed on imported seed.

Many of the *Eupatoriums* — North-American, European, and tropical — have been employed as medical agents for ages, and at one time were alleged to be gifted with marvellous powers of healing. Swartz found a species, which he named *Eupatorium nervosum*, in the highest mountains of Jamaica, where it is locally known as "bitter-bush," and was there employed, it is said, with great success as an antidote against cholera. The physicians on the island consider it a most reliable medicine in cases of typhus-fever and small-pox. This, and another plant from the same island, are about to be tried in this country as medical agents. The other plant is *Croton humile*, which Endlicher mentions is used in the West Indies in medicating bottles for nervous weaknesses. Its sap is pungent, and pieces of the shoots are sometimes masticated to remove relaxations of the throat.

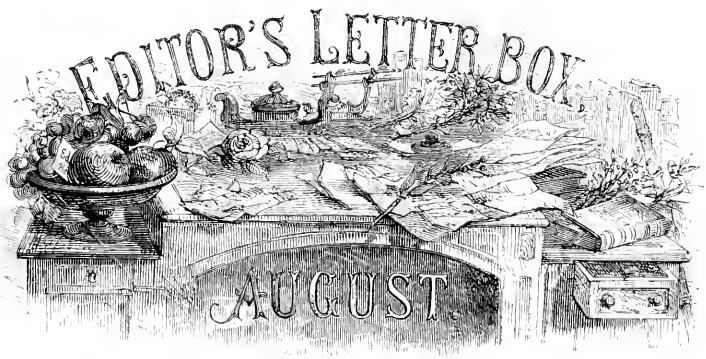
Our common thoroughwort (*E. perfoliatum*) is a well-known remedial agent, and is in much repute as a domestic simple.

RETURN OF VARIETIES TO THE ORIGINAL TYPE. — A growing interest is noticeable in tracing the changes in varieties of plants, and in determining the influence of the stock, of culture, climate, age, and other conditions, upon the character of individual plants. As a rule, seedling varieties perpetuate their character with surprising uniformity. The Bartlett Pear may be grafted on the thorn or mountain-ash or quince or apple or wild-pear stock ; yet, in all the intermingling, it will preserve its true type. It is a common remark, that the St. Michael Pear has deteriorated. The expression is incorrect. Give the St. Michael its required conditions, and it will to-day prove that there is no taint in its royal blood. Climates change, soils become exhausted, diseases creep in, and varieties may languish ; yet they do in these varying conditions, to a remarkable degree, though not invariably, preserve their individuality. Many kinds of plants are noticed as sending out sporting branches. The habit of growth, the foliage, the fruit, of a particular branch, may be peculiar. A single limb of a scarlet maple may preserve a remarkable brilliancy year after year. Some shoots of the variegated geraniums, euonymus, sycamore-maple, or horse-chestnut, are unusually distinct. In many instances, this sport of the parts of a plant may be perpetuated ; yet the rule is, to return the sport to the general character of the parent variety.

A sporting branch differs in principle from a sporting seedling, and we may reasonably expect the history of the two will be different. It is desirable that facts in regard to changes of varieties should be recorded until sufficient data are collected to guide us in our reasonings.

I notice a marked case of variation in the ring-leaf willow (*Salix annularis*), on a tree now standing on the estate of L. Baldwin, Esq., in Brighton, Mass. The tree may be twenty years old, thirty feet high, and twenty inches in diameter. With a single exception, it in no way differs from the usual and very peculiar appearance of the ring-leaved willow. Twenty feet from the ground, a single branch starts from the under side of a large limb, which, on account of its peculiarity, has been allowed to develop beyond the proportion of the rest of the tree. This branch has sported clear back to the original type, the *Salix Babylonica*. In looking at the tree, one would say it has been budded ; but Mr. Baldwin's testimony, and also an examination, make it clear that this is not true. Though this branch, which is now from twelve to fifteen feet long, and from two to three inches in diameter, has not a trace of the peculiar characteristic of the ring-leaf, but is in all respects like the common weeping variety, yet I cannot doubt it is a sporting branch, which, though drawing its life from its mother trunk, has, notwithstanding, lost its own nature, and regained the characteristics of its grandparent. I shall be interested to learn whether cuttings from this branch will show any disposition to revert to the true type.

At present, no part of the branch, though quite extended, shows any variation from the *Babylonica*. *W. C. Strong.*



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.

A. E. R., Roxbury, Mass. — I planted, a few years ago, a Rogers's No. 15 grapevine, and trained it up to a post. It has made a great deal of wood each year, but has failed to give good bunches of fruit. What is the cause? — Most of the Rogers's Hybrids are very rampant growers, and need and must have room, and will not bear the severe pruning and cramping that slower-growing or feebler varieties will. Give it room, you will get plenty of fruit.

GREEN GAGE, Dorchester, Mass. — There is no reason why you cannot grow plums if you are willing to take the pains. The only reason the plum-trees have died out is the sheer laziness of horticulturists. Procure healthy trees (Ellwanger and Barry of Rochester, N.Y., have them). Do not give too rich a soil. Cut out black-wart, and burn all diseased branches, and, for a month in spring, lime and jar the trees for the curculios, and you will have good fruit in spite of the croakings of your neighbors. Dwarf trees are more manageable than standards, and give as much fruit in proportion to their size. They should be well headed in, and severely pruned, to promote the formation of fruit-spurs. All unripe plums falling from the tree should be gathered and burned, as should also any apples and cherries : each one, probably, contains a curculio-grub.

VIATOR, N.Y. — Can the appearance of old shrubs be much improved by heading in? and would it be best to follow this course rather than to dig them up and plant younger ones? — Yes, very much. Clip them as you would a hedge, and they will soon form a symmetrical head, and give a profusion of bloom, if flowering shrubs. Unless the plants are very old, it is much better than to dig them up.

S., Boston. — A good edging or border for a flower-bed may be formed of many plants. The great objection to all, however, is that they require resetting at least as often as every third year.

The common garden pink is neat, cheap, and pretty, and fulfils your requirement of being "about six inches high, and flowering."

The common thrift (*Armeria vulgaris*) is an easily-managed and neat edging. Any little piece will make a plant if planted in spring.

The best way to make the edging is to procure some old clumps in early spring, pull them to pieces, and set the plants about four to six inches apart along the line of the border : by midsummer, the plants will touch, and the edging will need no care for two or three years. Then the plants will die out in the middle ; when they should be taken up, divided, and the edging reset. The flowers are pink, plentifully produced in little heads in June. *Campanula carpatica* is a pretty little blue-bell, which might be employed with effect ; as also the white variety.

The variegated day-lily (*Funksia Sieboldii*) is very showy, and forms an elegant and most effective edging ; but, like all variegated plants, its colors deteriorate towards midsummer.

The hepaticas make a charming edging, brilliant in blossom in spring, retaining their foliage in good condition well into the autumn. The best are the double red and blue : but they are scarce ; and, if any number are wanted, they must be imported.

The dwarf blue iris (*I. pumila*), and indeed all the low-growing species, do well as edgings, and bear cutting well.

Annuals are of little value, as they last in perfection but a short time ; soon becoming ragged. Dutch bulbs look well in early spring, but are of little use at other seasons.

ALTON HORTICULTURAL SOCIETY. — We are in receipt of the report of the May meeting of this energetic and flourishing society. The plan of meeting at the residences of the members, and practically studying horticulture, is one which, if generally adopted, would much increase the interest in the cause, as greater emulation would thereby be excited.

It is a friendly rivalry in the study and practice of horticulture which provokes to increased exertion, and aids the good cause.

WILSON. — You are perfectly right in planting the Wilson Albany Strawberry: there is no one variety, which, as a standard sort, will give you more satisfaction. It is thoroughly hardy, an enormous bearer, and stands drought as well as any you can grow. In flavor, the berries are not up to the standard, and they need more sugar than many kinds; but you can grow twenty berries of Wilson where you will get one of any other kind, and the berries will average large size, and the first one be very large. As a market-berry, its dark color is against it; yet from its firmness, which renders its transportation easy, it will always be popular and salable, and its great productiveness renders it very profitable. It is worth, for general culture, any dozen of the new varieties with high-sounding names, which may do well in England or France, but which are totally unsuited to our climate, and many of which, if you pare off the red skin, have a white berry, with no more taste than a raw turnip.

Plant the Wilson, and do not be frightened by the denunciations of learned societies or amateur fruit-growers.

E. L. M., Syracuse, N.Y. — You can grow some ferns in rooms most successfully; but they are only the more common kinds. Many of the more delicate and beautiful require constant moisture, and some a very high temperature.

The chief difficulty, however, in fern-culture in the parlor, is the want of moisture in the atmosphere. Where a house is heated by a furnace, the air is often thoroughly dried and burned up, from passing over surfaces of heated iron; and, in such an atmosphere, ferns will not grow. If evaporators are used, more moisture is obtained. Heating with steam gives a moist atmosphere; and, by means of open fire-places, a healthy amount of moisture is obtained. Close coal-stoves are, if possible, worse than furnaces.

We have grown *Pteris hastata*, *P. Cretica alba lineata*, *P. serrulata*, and several kinds of maiden-hair (*Adiantum*), in perfection, in china fern-pots on the centre-table; and plants set out last November are improving every day. The great secret is to secure good drainage. Perhaps, however, a Wardian case would be more satisfactory for your purposes.

C. E., Alton. — There are many ornamental flowering-shrubs that will answer your purpose. Lilacs, syringas (*Philadelphus*), weigelia, deutzia, *Cydonia Japonica* or Japan quince, and the many shrubby spireas, the dwarf magnolias, fringe-tree, smoke-tree, all fulfil your requirements; and, in planting any, you cannot go far astray. If you wish more particular directions, state the exposure and situation more fully.

VIOLA, Worcester. — How can I secure a fine bed of pansies of various colors? Will they live and do well out doors over winter? — Buy the very best seed you can get, no matter what it costs, and sow in August or September, and transplant in autumn into cold frames, or into beds in open ground, and cover through the winter with coarse hay or evergreen-boughs. When they bloom, select the finest, and transplant by themselves; and save the seed of these best flowers, and thus you will secure a select stock of this interesting flower. We have a small bed that stood out all winter, with slight protection, from which a thousand blooms can be plucked any day.

I. N. C., Auburndale. — Double-flowering peach. There are several varieties, the flowers varying in color from pure white to deep pink. They are not to be recommended for ornamental planting in New England, because, like the common peach, the flower-buds are apt to be winter-killed, and the flowers are what make the plant desirable. The trees themselves, like all peaches, are not graceful in growth, and are short-lived. These double varieties sometimes produce fruit, as many of the flowers are only semi-double. There is a fine weeping-peach, known as "Reid's Weeping Peach," which is very ornamental. The tree is of very graceful growth, the flowers large, rosy, and single. This should be budded at least eight feet high to show to the best advantage. The fruit of all these ornamental varieties is worthless.

A fine variety of almond, with large double red flowers, as hardy as the peach, and far more showy, may be procured from florists under the name of *Amygdalus roseo flore plena.*

MORELLO, Auburn, N.Y. — Your letter is but one of many received on the same subject. As you say, Mr. Elliott, in an early number of "The Journal of Horticulture," especially recommends the morello stock for dwarf cherries.

On writing to Mr. Elliott, however, we can obtain no reference as to where these stocks can be found. Nursery-men can furnish dwarf cherries on mahaleb stock in plenty, but none on morello; and the morello cherries are even worked upon the mahaleb. We do not take it that the morello stock is a new discovery; and, if as valuable as represented, it is strange that no nursery-men have them for sale. Our cherries are worked on mahaleb, and thrive to our satisfaction.

TRY AGAIN, Worcester. — The Early Purple Guigne is one of the earliest cherries, and is very sweet and good. In favorable seasons, it comes in about the 20th of June. Your trouble with birds is an old one, and your experience is not peculiar. Try growing cherries on dwarf trees, and cover with nets when the fruit begins to ripen. As to robins, if you are not afflicted with the sickly sentimentality of robin-redbreasts, get a good gun, and shoot them: they make a very good pie, and do far more injury than any possible good in the garden. The only objection to the shooting is that the noise of the gun frightens away other birds, such as wrens, sparrows, and linnets, which are worth all the saucy thrushes ever hatched. If you dine from robin-pie, you may have cherry-pie and cherries for dessert.

HENRY, Detroit. — We have not succeeded with the Northern Spy Apple as a dwarf. The trees grow well; but we get no fruit. The variety is of peculiar upright growth, and may be known as far as one can see it. It blooms and leaves out at least a week later than other apples.

It does not seem to us suited to the paradise stock. In fact, as an apple, it is not profitable for general planting, as it is very late in coming into bearing, and rots badly at the core.

One Gravenstein, Hubbardston Nonesuch, or Washington, is worth a dozen of it.

IDEM, Boston. — The small ants in the garden, unless very numerous, will do no injury. We have often seen plants thriving in the midst of a city of ant-hills. The ants do not disturb the roots, nor do they feed upon them. Their food is both animal and vegetable; but the latter portion is usually small seeds and grain. If you wish to get rid of them, sprinkle Peruvian guano over the holes: a very few applications will drive them away.

I. H., N. Hempstead, L.I. — The Tartarean Maple is a very pretty tree, and generally succeeds very well. It is perfectly hardy. We do not, however, consider it as one of the best of the family for universal planting, as there are many better and more ornamental. If you give yours the ordinary treatment of ornamental trees, there is no reason why they should not thrive.

DITTO. — Your experience with *Tritomas* is by no means peculiar; but you need not have covered so deeply. Throw a few bushels of dry oak-leaves over each plant the last thing in the autumn, and protect the crown of the plant from wet, and they will stand the winter perfectly. Even young seedlings survived last winter with us.

A. C. B., Pittsfield, Mass. — The varieties of *Gladiolus Gandavensis* are not properly hardy; though we have had some even of the fine varieties, such as Mars, Isoline, and Rebecca, stand out uninjured. The safest way is to house them as you have heretofore done. *G. Natalensis* and the type *Gandavensis* are precariously hardy, sometimes surviving, oftener being killed.

The hardy gladiolus, so called, are *G. communis* and *Byzantium:* these are planted in the autumn like Dutch bulbs, come up in the spring, and flower in June. They are not very ornamental.

VIOLA. — You are right. The coloring of the leaves is not produced by frost: it is only the ripening of the leaf. Frost is injurious to the beauty of the autumnal foliage; and, when severe frosts come early in October, our autumn scenery loses half its charm, from the absence of softer coloring and delicate dyes. A woodbine or Virginia creeper in a dry soil will often ripen its leaves, and perfect the most gorgeous colors, early in September, when the same plant in a damp situation will retain its leaves perfectly green until shrivelled up by the severe frosts of November.

ANNUALS, Kennebunk, Me. — Plant portulaca all over your bulb-bed, and it will sow itself, and come up year after year. The roots do not go deep enough to injure the bulbs, nor do they exhaust the ground. When killed by the frost, clear off the plants, and give a top-dressing of well-rotted manure previous to covering the bed for the winter.

If you get a good strain of seed, you will have a bed shining with the most gorgeous colors.

IDEM. — *Tagetes signata pumila*, a dwarf marigold, is the best yellow bedder. Calceolarias are very pretty; but they do not stand our sun, and soon grow ragged.

HENRY, Hartford, Conn. — Your tree is *Virgilia lutea*, sometimes called yellow-wood; one of the rarest and most beautiful of our indigenous trees. It is a native of the Middle States. It grows rapidly when in a congenial soil, but seldom blooms until quite large.

Can good crops of strawberries be obtained next year from beds set out in August? — It depends somewhat upon the weather when the plants are set. If the weather should prove very dry, the plants would not get a start so as to produce much next year. We have lately seen a very fine crop of large fruit produced from plants set last August. We planted, last year, the 10th of July, and secured an excellent crop this year. We generally prefer spring-planting.

SUBSCRIBER. — At what time in the year should fruit-trees be pruned at the root to make them produce fruit in place of rank growth of foliage, the trees being principally pear-trees? — The work may be done in autumn after the trees have shed their leaves, or early in spring before the trees have begun to swell their buds. Should prefer *autumn*. Dig a trench around the tree a sufficient distance from the tree, and cut off all the roots with a sharp spade or knife; and then fill in with some well-decayed manure mixed with loam, and fill up the trench again. By this process, the luxuriance of the tree is checked, and fruit-buds are formed. It is a good method to practise, especially in small gardens.

W. H. H., Alexandria, Va. — Where can I procure whale-oil soap? and what is the price per pound? — It can be had at any horticultural or agricultural warehouse, or of any seedsman in Boston, and probably in any of the principal cities. The price in Boston is fifteen cents per pound.

Some persons recommend planting evergreens in August and September. Is it a good time to plant them? — Evergreens will live planted in autumn; but spring is far better. We remember planting quite a lot of Norway spruce and American arborvitæ, two hardy evergreens, in autumn; and they suffered so severely during the winter and spring, that nearly every one had to be replaced; and the few that were left were cut out considerably, presenting a ragged appearance. We do not advise fall planting of evergreens at the North.

Has the tobacco-soap introduced by Mr. Jacques of Boston proved to be a good thing? — Yes: much more agreeable to use in the parlor or greenhouse, and quite as effective as whale-oil-soap. An excellent article.

Has the Agriculturist Strawberry met the great expectations of those who bought it at high prices? — We think not, fully. It is large, some berries measuring five and a quarter inches in circumference: it bears very well; but the quality is second-rate. We are aware that this matter of taste is one that cannot be controlled or argued. Some will declare that Wilson's Albany is the best strawberry that can be had, while others are equally confident that it is not worth raising for home use. We confess ourselves to be among the latter class.

How can I best keep the birds off my vineyard? For several years, the robins and other birds have taken all my cherries, a large share of my strawberries, raspberries, and other early fruits; and, when the grapes ripen, they come into the vineyard by hundreds, destroying nearly the entire crop. The law prevents my shooting them, and I don't know what to do. Can you give me any advice in the matter? — The evil complained of by our friend is a serious one. The robins have become very numerous, especially in the States where they are protected by law; and are really a great nuisance to the fruit-grower. The good they do does not compensate for the damage they cause, in our opinion. It is not well settled how useful the robin is in destroying insects injurious to vegetation; but the growing opinion is, that they do very little in that direction. This may not be true of the other birds that trouble your early fruit. The robin, we believe, is the only bird that injures the grape crop. If the law prevents you from shooting the birds, the only alternative left you is to frighten them off some way. Strawberry-beds may be protected by nets laid over, so that the birds cannot get at the fruit. The best plan we can suggest in regard to the vineyard is to keep one or more boys, or even girls, that can be hired cheaply, to frighten them off, either by clapping two sticks together, or by the use of a watchman's rattle, that makes a noise they do not enjoy. The owner of a vineyard remarked to us the other day, that he adopted this plain, and it was a good investment of his money. Try it.

Miss E. A. F., Jackson, Mich. — The enemies of your rose-bushes are of sorts unpleasantly familiar to rose-growers in this country. One is the leaf-hopper, popularly called the thrip; and the other, the rose-slug. A solution of whale-oil soap is a good remedy. It must be applied thoroughly with a garden-syringe. You had better, however, use Jacques's tobacco-soap instead, as it is less disagreeable, and more effectual. If you cannot get either of these, syringe with strong soap-suds made with common soft-soap. Two or three good applications will kill all the slugs. You must attack the leaf-hoppers on a cold morning, as the warm sun makes them too active. They cannot endure a good wetting with tobacco-soap.

MASSACHUSETTS HORTICULTURAL SOCIETY.

WEEKLY EXHIBITIONS.

JUNE 22. — The show at the rooms of the Massachusetts Horticultural Society was very good for the season. Peaches of two varieties were shown by C. T. Holbrook; fine Muscat of Alexandria, and other grapes, by M. H. Simpson; Hovey's Seedling Strawberries, by George Hill. J. D. Hovey exhibited Buffalo Seedling, Rippowam, and Agriculturist Strawberries. Cherries from Joseph Breck. F. Parkman had a splendid show of roses, of many varieties. Cut flowers were exhibited by James M'Tear, E. A. Story, George Crafts, F. Parkman, W. C. Strong, H. Vandine, and N. Washburn. Beautiful baskets of flowers, prepared by Miss Story, Miss A. C. Kenrick, Miss S. E. Westgate, Mrs. S. B. Joyce, Mrs. C. B. Chase, were on the tables. Peas were showed by James Comley, J. B. Moore, and C. H. Laughton.

The following prizes were awarded for herbaceous pæonies, postponed from last Saturday: For the best ten named varieties, to Hovey & Co, $5; second best, to Joseph Breck, $4.

Baskets of flowers were shown by five different contributors. The first prize was awarded to Mrs. S. Joyce; second, to Mrs. C. B. Chase.

Cut flowers were unusually fine. The first premium was awarded to W. C. Strong of Brighton; second, to Francis Parkman of Jamaica Plain; third, to George Craft of Brookline. Good displays of cut flowers were also made by James M'Tear, E. A. Story, N. Washburn, John A. Kenrick, and Henry Vandine.

In the vegetable department, the display was small. J. B. Moore of Concord took the first prize for the best peck of Carter's first crop peas; the second prize was awarded to Mr. C. H. Laughton of Dorchester, for Tom Thumb; third, to James Comley of Lexington, for Carter's First Crop.

ROSE AND STRAWBERRY SHOW.

JUNE 25 and 26. — This is quite a prominent exhibition with this society; being held on two days, Tuesday and Wednesday. Liberal premiums were offered, and the display was large and fine; in the department of roses, never better. F. Parkman led off with more than two hundred varieties of this queen of flowers. He raises just as good ones as he writes about in his admirable book on the cultivation of roses. Other contributors brought roses in great abundance, of most excellent quality; among whom were Hovey & Co., Walker & Co., Mrs. T. W. Ward, Edward Flynn, W. Heustis, E. Stone, James M'Tear, E. Wason, and H. H. Hunnewell. Cut flowers in great profusion from H. H. Hunnewell, James Nugent, E. A. Story, C. B. Brigham, James Comley, W. C. Strong, Joseph Breck, and J. G. Chandler. Large and fine assortment of Paisley Pinks from Hovey & Co. and E. Wason; Gloxinias of unequalled beauty, from Mrs. T. W. Ward; large collection of Plants from Hovey & Co. The show of roses and other flowers was very satisfactory. Strawberries were shown in abundance. James Comley had six varieties, among which were fine specimens

of Lennig White ; W. P. Walker, Triomphe de Gand, of which thirty-seven berries filled a box ; Mrs. Ward, Hovey's Seedling and Triomphe de Gand ; J. C. Park had five sorts, — Jucunda, Cremont, Agriculturist, Hovey's Seedling, and Triomphe de Gand ; Warren Heustis, Agriculturist ; George Hill, Hovey's Seedling and Brighton Pine ; J. W. Foster, four boxes Triomphe de Gand, good ; Hovey & Co., five varieties strawberries ; C. E. Grant and J. P. Langworthy, cherries.

The following awards were made : —

June Roses. — Class 1, — first prize, $6, to Francis Parkman ; second do., to Hovey & Co. Class 2, — first prize, $3, to James M'Tear ; second do., $2, to James Nugent ; third do., $1, to Joseph Breck. Class 3 (Hardy Perpetuals), — first prize, $6, to J. Chaffin ; second do., $4, to Francis Parkman ; third do., $3, to Hovey & Co. Class 4, — first prize, $3, to C. J. Power ; second do., $2, to Francis Parkman ; third do., $1, to James M'Tear. Class 5 (Moss Roses), first prize, $4, to Francis Parkman ; second do., $3, to Hovey & Co. ; third do., $2, to James M'Tear.

Tender Roses. — Class 1, — first prize, $5, to James Nugent ; second do., $4, to James M'Tear.

General Display. — Class 1, — first prize, $6, to Francis Parkman ; second do., $5, to E. Stone ; third do., $4, to John Chaffin.

Cut Flowers. — First prize, $5, to H. H. Hunnewell ; second do., $4, to Hovey & Co. ; third do., $3, to Joseph Breck.

Basket Flowers. — First prize, $2, to Mrs. S. Joyce ; second do., $1, to Mrs. E. M. Gill.

Hand Bouquets. — First prize, $4, to Hovey & Co. ; Table Bouquets, $4, to Hovey & Co.

Native Plants. — First premium to Mrs. M. E. Carter, $3.

Gratuities. — James M'Tear, $3, and E. Wason, $2, for Paisley Pinks. Hovey & Co., collection of Pot Plants, $20. Mrs. T. W. Ward, Gloxinias, $8. Edward Flynn, dish of Roses, $3. Hovey & Co., do., $2. Warren Heustis, do., $2. Mrs. T. W. Ward, do., $2. Walker & Co., do., $2. Hovey & Co., Pinks, $2. J. W. Brooks, Cut Flowers, $2. James Nugent, do., $2. William Cairns, do., $2. Walker & Co., E. A. Story, W. J. Underwood, J. M. Manning, J. G. Chandler, Henry Vandine, Sumner Downs, C. J. Power, Elbridge Wilson, N. Washburn, $1 each, for displays of Cut Flowers. Miss S. E. Westgate, Miss A. C. Kenrick, Miss S. W. Storer, $1 each, for baskets of roses. J. A. Kenrick, Magnolia Macrophylla, $1. Francis Parkman, Seedling do., $1. J. J. Dixwell, *Styrax officinale*, $1. W. H. Halliday, Wardian Case, $3. James Comley, ties of Fuchsia, $1.

Renewals. — Eliphalet Stone, Roses, $1. C. J. Power, do., $1. A. Farrier, four Bouquets, $1. Sumner Downs, Cut Flowers, $1. William Wales, Maréchal Niel Rose, $1. Miss S. E. Westgate, basket, $1. Hovey & Co., Cut Flowers, $2.

For the best four varieties of strawberries, first prize, $25, to J. C. Park, Somerville. They were the American Agriculturist, Triomphe de Gand, Jucunda, and Cremont. For the best four quarts of strawberries of one variety, a silver cup, valued at $25, to George Hill, Arlington.

PRAIRIE-FLOWERS.

(Concluded.)

HITHERTO we have spoken of the more noticeable of our spring-flowers. They differ little in kind, and time of blossoming, from those of the Eastern and Northern States. It is during the summer months that our flora, in its normal conditions, exhibits its peculiar characteristics. These are shown not so much in more numerous species or novel forms as in their richness and abundance, the vigor of growth, the brilliancy of coloring, and the amplitude and vastness of groups and masses.

And here it seems futile to speak of our midsummer plenitude of flowers to those already familiar with these scenes; and, to others, language is poor, and words quite inadequate to impart proper conceptions of these floral pictures.

In passing through so extended a field of observation, our remarks must necessarily be brief, and limited to plants and flowers of more striking habits, or possessing some special interest.

What shall we gather, this first week in June, for the flower-stand and the bouquet? Let us go to that spreading patch of silverwort (*Potentilla*

anserina), all aglow this morning with golden varnished corollas in a setting of silvery foliage: we will take freely of leaf and flower. The neighboring patches of little spearwort (*Ranunculus pusillus*) will give us slender stems and pretty spherical heads of bright yellow, fitting well our purpose. Farther on, in the moist spots we find the early pogonia, of graceful form and curious blossoms: these early orchids, so profuse in bloom, some snowy white, others of rosy hue, are equally desirable. In passing, we may take sprigs from this shrubby cinquefoil (*Potentilla fruticosa*), and sprays of the golden monkey-flower (*Mimulus Jamesii*) from the edge of this little pool and waterway. Passing to dryer ground, we hasten to yonder spot of dazzling red to find the showy fire-pink (*Silene Virginica*); but it is inconveniently viscid, and must be placed with care in our tin conservatory, or we shall mar its beauty. How shall we manage this delicate wood-sorrel (*Oxalis violacea*)? Take it entire, little bulblets and all, and in a vase it will make a charming show. We find also the handsome wild crane's-bill (*Geranium maculatum*), desirable in leaf and flower. Some of these bright and airy wild peas (*Lathyrus venosus*) will give variety to our floral gatherings. We pluck some of these snow-white cymes from the cornels (*Cornus*) and viburnums, gather the half-opened buds of the wild roses, and dark and straw-colored clusters from the honeysuckles (*Lonicera flava* and *L. parviflora*), sprigs from the flowering raspberry (*Rubus odoratus*), fronds of ferns, clustered panicles of peach-blossom color from *Spiræa lobata*, and the wild columbine (*Aquilegia Canadensis*).

Later in the month, tussocks of spiderwort (*Tradescantia Virginica*), with leafy columnar stems crowned with blue flowers, are profusely abundant. An acre or more of this lovely blue, freely massed, or scattered in clumps, is an object to look upon with special delight. It can be seen any morning from June to August. In gay rivalry and bright contrast are irregular patches and wide-spread masses of the scarlet painted-cup (*Castilleja coccinea*), shading off with the dusky yellow variety towards rosy spots of brilliant phlox (*P. pilosa*). These three plants seem more widely disseminated, and in richer profusion, and contribute more largely to the decorative scenery of these prairies, than perhaps any other of the June bloomers.

Later, myriads of little bell-flowers and lobelias and marsh speedwells, with other flowers of every hue, quietly nestle among loose-strifes and scu-

tellarias, cotton-grasses (*Eriophorum*) and Parnassia (*Palustris*), and other multitudinous growths of the prairie.

Pretty objects at this season are liliput groves of *Apocynum*, — tree-like herbs, full of rosy little bells, and inhabited by tiny beetles (*Chrysomelians*) glowing with green and gold.

Midsummer finds us gathering the stately blossoms of *Cypripedium spectabile*. Nothing at this season is so attractive, so healthfully robust in outline, so grandly columnar in form, gracefully nerved and plaited foliage, and flowers large, singular in shape, and of purest white rich in purple shading. If removed to the garden, it must have moist peaty soil.

At this season, another phlox (*P. glaberrima*), rosy-pink in color, and everywhere abundant, is seen in compact masses or straggling stretches far amid the green herbage. Wide-spreading spots of *Pentstemon pubescens* also, of somewhat paler hue, but handsome bloom, are of frequent occurrence, and may be found in their chosen *habitat* year after year. So of the *Chelone glabra*, which loves moist places and sedgy surroundings, but cannot conceal amid the rank grass its spikes and clusters of puffy, turtle-headed, white and rose-purple corollas. So of the pretty prairie-clovers (*Petalostemon violaceum* and *candidum*) whose *habitat* is the dryest, thinnest soil. and whose white and violet spikelets of compact flowers clothe many a sterile spot with beauty.

By the middle of July, we notice the gold and purple of the handsome lead-plant (*Amorpha canescens*). The orange-red lilies (*Lilium Philadelphicum*) are wondrously bright, and with the yellow racemes of agrimony (*A. Eupatoria*), and the snow-white bushes of *Ceanothus Americanus*, constitute a graceful and effective group.

Blue-eyed grass (*Sisyrinchium Bermudiana*); yellow star-grass (*Hypoxis erecta*); lovely harebells (*Campanula*), of delicate blue; polygalas, various and numerous, with showy heads of greenish-white and rosy-purple; and cassia (*Chamæcrista*), with gracefully-pinnated leaves and bright-yellow petals, large and gayly spread and purple-throated, — are found in great profusion at this season.

These massive clusters of wild bergamot (*Monarda fistulosa* and *M. Bradburiana*) exhale a pleasant perfume. If we crush these heads of the tall

Coreopsis, we shall perceive another not unpleasant odor. This yellow-rayed family is well represented, — *C. trichosperma*, *C. tripteris*, *C. verticillata*, and *C. palmata*, all of which we may find abundant during an afternoon's ramble; as also *Rudbeckia speciosa*, and the purple cone-flower (*Echinacea purpurea*), very attractive at this time, and singular for its dark-purple show of both disk and rays, the latter very long and pendent.

The delicate white umbels of the spurge (*Euphorbia corollata*) are intermingled with the milkweeds (*Asclepias*), whose purple heads, and green, mottled, and scarlet umbels, are visible all around, and with the long, spiky racemes of the willow-herb (*Epilobium angustifolium*), rich in pink-purple bloom, are pretty in grouping, and make a conspicuous feature.

Cardinal-flowers (*Lobelia cardinalis*) are very showy at this season; and the stately lily (*Lilium superbum*) is noticeable in the meadow, accompanied by the milder blue of the great lobelia (*L. syphilitica*), growing in thick masses of robust spikes.

On dryer ground, we find *Baptisia leucantha*, a stout denizen of the prairie, with large milk-white flowers hanging in clusters on pendulous racemes.

On the ponds, the yellow pond-lily (*Nuphar advena*) is very showy, but coarse in leaf and flower; and the white water-lily (*Nymphæa odorata*) floats her white and rosy corollas.

That rampant climber, *Clematis Virginica*, spreads luxuriantly over clumps of bushes, gracefully draping the green thickets with embowering whiteness; and a delicate little climber, the traveller's-joy (*Adlumia cirrhosa*), clings by tendril leaflets to this uplifting arrow-wood (*Viburnum dentatum*), with pretty blushing panicles of drooping blossoms half concealed under fairy-foliage.

We notice also the flowering-nettles and wood-sage, the tufts of hairy water-leaf (*Hydrophyllum appendiculatum*), which is somewhat rare, and whose pale-purplish-blue corollas have a pleasing look.

If we were not talking simply and solely of prairie-flowers, we might here indulge in an episode, and take our readers, this pleasant July morning, to "The Cedars." This is a place totally unlike any other in all this region. Imagine some wild sombre spot, of two hundred acres or more in extent, in some known locality in Western Massachusetts or Northern New

York, removed to the left bank of our little river, and you have the thing. Bluffy, boggy, broken, rocky; rich in accumulated *débris* and alluvium; with deep ravines full of springs and bubbling brooks, all in the shadow and gloom of enormous growths of venerable arborvitæs (*Thuja occidentalis*); with uneven formations of shelly limestone, full of leafy petrifactions, separating the numerous water-ways; the lower slopes near the river overgrown with lofty deciduous trees and luxuriant undergrowths quite Eastern in character, — to the prairie habitant, the aspect of this unique locality is novel in the extreme. So peculiar is the flora of this place, that botanizing enthusiasts find it a tempting resort all through the season.

With August, the composite flowers become more plenty: a coarser, sturdier race, yellow and blue, with a large element of white, are the prevailing hues. To the botanist, all that pertains to *plants*, through the entire period of their growth and development, is matter of undiminished interest. His zeal never flags, and his labors never stop. But the amateur, who cares little for *specimens*, and to whom forms of beauty, tints of coloring, and delicacy of aroma, are every thing, will find less to interest him during the remainder of the season.

What gives character more than any other to the rich and dry portions of the prairie at this period is the presence of the rough and sturdy family of the rosin-plant. These monstrous growths are plentifully distributed over areas of miles in extent, and in all directions. *Silphium laciniatum* and *S. terebinthinaceum*, with their big, rough leaves and large corymbose-panicled yellow-flowered heads, are perhaps most numerous; but the whole family is everywhere properly represented. Of the others, *S. perfoliatum* is perhaps most noticeable for its peculiarity of leaf and stalk.*

Another family, whose stately upright forms and rosy-purple bloom are conspicuous at this time, are the blazing-stars and gay-feathers. One (*Liatris spicata*) loves the rich and damp places, where, in clustered and extended array, the cylindrical, elongated, spiky heads have a truly gay appearance. *L. scariosa* needs dryer soil. *L. squarrosa* and *L. cylindracea* are not so aspiring, but adorn effectively the dryer and semi-barren places. All may be used with decorative effect in portions of our pleasure-grounds.

* *S. laciniatum* is called the compass-plant, because the edges of the leaves stand approximately north and south; varying, however, as widely as twenty degrees.

In the dry copses, and out among the hazel-patches, the *Lespidezas* are now inflorescent, and handsome both in leaf and blossom; the *Gauras* spout their slender panicles and wand-like racemes of white and rosy bloom; the hawkweeds (*Hieraceum*) claim a passing notice; *Gerardias*, both yellow and rose-purple, are pleasingly attractive; while, in the bottom-lands, large masses of white and purple *Eupatoriums* are exceeding showy in the distance.

It were a hopeless task to speak of the *Rudbeckias*, the great family of *Helianthus*, and the various yellow kindred tribes.

Exceptional to this herbaceous uniformity is the numerous family of trefoils (*Desmodium*), well represented here, — their dull silvery aspect is not unpleasing, graced with smooth or downy pinnated foliage and purple-peduncled blossoms; also tangled masses of convolvulus, rather obtrusively rampant and ostentatious; the parasitic dodder (*Cuscuta*); and the climbing ground-nut (*Apios tuberosa*), having dense clusters of fragrant brown-purple flowers on knotty peduncles.

We are now in the early autumn, with the sun-flowers and other lingering bloom yet thick around us. But another scene opens with rivalry of array and color, — stout growths and gigantic altitudes culminated in the sun-flowers. Lower and more diversified herbage has succeeded. The asters and the golden-rods (*Solidagos*) are now predominant. Star-flowers, with disks yellow and purple, and rays white, purple, blue, varied into indefinite shades, — species so numerous and varied, that we cannot stay to identify or even mention them, — in their gay grouping and diffusive bloom, give cheerfulness to advancing autumn. And the golden-rods, — equally numerous, more uniform in color, but pleasingly diversified in form, and everywhere diffused among the asters, — their rich golden hues add charmingly to the picture-scenes of September and October. With these are the beautiful gentians, all represented here, and some of them lifting a cheerful look amid the decay around them and the falling of the pictured leaves. Last in the procession of the season's successive bloom is *Gentiana detonsa*, lingering amid the frosts of November, bright with cerulean-blue, and sole survivor of the perished flowers. As *Hepatica* came to us in the early spring with a cheery good-morrow, it is fitting that the fringed-gentian should whisper us, late in autumn, a serene good-by.

Burgess Truesdell.

Elgin, Ill.

ARCHITECTURAL GARDENING.

It may be well to illustrate the effect of attention to the leading architectural features of the plan of the house by a few examples of gardens, all of them small, and in immediate connection with the principal windows of the respective houses to which they are attached. That they admit of improvement is obvious; but, in their main design, they are not unsuited to the circumstances.

Fig. 89 represents a garden. The space is circumscribed. It will be seen that the house, with contemplated addition, shown by dotted lines, occupies nearly a third of the whole plot. The most that could be done was to insure a walk more or less private, and tolerably well shaded, at the north of the house, immediately beneath the drawing and dining room windows. Central to the bay in the dining-room is seen a semicircular slope of about three feet, crowned with evergreen shrubs, and backed by a wall of somewhat ornamental character as regards coping or balustrade, a screen of some kind being here necessary. This walk, which is about eight feet wide, is terminated at one end by a seat, and at the other by a thick well-clipped hedge of yew, holly, or juniper, with a recess formed in itself containing some architectural object, — a basin, vase, terminal figure, or even a small fernery, for which its shady situation renders it well adapted. It is of sufficient breadth to allow two persons to walk very conveniently; and, being nearly ninety feet long, is quite sufficient for a quarter-deck walk. The flower-beds lie for the most part under the bay-window of the drawing-room (2), and are symmetrically disposed without being over-crowded. At 3 is a dial or object of some kind: a *yucca* in a large vase is recommended. Here the architectural portion of the garden ceases, as it would be unwise to carry symmetry any farther. The winding walk to the pavilion is screened by shrubs and by the raised bank to the north.

The ground will be raised towards the front fence in gentle undulations, which will be effective, even if very slight. The corner at 5 should be covered with low shrubs, such as *Juniperus squamata;* as also should the opposite end of the slope 6.

In what may be called the front lawn, a tuft of pampas-grass, a mound,

and an ornamental evergreen, may be placed. In the semicircular space to the north, there is a large flower-bed (4). In the centre is a raised bed. But this portion of the garden admits of the most elaborate architectural

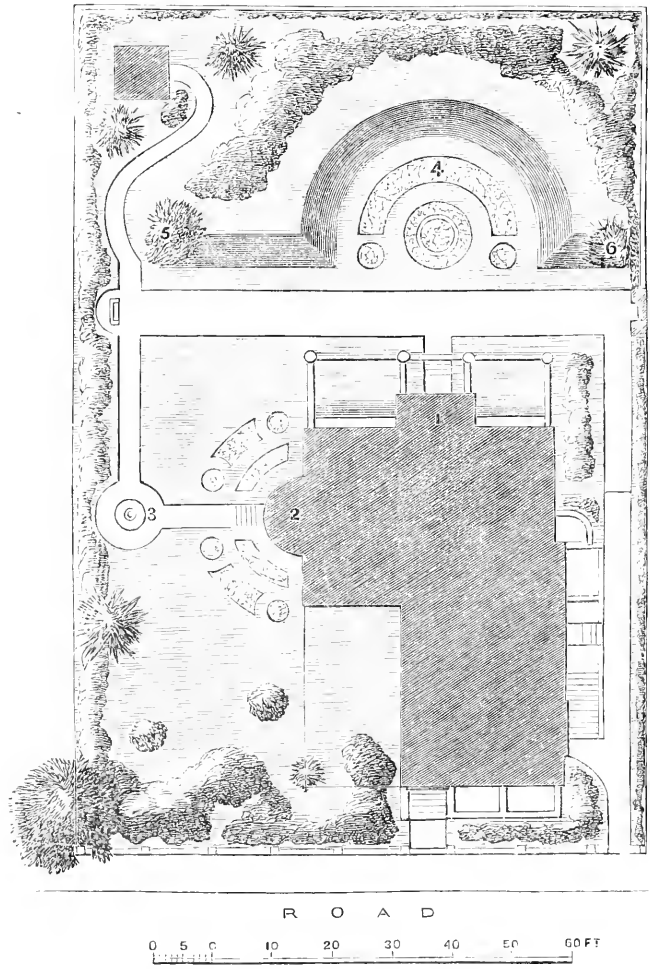


Fig. 89.

embellishment. A fountain in place of the raised bed, a retaining wall with balustrade and piers instead of the modest slope of turf, a flight of steps and a few vases, would convert it into a very handsome composition.

While on the subject of architectural gardens, it may be well to observe that there is great danger, particularly where the ground is level, of extending the architectural design, with its geometrical arrangement and pendants, too far into the pleasure-grounds. It is obvious that the garden must stop somewhere, and excessive prolongation is only staving off the inevitable issue.

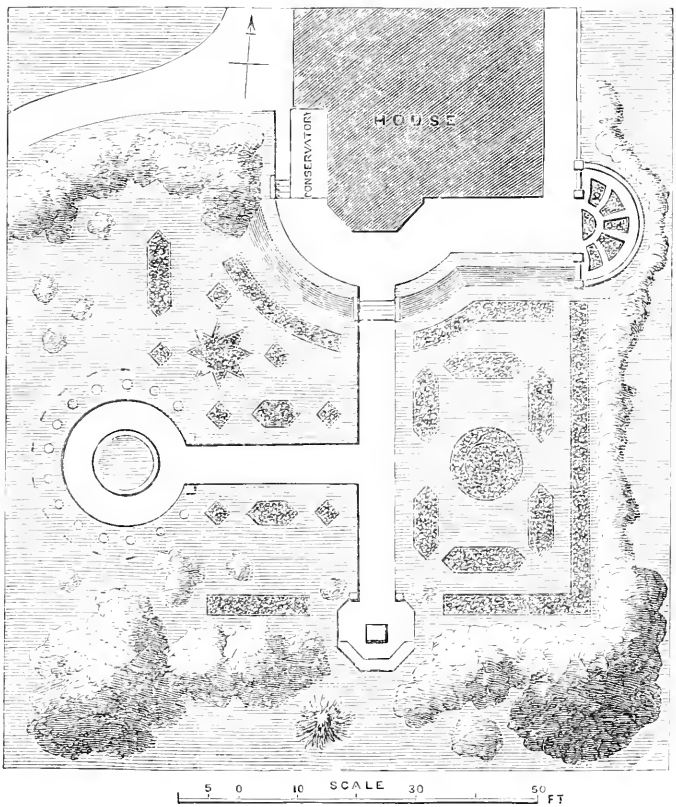


Fig. 90.

Terseness and point are as necessary to give expression to a garden as to a literary composition: prolixity, in either case, is but a sorry substitute.

Fig. 90 is a design where some device was necessary for stopping the terrace in front of the drawing and dining room windows. This is done by the semicircular bastion. It will be seen that a straight walk leads

from the centre of the drawing-room to a summer-house, arbor, seat, or even a semicircular recess, with an object such as a dial in the middle. A straight walk breaks off at right angles from this, leading to a basin

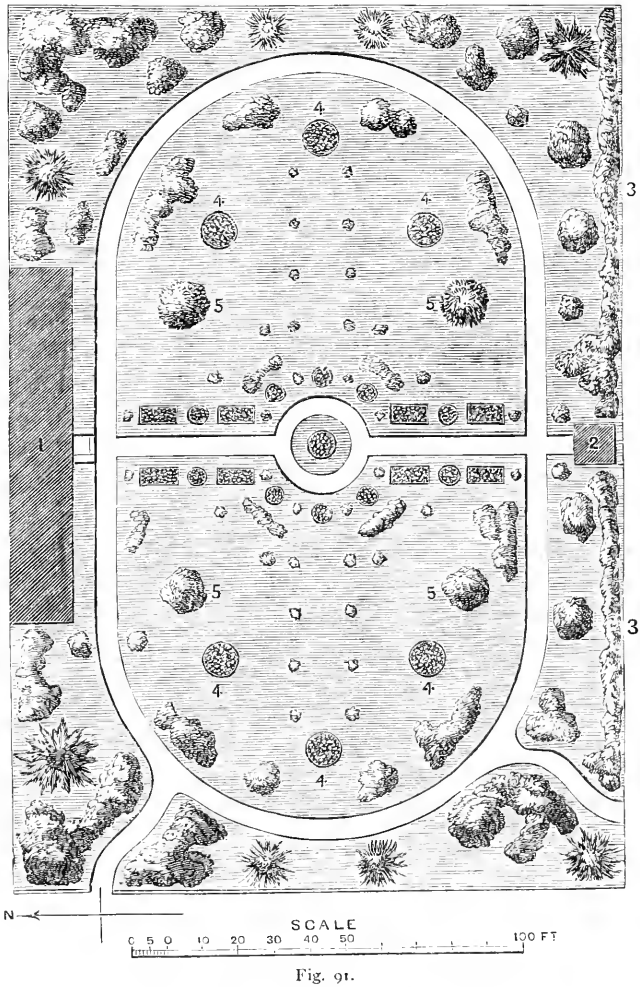


Fig. 91.

with rock-work and a jet. This basin is surrounded by a walk, bordered with a small, well-trimmed hedge about nine inches high.

Under the terrace is a flower-bed. The circular bed is raised in two heights, and edged with stakes driven firmly into the ground in the usual

way. The star-bed falls right to the drawing-room bay, and should have the points of one color, and the centre of two or three rings. Round the basin are standard roses, set in pebbles.

Fig. 91 is a design to suit a piece of ground about an acre in extent, where the land slopes slightly from north to south. By the straight walk in the middle, the regular arrangement of the few flower-beds, and the geometrical disposition of the four trees marked 5 on the plan, — a copper-beech, thorns white and pink, and a weeping-ash, — sufficient formality is obtained; while the uneven character of the surrounding planting, in which stand several old trees, gives color to the choice of a style less perfect than the pure geometrical.

On the southern boundary of the garden is a summer-house of a very rustic character, overlooking a neatly laid-out kitchen-garden on a level.

In the present case, the ground falls sufficiently to preclude the use of vases or pedestals, for the purpose of giving symmetry, and, if used, would only render the design ridiculous.

No. 1 is a conservatory or grapery.

No. 2, a summer-house.

No. 3, a kitchen-garden.

No. 4, beds for large flowers, — hydrangeas, pæonies, chrysanthemums, gladioli, irises, dahlias, &c.

No. 5, the thorns, weeping-ash, and copper-beech.

The regular rows of small shrubs, from east to west, should be composed of Irish juniper, yew, *Thuja aurea*, or dwarf conifers.

The large evergreens are distinguishable on the plan by their form, and should be of distinctive character. The few beds will give sufficient cheerfulness: they might be of arabesque form, but must be simple.

The following design is introduced to show the slight but essential difference between a moderately regular and a strictly architectural garden. Here the ground is treated in a purely architectural manner. The dimensions are assumed to be the same as the foregoing, with the main house instead of conservatory; though this variation is unimportant. We will suppose the fancy of the proprietor to be for plenty of smooth turf and a few beds of choice flowering-shrubs, with just as much color in the form of flower-beds as should give enough cheerfulness to relieve the whole

from the character of a purely winter-garden; to which end also the vases and pedestals are added. If it were wished to have plants on the semi-circular ends at the level of the path, standard roses, thuja, or Irish juniper,

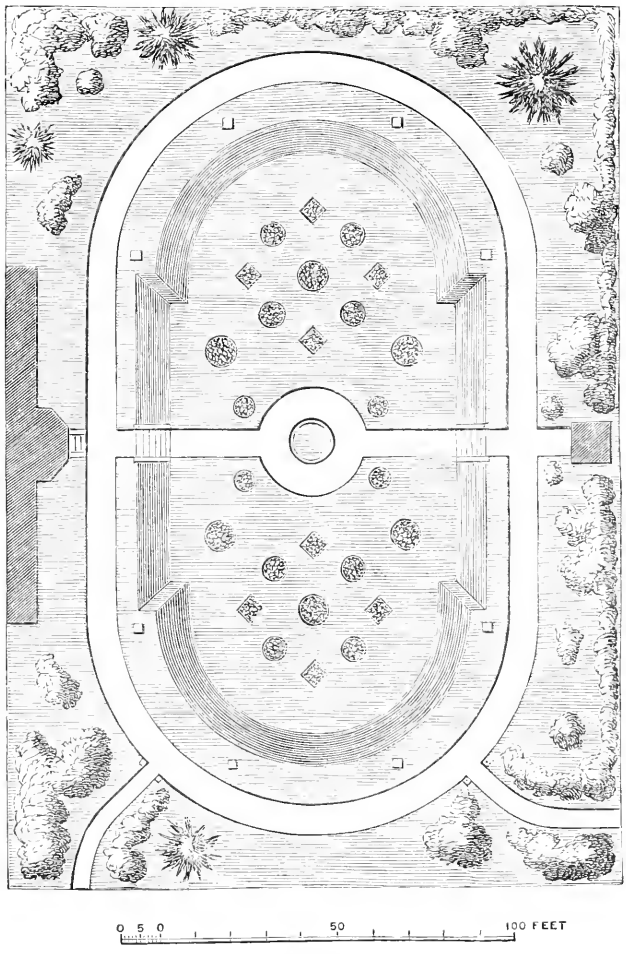


Fig. 92.

would be very suitable, as would acacia. The panel of turf is, in the present instance, sunk three feet.

Fig. 93 represents a garden, joined on either side by gardens of similar size, separated by walls or fences. The ground falls rapidly from south to

north, and is at least three feet higher at the summer-house (2) than at the

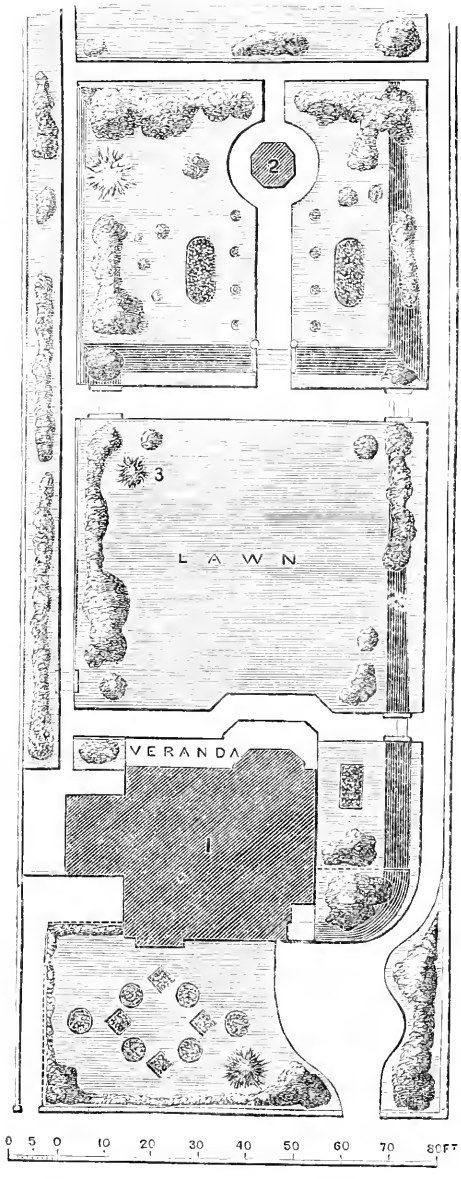


Fig. 93.

veranda at the back of the house : it also falls rapidly east to west. The

best and perhaps the only way of treating such a piece of ground was to divide it into two levels, terracing where required. A straight walk on the level of the upper terrace, bordered by arborvitæ, and having a flight of steps flanked by a pair of vases or similar objects, leads to a summer-house (2) of a character neither too architectural nor too rustic.

From this building or covered seat a good view would be obtained of the beds in its immediate vicinity, as also of the lower lawn and the house itself (1). The narrowness of the plot in proportion to its length renders the disposition of the shrubs rather difficult. The slopes look better by partially clothing them than by placing a continuous hedge on the top. They would need close, low-growing shrubs, which will go a long way to hide inequalities, or breaks of level. The planting near the summer-house (2) is composed of lilacs, laurels, Guelder roses, yews, and large-growing shrubs. Nearer the house, the planting consists of smaller and choicer shrubs and dwarf trees, — *Thuja aurea*, *Andromeda floribunda*, *Abies pigma*, Irish junipers, and yews. The flower-garden proper is to the front, under the dining-room and study windows. The disposition of the flower-beds is very simple, but quite architectural, easily filled with flowers, and easily kept in shape; which is perhaps the first requisite of beds cut out on turf. — *Adapted from John Arthur Hughes's Landscape Gardening.*

Moving Crocus Bulbs. — Taking up crocus bulbs to make room for bedding-plants is a bad practice, and wholly unnecessary; for the crocuses, being in rows, may remain, and the bedding-plants be planted between them. The crocus foliage may be removed when it decays; and it does not remain so long as to detract from the beauty of the bedding-plants. You may remove the crocuses, taking them up with a ball, and replant them in an open situation. They may remain in their new position until autumn, and may then be removed to the flower-beds and borders. The best plan is to leave them in the beds, and not disturb or replant them oftener than once in three years, and then take them up and replant on the same day.

IRRIGATION.

It has been long found necessary, in many parts of the Old as well as the New World, to irrigate the land in order to secure a crop even of grain or other essential produce; and although we are favored with a more moist climate than Lombardy, Egypt, or Colorado, where almost nothing can be done without water, still we often have seasons so dry that many crops suffer severely, and few seasons that are so wet that most soils and crops would not be benefited by the judicious application of water at some portion of the year. Some of the more enterprising of our market-gardeners are so well aware of this fact, that they have provided themselves with a supply of water at very considerable expense, and are generally well convinced that they are paid for the trouble.

Thinking that some information in regard to the distribution of water might prove useful, we propose to deal only at present with the details of some of the more common means of watering the ground. Where only a moderate quantity of water is needed at short distance from the supply, a tight barrel with handles, carried between two men, answers well. A better way, where there is room for the wheels, is to mount the barrel on a pair of wheels, like a hand-cart; bending the iron axletree under the barrel, which should be mounted on the bilge. When, however, a larger quantity of water is wanted, or the distance from the supply is more than a few rods, this is quite too laborious, and we must resort to pipes under pressure, and hose. One gardener, however, in West Cambridge, waters a large field of celery by means of the watering-pot alone. His land is under-drained three feet below the surface. Each drain has placed, at distances of about two rods asunder along its length, a row of cisterns just below the level of the drain, which are kept always full by the drainage: the men bale the water from these cisterns by buckets. When we wish to water a large field, however, we must use pipes and hose, if we wish to work with ease and despatch. The pipes should be of burnetized pine-log, or, better, of cast-iron, or perhaps tarred paper (if this latter should prove durable), two inches internal diameter, laid below the level of ploughing, though not necessarily below frost, as they can be drained in winter. They should be not more than

a hundred feet asunder, and should have a hydrant every hundred feet in length for the attachment of fifty feet of hose, which will reach the whole surface without being unwieldy. The hose should be two-inch India-rubber, with a large sprinkler at the end, and stop-cock: smaller pipe and hose will prove less satisfactory; delivering the water too slowly, if it is desired to give the whole surface a thorough wetting. Such an apparatus will distribute a vast amount of water quickly; and, if we wish at all to approach the work of a good shower of rain, we must not stint the quantity. A shower of an inch of rain deposits upon every acre about 26,800 gallons: we often have as much rain in a single thunder-shower of an hour's duration.

Let us now consider the best means of forcing the water through our pipes. Where a natural head of a few feet, with a good-sized pond or reservoir to draw from, can be commanded, we have things very convenient; but such opportunities are rare, and we must generally resort to devices to raise the water mechanically. One of the best of these is the hydraulic ram, a simple, durable machine, which needs only a strong spring or small brook with a fall of from four to ten feet. Most of the water runs to waste; while a small portion is forced through a pipe to an elevated reservoir, from which we must draw into our distributing apparatus. This machine works incessantly, day and night and Sunday; and although it raises only one-fifth to one-twentieth of the water of the source, the rest running to waste, still, if we have a good large reservoir, it will do good work, and seldom needs repair. Less desirable, though often used in Holland and the Western States, is the windmill, with force-pump attached. It is less durable than the ram, and works only when the wind blows; so that we need the high reservoir as much as with the ram: it is available, however, in many places where there is not fall enough to work a ram. Probably a more efficient method for common use would be the force-pump, driven by horse-power; or, where very large quantities of water are required, by a caloric or steam engine. Wherever we can command a supply of water, at however low a level it may be, this apparatus is ready to force it through our pipes at any time without stint, and needs no provision of an elevated reservoir from which to draw,—a thing most difficult to provide in most cases where much water is wanted. The force-pipe from the pump must be provided with a

safety-valve, loaded so as to give pressure enough for the distributing apparatus, but opening and relieving the strain when the hose-man shuts down while the pump is working,—a state of things which must constantly happen. Very many places have ponds or brooks in their lower borders, where this simple arrangement would enable their owners to water them amply and quickly, with little expense after the first outlay for pump, pipes, and power.

One other method of irrigation should be mentioned, though of very limited application: where a spring or brook is so situated that we can lead it along an artificial channel on the upper edge of our field, we can tap this channel at any desired point, and allow the water to flow for a time over part of the field or along little ditches, changing the water to other parts when required. This is much the cheapest way to distribute water where the circumstances permit, and is very common in Lombardy and Colorado. But few fields, however, are so situated hereabouts as to admit of its application. The field needs to be graded to a nearly uniform slope in order to make the distribution of the water by this method at all easy.

BROOKLINE, MASS. *William D. Philbrick.*

PRUNING.

WE find among practical men a great diversity of views respecting the performance of the operations upon our trees that make up what is commonly known as pruning and trimming. Some advocate the free use of the knife and saw; others insist that the latter instrument should never be brought near a tree, except in case of disease, or accident which may require the excision of a large limb. Such people insist that all trimming should have been done with the pocket-knife while the branches were small enough to be removed by that instrument. This is very well; but it is to be feared our orchardists will not soon be so well informed as to the future needs of their trees as to be able to see in the young specimen what may be required by the plant when it shall have become fully developed. The knife is a very effective implement, and it may do wonders in

the way of shaping the young tree. But few of us can realize how much our trees will grow and thicken, even after we have been at great pains to form an open head on the young plant.

There are other persons who insist upon it that trees should never be pruned at all; that it is unnatural, and must be productive of evil results. For this they claim to have some color of reason; and they say that Nature does not use the saw, and they can point to many beautiful and perfect specimens of her work in which there is not a limb amiss.

But Nature does prune, and severely too. Though the saw is never heard in the forest, in the prairie-grove, nor in the oak-opening, still the beautiful shafts in the one, the perfect outlines in the natural and beautiful grouping of the other, and the majestic contour of the noble specimens in the last, all show that pruning, in its true sense, has been done, and most effectively too, as will appear evident in the results.

But we should bear in mind, that, in all our cultures, we have taken the work out of Nature's hands into our own: we are unwilling to wait her slower marches in this and in many other matters, but must strike to produce quicker results. What she has effected in the course of years by a slow and lingering death and decay, with unseemly accessories of dead and dying limbs, we prefer to do at once; and, with appropriate tools, we can effect our object.

It may be asked why we prune at all. The answer is obvious. The objects are threefold. We prune, 1st, To give the desired form to our trees by curbing, and reducing irregular and excessive production of wood-growth; 2d. To produce fruitfulness by directing the sap for the formation of fruit-spurs; and, 3d, To thin the fruit, and to give access of light and air to every part of the tree. All these objects are pursued by the judicious pruner, and all are modified to adapt them to the different kinds of fruits and trees which we cultivate.

Let us consider these several reasons for pruning a little more in detail; and the principles involved can be applied in practice by the intelligent pruner, with modifications that will adapt them to the various kinds of shrubs and trees to which they are to be applied. Thus, under the first head, we prune most of our ornamental shade-trees very differently from those of our orchards and fruit-gardens. Here shape alone is usually the

object aimed at in performing these operations. In this matter, the treatment will vary with the kind of tree, and its natural form or habit. These should be studied, and ever made our guide in pruning for shape. We must follow Nature, and not attempt to thwart nor divert the natural bent of the tree, as has been done in some formal ages of landscape-gardening, when the topiary system was pursued, and trees were tortured into the most grotesque forms, imitative of birds and beasts, pyramids, and architectural designs. All such attempts are barbarous, though they may have required an artist's eye and hand to produce the results.

To be successful in pruning for shape, we must observe the natural habit of the tree upon which we have to operate; we should know what are its most perfect forms, which will display its characters to the best advantage; we must know whether it be drooping or erect, spreading or fastigiate, massive or light and feathery, stiff or graceful. Thus, for a tree that naturally assumes a symmetrical and conic form, we should aim to encourage this character; and, to do so, we must keep the lower limbs growing: they should not be shortened, much less removed. Those above them, on the contrary, should be closely watched, and never allowed to extend their tips beyond those of the tier of branches next below them: indeed, they must be kept a little shorter, to preserve the conical shape of the tree. This may be considered formal; but it is the distinctive feature we expect in the specimen. This is what gives character to the landscape; and these peculiarities should be carefully preserved in each class of trees. It were folly to attempt making a perfect cone from a Babylonian willow, or a gracefully weeping-tree from a Norway spruce; to give an umbrageous form to the poplar of Lombardy, or an upright, fastigiate shape to the massive sugar-maples or the wide-spreading burr-oaks of America.

So with our orchard-trees: they have characters of their own. Each variety may have a habit peculiar to itself, which should be studied for use and for ornamental effect; and this should be our guide in pruning. Sometimes the habit may be bad, and we may be called upon to correct it; the tree may be too open and straggling, or too close and crowded: these defects are to be remedied by judicious treatment.

The season for performing this work of shaping the tree is a matter of some consequence. Small limbs may be removed at any time; but mid-

summer is probably the best period for the wounds to heal over rapidly. The contour of the trees can best be seen, however, in winter, when they are leafless, and much pruning may be done at that period; but no cut should ever be made while the wood is frozen. The removal of terminal shoots of the branches that may be transcending their proper limits in conical trees may be done early in the spring, as this will encourage the growth of the side-branches; but in fruit-trees that have a straggling habit, which needs curbing, it will be much better to watch the young growth in early summer, and remove the tips of rampant shoots by pinching them, and thus direct the sap into other channels, and equalize the growth of the twigs. With trees as well as with men, it is much better to lead than to drive; and in this case we save the energies of the tree, instead of destroying parts that have been produced, and thus waste so much of its strength, which, by proper treatment, would have been preserved in a useful form. In this matter, the orchardist may learn much from the vine-dresser.

2d, Pruning to produce fruitfulness consists of those operations upon the plant which tend to abridge its efforts at wood-growth. They consist in shortening the limbs and shoots during the growing season. This is an important part of summer-pruning. A great deal of the work may be done with the thumb-nail and fore-finger; in which case it is called pinching. The effect of this course will be not merely to prevent the excessive growth of wood, but there will also be a development of flower-buds rendering the tree fruitful. It may be asked, "Why not shorten in the limbs of a tree in winter or spring?" Simply because, if the cutting be done at that time, it will be followed by excessive wood-growth; which is just the reverse of the object we have in view. "Prune in winter for wood, and in summer for fruit," has become a familiar maxim with orchardists.

In this kind of pruning, the orchardist may acquire much valuable information by watching the florist, who gives perfection of form, and profusion of blossoms, to his show-plants, by constantly pinching off their points of growth during the early portion of their existence.

3d, Pruning to thin the fruit is not practised so much as it should be. Many of us are too covetous and grasping, and some of us are, perhaps, too lazy, to make the necessary efforts to thin the fruits which a kind Providence has furnished in a favorable season like the present. To such it may be

satisfactory to know that a great deal of the needed thinning may be done by pruning away portions of the laden fruit-branches. This practice has been most successfully pursued by an eminent Western orchardist, who has found the benefit in the increased size and heightened color of his fruits, and who receives a correspondingly advanced price for his products in the market.

But, in old trees, we may do much toward thinning out crops by a wholesale shortening and thinning of the limbs while the buds are yet dormant. The superabundance of fruit-buds is very apparent in the winter season on many old trees, which may be trimmed with a view to their reduction at that season with advantage: for the removal of these overladen twigs will encourage the production of new wood, and even of healthy shoots at the ends of the branches; which is desirable, since such growth will infuse new life and vigor into the whole organism of the tree. Here, again, we may take a lesson from the vigneron, who, in the winter-pruning, combines the objects of cutting for shape, and for the reduction of the excessive fruitage to which the vine is prone. He also prunes in the summer to reduce the crop, or to thin the fruit, by rubbing out the surplus shoots, and by pinching the ends of those that remain; often taking away the outer bunch of grapes also, with a view to increasing the size and improving the quality of those which remain.

But the subject is one which, perhaps, needs pruning also; and, lest this discussion should transcend the limits of propriety, it will now be shortened in, — to be resumed, perhaps, at a future period, if acceptable to your readers, when some of the details may be considered, and the instruments found useful in the operations can be described.

CLEVES, O. *John A. Warder.*

DOUBLE-GLAZING.

THE subject of double-glazing is attracting a good deal of attention in England ; and if, in that country, the advantages of a double-glass roof are so great, they will certainly be far greater in our changeable climate.

Without entering particularly into the method of constructing glass houses on this plan, it may be briefly said, that a space of from four to six inches should intervene between the upper and the lower roof; and, confined air being an excellent non-conductor, the air enclosed should be as closely confined as possible.

Only two objections seem to have been made to double-glazing ; one being the additional expense, and the other the diminished light from the accumulation of dirt between the sashes. This latter objection amounts to nothing. The dust of a whole season would be hardly more than a scum, easily cleared off in two or three hours. As to the increased expense, this must, of course, be weighed against the advantages ; and these we propose to consider.

Confined air being so good a non-conductor, the double glass gives all the benefits arising from the use of shutters and mats, and this without intercepting the light, and without the continually-recurring trouble of putting on and taking off, with the consequent liability to break glasses.

Then, again, we avoid "drip," not only in itself a great nuisance, but also an evidence that the atmosphere of the house is being robbed of its moisture, almost invariably to the great injury of the plants. "Drip" is caused by the moisture in the heated air coming into contact with the cold glass, and being condensed : therefore, the warmer the glass is kept, the less the condensation ; and, if the glass and the air are at the same temperature, there is no condensation, and consequently no "drip." In the hot-house and stove, where the most moisture is needed, is found the most "drip ;" and, since the dearly-bought plants are generally in these houses, the trouble falls just where there is the least ability to bear it.

This subject of atmospheric moisture demands the utmost attention. Plants at rest should be kept comparatively dry ; but when growing rapidly,

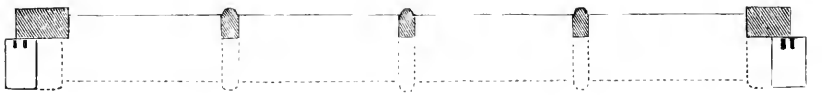
Dr. Lindley says, "an excess of dampness is indispensable to plants, partly because it prevents the action of perspiration becoming too violent, and partly because, under such circumstances, a considerable quantity of aqueous food is absorbed from the atmosphere in addition to that obtained by the roots." In the case of great loss of vital force by perspiration, the drooping leaves are so many signals calling attention to the distress; but the loss of "aqueous food" obtainable from the atmosphere is seldom, if ever, noticed. Even among those who do acknowledge this source of food, many, doubtless, look upon the quantity absorbed in this manner as too trifling to be worthy of attention. Yet many orchids depend upon the air alone for nourishment. At Chiswick, in England, a splendid specimen of *Lælia superbiens*, with nothing about the roots, was hung by a wire from the roof, and, under this treatment, grew strongly, and flowered superbly, year after year. In such a case as this, the plant being nourished entirely through the agency of the air, it is absolutely essential that the atmosphere should be moist to such a degree as to cause the absorption of large quantities of "aqueous food." When, however, the supply of nourishment is derived in part from the earth, no other source seems to claim any attention.

But it may be said, the requisite amount of moisture may readily be obtained by means of the evaporating-pans, or by syringing the floor. So it may; and the supply of "drip" will be increased just in proportion to the increase in the humidity of the air, unless the glass be protected from the influence of the cold from without. This protection can be given only by means of mats, shutters, or some other covering; and what covering so well answers every purpose as a second glass roof? It is, in fact, not only the best, but the only protection that can be used without intercepting the light.

Double-glazing, while keeping out the cold, has also the advantage of keeping in the heat; and this, added to the saving in fuel, has a tendency to prevent sudden and great changes of temperature. Houses containing a great amount of space are not soon heated, nor soon cooled; but the low pits in which plants generally make such vigorous growth are those that need the greatest care in guarding against violent changes. For these, the double roof would produce excellent results.

Many have the opportunity of trying the system on a small scale. Sev-

eral months ago, the writer of this set off a small part of his hot-house, and double-glazed it in this way: —



This illustration shows the arrangement for one sash four feet wide. The original roof is shown by the black lines: the added part may be clearly seen by the dotted lines. Ventilation was provided for by means of a pipe bringing the air from the outside, and letting it into the house just under the hot-water pipes. The quantity of air admitted was regulated by means of a sliding door.

In this double-glazed house, the plants grew remarkably, — much better, indeed, than was anticipated. During the blustering days of winter, the wind readily found its way here and there through the single-glass roof, but never through the double one. Heated by the same pipes, there was, at times, a difference of nearly ten degrees between the protected and the unprotected part of the house. And, as a further illustration of how well the heat was retained, it may be said, that, after a flurry of snow, the double roof lay cold and white long after all traces of the storm had melted away from the other sashes.

In the English "Gardener's Chronicle" are many articles in favor of double-glazing. Mr. Rucker's "great fernery and great stove, at Rockville, are the most instructive and beautiful plant-houses in the United Kingdom." The orchids have improved so much during the last five months under the double glass, that, "if sold now, the increase in their value within that time would more than pay for the erection of the house." The writer from whom the quotations are made further says, "Stove-plants, fine-leaved plants, ferns, and palms, display a cleanly vigor, and beauty of growth, which I have never elsewhere seen equalled."

Many other examples might be given, in which the praises of the system are, if possible, still greater: but the intention is not to write a long article; and enough seems to have been suggested to turn the attention of thoughtful men to the subject of double-glazing. *George Such.*

South Amboy, N.J.

THUNBERGIAS.

THIS beautiful family, named in honor of the distinguished botanist Thunberg, is less cultivated than its merits deserve.

Although stove evergreen climbers, many species bloom from seed in a few months; and their beautiful, delicate, or brilliant flowers are very freely produced.

The species best known to us is *T. alata* (winged) and its varieties; and these are usually grown as hardy or frame annuals.

The seeds are brownish-black, roundish, with a hole in the upper part, and resemble a sea-urchin in miniature.

If they are planted by the last of April in a frame, they will vegetate freely; and should be transplanted to the border about June 1, where they will soon begin to bloom, continuing until touched by the frost. Seed planted the latter part of May in the open border will give flower, but by no means so early as the transplanted roots.

Cuttings of the young shoots taken off any time during the summer may be easily struck in sandy soil under a bell-glass.

These plants, grown on neat trellises, are also very useful for summer decoration of the greenhouse; for which purpose they should be potted very early in spring, in peat, loam, and well-decomposed dung. As fast as the roots fill the pots, the plants should be repotted; and, until the plants are of the required size, every flower-bud should be picked off. When of a proper size, the plants may be allowed to set bloom, which will soon cover every stem.

The great obstacle to the culture of these plants in the house is their liability to the attacks of red spider. There is no plant more infested with this pest; and the only way to keep him in subjection is the *daily* use of the syringe. The beauty of the plants, however, will repay the trouble.

In the house, the plants should be trained to neat trellises; out of doors, they may be thus grown, or allowed to trail and spread on the ground, where they make a mat of verdure dotted with lovely flowers.

T. alata is buff-yellow, the variety *alba* is white, *aurantiaca* is dark-orange; and there are varieties of all with dark black eyes.

The subject of our present figure is *T. fragrans*, which is quite distinct from the other species: the foliage is dark-green, and of great substance;

THUNBERGIA FRAGRANS.

the flowers are pure white with yellow eye, fragrant, and produced all the year, but especially in winter. It is a native of the East Indies, and

was introduced half a century ago, but has recently been prominently brought into notice.

T. coccinea, sometimes called *Hexacentris*, is a greenhouse-climber with elegant scarlet flowers, but is very difficult to bloom. If planted out, it would cover a large greenhouse, and never give a flower; but, if root-bound in a pot, it will sometimes well repay cultivation.

T. grandiflora is an elegant species, with very large lovely blue flowers. It requires the same treatment as *T. coccinea*.

There are other species, of which we may mention *T. cordata* with white, and *T. chrysops* with violet-blue flowers, requiring similar treatment.

These last-mentioned species are by no means as liable to attacks of red spider as the varieties of *T. alata*.

There is a fine stove evergreen climber, *Hexacentris Mysorensis*, a native of Mysore, nearly allied to *Thunbergia*. It is easily grown in peaty loam in moist stove-temperature: the flowers are yellow in pendulous racemes; and there is a variety with crimson border. This plant is figured in Hooker's "Exotic Flora," t. 195.

While we advise all our readers to grow *Thunbergia alata* and its varieties as garden annuals during the next season, we trust amateurs may be led to grow in their hot-houses the rarer and more beautiful species which will well reward any requisite care.

Seeds of *T. alata* may be purchased of any seedsman.

GLEN RIDGE, August, 1867. *E. S. R., Jun.*

VIOLETS.

To sing the praises of the violets worthily, one must be sure that there are ears to hear. To read all the pleasant things that have been said of them, one might think they had been beloved from the beginning, so thickly with "pale violets," "meek violets," "violets pied and purple and blue," the fields of literature are strewn. No cottage-garden is complete without its clump of heart's-ease by the door-step; and who so hard-hearted as not to return the pansy's innocent look of satisfaction? Like the faces of little

children, they touch and sweeten the soul of every passer-by; and the violet's modesty — is it not always named as the crowning, most exquisite grace of woman?

But it is not of these well-known members of one of the most beautiful and highly individualized families of plants that I propose to write, but of the shyer and less-understood species which belong to the virgin soil of a new world. These have not yet had time to ruffle their gowns: they are not yet acquainted with that purple relation, the pride of our gardens; or even the fairer cousin, the English violet, so justly named *odorata*. "It doth not yet appear what they shall be" when the eyes have come for which the unclaimed beauty of the earth seems ever to be waiting.

First to appear in the spring, and oftenest on the top of a hummock in still frozen marshes, is the round-leaved violet (*Viola rotundifolia*), which a childish fancy once named "the Frog's Friend." Its tiny, bright-yellow face, delicately pencilled with brown lines, the very picture of cheerfulness, must be, even to dull batrachian eyes, a welcome herald of the new season. It has a narrower range than its frequent neighbor and associate, *Viola blanda*, — the sweet-violet; and is not often found west of the Alleghanies. Both these species increase rapidly by throwing out runners; have deep-green, polished leaves, pressed closely to the ground; and take kindly to civilization.

By the middle of April, in our latitude, every moist secluded nook open to the sun, from the Atlantic to the Mississippi, is sprinkled with the infantine blossoms of the "sweet white violet." They spread northward, a fragrant carpet for the feet of spring, as far as Hudson's Bay; and reach southward to clasp hands with the "primrose-leaved violet" (*Viola primulæfolia*) of the Georgian woods. No flower that I know is so completely clothed in humility; no other so nearly related to the mosses, in whose company it is always found. With them it creeps lovingly around the gnarled roots of old trees, comforting their ruin; and is there found in its greatest wild perfection. Its fragrance is earthiness, and scent of mosses, mingled with pure sweetness. Give it a moist corner of your garden where it will catch the stray sunshine, and it will improve greatly in size, without losing its native polish, or any thing of its essential character.

I need not point out the characteristics of two quite contrasted species

of *Violaceæ;* viz., *V. cucullata* (the hooded violet) and *V. pubescens* (the pubescent violet). They will grow unasked and unappreciated; and are, humanly speaking, the most worthy and meritorious violets in the world. They express the strong vitality of the earth, are fully resolved to do and be something, are on friendly terms with cattle and children, and have an honest welcome and hearty sympathy for the emigrant building his home in the wilderness.

Another blue violet (*Viola pedata*), the bird's-foot violet, sparingly sown in New England, but abundant in the oak-openings of Illinois and Wisconsin, is fast receding before the advance of civilization. I have made diligent inquiry concerning its re-appearance upon lands lying fallow, as the two preceding species invariably will; and the general testimony is, that, once gone, it does not return. To those who have never seen this violet growing in its luxuriant perfection, a description will avail little or nothing. If the reader has ever, in passing through upland-pastures, suddenly felt a blue dimness coming across his vision, and rubbing his eyes, and rousing himself, has found the heavenly blue to proceed from innumerable blossoms of the wild forget-me-not (*Oldenlandia cærulea*), quite covering the earth in spots, and entirely concealing its minute leaves and almost invisible stems, his experience will enable him to understand what an entrance for the first time into a great congregation of bird's-foot violets must be. Only in this case the blossoms are unmistakably *violets* (violets as large as pansies), twenty, and even thirty, in a single clump, their golden anthers relieved against the purest blue under the sky.*

Occasionally, you will find a clump almost pure white, and not unfrequently one in which the two upper petals of every flower are velvety, and of the deepest violet. The deeply-cleft leaves, resembling larkspur and nigella, are all radical, and form a mat in which the profuse blossom-tufts are embedded. This violet has no fragrance; but this fact does not deteriorate it in the least. You would no more think of smelling than of eating it, so completely does its one gift of color, and its habit of growth, satisfy

* This violet, though seldom re-appearing after cultivation, can easily be domesticated in the garden. It should be transplanted in clumps in early spring; and will thrive in any garden-soil not too rich and close, if planted in full sunshine.

It is quite common in New England, and often makes the fields blue in favored localities.

In cultivation, when once established, it grows larger, and not unfrequently increases by seed. — ED.

the mind. And, when this color-revel is at its height, here in the West, there always mysteriously appears in the midst of the violets a cluster of the golden-yellow *Lithospermum canescens*, the hoary puccoon, as if to give an air of reality to the scene.

But I have said enough of this ; said, I fear, much more than my reader will believe. (I know many things in Nature too good to be believed.) Well, then, come out of the sun into the shadows of New-England woods, or Canadian forests, or the "big timber" of Kentucky, and we will find the white-nun, the recluse of this charming family ; and she will speak to us of most sacred and holy things. *Viola Canadensis* is found only in the "silent, quiet places," where the Great Spirit of the universe "broods and rests ungrieved by the discords of human life." Alone, yet never alone, her fragrance, appealing to the inner rather than the outer sense, is never wasted. Spirits tend and wait upon her : we will be reverent, and leave her in her own place.

The "Muhlenbergs," the American dog-violet (*Viola Muhlenbergii*), will grow easily in any damp garden-soil ; and the large violet-blue flowers of *V. Selkirkii* (Selkirk's violet) will amply repay cultivation. *Viola sagittata*, the arrow-leaved violet, is an interesting species, well adapted to dry and sunny positions ; while *V. rostrata*, the beaked violet, the "blue roosters" of New-England childhood, should have a place in every collection. Make room for the violets ; for they will give you every month, between snow and snow, something "that's for thoughts." *Jeanne C. Carr.*

MADISON, WIS., June 7, 1867.

IN "The Revue Horticole," M. Carrière has shown that the plant called *Abies Jezoensis* by Lindley, and *Abies Fortunei* by A. Murray, is not the *Abies Jezoensis* of Siebold and Zuccarini, nor an *Abies* at all, but a new genus, which he has named *Ketelceria*, in honor of M. Keteleer, the eminent nursery man of Paris. The name M. Carrière proposes is *Ketelceria Fortunei*, and it is distinguished from *Abies* and *Picea* in having the erect cones of the latter and the persistent scales of the former.

PURE NATIVE WINES: WHAT AND WHERE ARE THEY? — Under this heading, I find an article in the June number of "The Horticulturist," without signature, in which the author seeks to prove, in a manner evidently very satisfactory to himself, First, That wine is only the pure juice of the grape fermented, and that no other preparation should be called wine. Secondly, That very little wine, according to his definition, is now made in this country. He classes the wine-maker, who simply adds water and sugar to his grape-juice, on the same level with the one who would make a preparation of one-third grape-juice, one-third cider, sugar-water, acetate of lead, and oil of rose. Let us see how far he is right, or whether he is right at all. Grape-juice contains, in larger or smaller quantities, water, sugar, tartaric-acid, other free acids (as acetic, malic, phosphoric), tannin, gummy and mucous substances, flavoring-matter or bouquet-aroma, and coloring-matter. These are its principal ingredients; and if they are in the must, or unfermented juice of the grape, *in the right proportion*, the wine-maker calls it *good*, and will, or at least can, make a *good wine* of it. But, in order to work understandingly, he must know the proportions which a *perfect must should contain* of each of the *principal* ingredients, which are sugar, water, tartaric-acid, tannin, and flavoring-matter, just as much as a physician must know the proportions of his prescriptions. If there is not enough of sugar, he must add it; if it contains too much acid, he must dilute it by an addition of sugar and water; if it contains *too much* tannin and aroma, he must also dilute it by adding sugar and water, as it will neither be *wholesome*, nor *agreeable* to the *palate*, if it is in the must in excess. This is the *art of wine-making*, and, so far from being reprehensible, ought to be studied by every one who makes wine. The wide difference between the first and the vile mixture the author mentions

in the second instance is just in the fact, that the first adds nothing but what should be in the must in good seasons, and *is in it*, though not in the *right proportion;* whereas the other adds substances foreign to the grape, and injurious to the human system. The first is *pure wine*, just as much so as if Nature had given the right proportions: the other is a *vile adulteration*, rightly and justly condemned.

The author talks a great deal about a subject of which he has a slight *dawning*, but not much *light*, or he would know that the must of the same variety of grapes will require a different treatment nearly every season; that some seasons it is furnished so nearly perfect by *Nature*, that it would be folly to add to it by *art* (in fact, it would show very little *art* if the wine-maker added to it); while in other seasons it will not be as perfect, and will need, perhaps, one-third of sugar and water to dilute the acids, and tone down its harshness: and the wine-maker, in making these additions, makes it more wholesome and more palatable, consequently of more value to the consumer. Although he cannot attain the delicacy of bouquet of the best seasons, he can still make a good, wholesome wine, which will be almost as good. If he makes poor wine at all, it simply shows that he does not know his business.

This anonymous writer also takes the bold ground, that he can detect whether sugar and water has been added. If it has been added before fermentation, and in the right proportions, and fermentation has been well watched; in short, if every thing has been done properly, — he *cannot detect it;* simply because fermentation changes the sugar into alcohol. In 1865, I made Concord wine in three different ways. Several casks were made of pure grape-juice: some were made by adding fifty gallons of sugar and water to a hundred gallons of must; and, again, other casks were made by fermenting sugar and water on the husks after the bulk of the juice had been expressed. I have shown these samples to hundreds, side by side, good judges of wine too, — perhaps better than the author of that very sage article, — and told them that one was pure grape-juice, asking them to select it. The result was, that some of them picked one sample, some picked the second, and others the third. All agreed, however, that the whole was *good wine;* and it has all been sold at the same price, although I told every one who wished to know it *how* it had been made. So much for the knowledge of *purity*, as *he* understands the term.

Again: many of our native grapes contain an excess of tannin, or astringency, and also of flavor, which makes their wine, if left undiluted, unpleasant to the taste and palate. By toning this down with an addition of water and sugar, we make it palatable and wholesome. Is it, therefore, less pure? or is it not really an improvement, devoutly to be wished by the wine drinking and consuming public? Perhaps it has never dawned upon the writer's mind that our grapes differ very much, in this respect, from the European varieties; and yet this is the case. Even our native varieties differ so much in this respect, that he who should treat their must alike would show thereby that he knew nothing of his business, and is unfit to make wine. Therefore my definition of *pure wine* differs from that of the gentleman in this, — that I consider wine *pure* as long as only such ingredients have been added *before fermentation* as are naturally in the

grape, though perhaps not in the right proportions. Whenever substances or ingredients foreign to the grape are added, it is no longer *pure*, but an adulteration.

Next we come to "Where are they?" I answer, "In the hands of every wine-maker, worthy of the name, throughout the country." I, for one, am ready to have samples of every cask I make subjected to the most critical chemical analysis; and if any thing is found therein which should not be in *good wholesome* wine, any thing injurious to health or foreign to good fermented grape-juice, I give this author, or anybody else, full leave to brand me as an impostor or adulterator. I have repeatedly offered this test to my opponents; have requested they would appoint a committee of chemists themselves, who should be at liberty to choose their samples in my cellar: but they have never accepted my offers. If they intend to be fair and manly, and consider the gallying process as great an imposition as they pretend, it is their *duty*, a duty they owe to the wine-growing interest of the country as well as to humanity at large, to demonstrate that they are right. I am free to confess (and I wish every one who may buy of me to understand it), that, if Nature furnishes me perfect must or grape-juice, I will have it so; if it is imperfect, I will try to remedy these imperfections by adding what Nature should have supplied, and will supply in *good seasons*, but failed to supply in this particular instance. This prating about adulteration will not convince as practical a people as the American. Let us have facts; investigate, and make your investigations known; or, if you will not do this much for the good cause, you have no right to make accusations which you cannot prove.

Next the writer goes into specifications of varieties, and says he has had Delaware from Cincinnati, Missouri, and Illinois, none of them pure (as he understands that term); and only Messrs. Mottier and Harmes's productions were pure for Delaware. He further says, that the Delaware has in itself all the qualities to make a good wine, and has the character of fully ripening its fruit in all sections. I beg to differ: first, I say he did not know whether he drank pure Delaware wine (as he understands the term), unless the maker chose to tell him how it was made; and, secondly, I contend that the Delaware does not always fully ripen its fruit. I have seen it drop its leaves so badly, that the grapes could not mature fully. I may differ with him also in the application of the term "ripe." I do not call a grape *ripe* when it is colored, but only when it has come to maturity without disease, and has hung on the vines, after coloring, until it begins to shrivel. I doubt whether the Delaware will attain this perfection *everywhere*.

Next our writer treats of the Concord, and says, "In South Illinois and Missouri, it can be grown to make a pleasant light claret wine, with, as we think, however, too much acid, but, nevertheless, *very good;* and as such we have drunk it." Now, if it contains too much acid, it certainly is not "very good," or even *good*. Here, however, it does not, in good seasons, and when fully ripe, contain too much *acid*, but has an excess of *aroma*, which is certainly tempered down and made more pleasant by adding water and sugar, although it makes a good wine *without* the addition.

"Isabella," he says, "ranks higher in weight of must than Concord throughout the East, North, and Western States." I beg to differ as far as relates to one of the Western States. The Concord varies here from 75° to 85° by Oechles scale; while the Isabella varies from 60° to 70° *in good seasons*, and has long been discarded by us as a *wine*-grape.

Next comes the Catawba, "on which" (we use quotations) "the reputation of the country so far stands as a wine-producing country." I must differ again. We have *at least ten varieties*, which all produce *a better wine than the Catawba;* and, to bring even it to the very highest perfection, the "art of wine-making" must be brought into play to a very large extent. Every one who tastes a Catawba berry, if ever so fully ripe, will find that it contains a great deal of astringency, which makes the wine too harsh if left undiluted. We quote further: "Nevertheless, there are many thousand gallons of really pure Catawba wine made at the West; and, among these good ones, the very best we have ever drunk we received last fall from George Leick, Esq., of Cleveland, O." Now, I happen to know Mr. Leick personally; and he freely acknowledged to me himself, that he added water and sugar, if necessary, to his wines. He would not be the skilful wine-maker he undoubtedly is, if he did not. So much for the writer's knowledge of "pure wine," as he understands the term. I will, however, make him a proposition. I hope to meet him at the next Pomological Congress in St. Louis, as I trust he will not "hide his light under a bushel," as he has done this time. I will then and there exhibit a Catawba, which for flavor, brilliancy of color, and general good quality, I am willing to stake against any sample produced in the country, East, West, North, or South. This I am willing to submit to any committee of chemists that the Pomological Society may appoint, for analysis, and challenge any grape-grower or wine-manufacturer to produce a better or purer article. Will he abide by the decision of that committee? and, should they decide in my favor, will he acknowledge himself beaten? The Iona and Ives's Seedling I will pass by, as I do not know enough about them. What I do know, however, coincides pretty well with his remarks. I think they have both been overrated as wine-grapes.

About Norton's Virginia, however, I know something, having been one of its early defenders; and still think it unequalled for producing a medical wine, resembling the best class of port. He says of it, "Its wine we have found generally nearly pure. It is so rich in itself of all the qualities that make up a good red wine, that there is *no necessity* of adding any thing thereto." So here he admits that there may be a *necessity* of adding something to other wines; and yet he has protested against the practice all along.

But, Messrs. Editors, I must close this rather rambling epistle, which I am afraid has already taxed the patience of your readers too much. I think I can leave the public to decide on the points at issue between the writer and myself. He has evidently, as our old German proverb says, "heard the bell ring but does not know where it hangs." He may have notions about wine-making, but really *knows* very little about it. *George Husmann.*

Hermann, Mo., July 1, 1867.

CLINTON VINES *vs.* ROSE-BUGS. — When I saw a paragraph in a horticultural paper advising grape-growers to keep one vine of the Clinton in the garden for the use of the rose-bugs, I thought it merely a feeble joke ; but experience teaches me that it is "nojoque" at all.

I have a Clinton vine at a little distance from a dozen other kinds, and its leaves are entirely riddled by the rose-bugs ; while I have not found six bugs on the other varieties, and none at all on the roses.

I pity the want of taste displayed by the bugs, but am glad to find that the Clinton is good for something. *J. M. M., Jun.*

P. S. — Since writing the above, I have found bugs in abundance on the Franklin : but that only strengthens the case ; for the Franklin is much like the Clinton, and just as worthless.

The *Celsis Occidentalis*, or nettle-tree, is quite common with us, and is held in very little repute.

We have never seen a tree of this species, although transplanted from the woods and hedge-rows into good soil and properly cared for, that was equal to our American elm, the different varieties of maples, ash, lindens, or any of our desirable shade-trees.

It may grow better, and be more highly esteemed, in other places ; but, if a nursery-man here should offer trees of this variety for sale, poor, indeed, would be his success among those that were acquainted with it. One of the most striking objects we have had this season was a fine bush of the *Weigelia Desboisii*. It is a strong grower, very abundant bloomer, and the flowers of a deep red. We like sometimes, for the sake of variety, to train up shrubs to a single stalk. We have seen the syringa (*Philadelphus grandiflorus*) almost resemble a tree, and also the *Forsythia*. The *Weigelia Desboisiii* resembles, when trained this way, and seen from a distance, a small tree of the double crimson hawthorn, and is a very attractive object. *I. H.*

WESTBURY, N. HEMPSTEAD, L.I.

MEALY BUG. — We know of no means of destroying the mealy bug, except constant washing with soap or glue water ; and that will only keep the pest under a little. In places swarming with it, it is most likely that the walls and stages and shelves are infested. We have seen slate stages taken up ; and, on every bearer, you could scrape off the insects in handfuls ; and hence all temporary expedients proved unavailing. In such circumstances, we would thoroughly clean out one house ; then we would shut it up closely, and smoke it for forty-eight hours with turpentine and sulphur burned, which, of course, would destroy every green thing and all animal life. We would then wash the house all over with boiling water holding soap in solution, dash it into every joint, and, when dry and exposed, fresh paint and clean. We would next bring in the plants that were cleaned, by cutting them back, and bathing their tops and roots, and then fresh potting in a moist heat. For the present, we know no remedy but washing, and that will only be a palliative. We never found smoking with tobacco of much use.

ÆCHMEAS: HOW TO FLOWER THEM FREELY. — The Æchmeas are stove herbaceous perennials of comparatively recent introduction; but from the ready manner in which they may be propagated, and the desire of all who see them in bloom to become possessed of them, they have become very extensively distributed. No great amount of success, however, would seem to have followed this general desire to become possessors of them; as to see them growing and flowering well is the exception rather than the rule. This is too generally attributed to a deficiency of heat, than which no greater mistake can be made.

To do them justice, they must have, when freely growing, an atmosphere well charged with humidity, and an average temperature of 60° to 75°. They require little or no shading. This, an average stove temperature about April, at which time they are forming fresh shoots, is quite sufficient to perfect their growth. This accomplished, which, in a general way, will carry them on to about the middle of May or the beginning of June, the customary aridity of their native habitats must be artificially imitated. When it is desired to make specimen-plants produce all the flowers possible, place them in the most exposed, the hottest, and the dryest position in the stove, and withhold water from them entirely. In this way, their vital energies are to be taxed for a month or six weeks, or, indeed, until they show obvious symptoms of suffering; and this will be found to induce them to form embryo flower-buds at the bottom of their cup-like growths. When this check has induced them to assume a state preparatory to flowering, treatment exactly the reverse of that last described must be suddenly entered upon. Abundance of water must be given to the roots, and the leaves must be syringed frequently; but water should not be allowed at this stage to stand in the cup-like formations previously alluded to, as it not unfrequently causes the embryo flower-spikes to rot away where young.

I have long practised another very simple method of flowering these plants in small pots, and in a form most suitable for in-door decoration, whether for the drawing-room or dinner-table, for either of which they are well adapted. About the middle of May, or between that and the second or third week in June, young shoots of the current season's growth are to be taken from the parent plant by cutting them off at the base, and afterwards laying them on their sides, in any convenient position in the stove, cucumber-house, or frame, for a fortnight or three weeks; after which they are to be potted singly and firmly into 48-sized pots, in a compost formed of peat, potsherds, and silver sand. They are to be treated subsequently in every respect like established plants. They come into flower from November to January, at a time when good plants suitable for in-door decoration are scarce. It should be well understood that the object in thus laying them upon their sides for a time is to induce the formation of the embryo flowers, and that the check thus given tends to secure this desideratum. By treating Bilbergias and Tillandsias in a similar manner, a like success may be realized. *William Earley.*

DIFFERENCE IN THE MARKET. — While native strawberries were selling in Boston for one dollar per quart, they could be bought in Philadelphia for from ten to fifteen cents the quart.

HEPATICAS. — I have double and single hepaticas growing side by side in my garden, both in bloom at this writing. I must confess, I prefer the single: they are more graceful and unaffected. The double ones are prim and regular, like small dahlias; but they bloom freely, and are very ornamental. I am astonished that the single hepaticas are not more generally cultivated. They grow in abundance in all our woods; are called wood-violets; and flower so early in the spring, that my garden is gay with them almost before the lawn is green. They are transplanted with ease, and accommodate themselves to any garden-soil and exposure; doing well in the shade, where few other plants will bloom. They increase rapidly, and form large clumps, literally covered in April with graceful, wide-awake little flowers of blue, pink, and white, and a thousand intermediate tints. They may be planted along the margins of beds, where they interfere with nothing. They require little care, and are sure to elicit the love and admiration of all who cultivate them. *W.*

TROY, N.Y., May 1.

NEW DOUBLE CRIMSON HAWTHORN. — This very fine variety of the English thorn is most remarkable for the intensity of color. In other respects, it is not materially different from the common double red hawthorn. We clip from "The Florist" the following account of its origin: —

"The history of the sport is briefly this: About seven or eight years ago, some flowers of this intense hue were observed on a plant of the double pink thorn; and, on examination, it was found that a strong branch had started up from near the centre of the tree, with leaves as well as flowers differing from its parent. The branch was encouraged, and year by year increased in size, retaining the color and character originally observed. The parent plant is apparently about twenty-five years old, thirty feet high, and as much in diameter, measured from the outermost branches at its greatest width. There is still only one stout central branch of this deep color; the other branches, which are profusely adorned with flowers, being of the original pale pink so well known to horticulturists. When looking at the tree recently, so great was the contrast between the sport and the original, that we could not rid ourselves of the impression that the parent variety was in this instance paler than usual; and we asked ourselves whether the coloring-matter had not been drawn from the larger surface, and intensified in this particular branch by one of those secret processes which the student of Nature is often called upon to behold and wonder at, without being able to account for or explain. This may be fanciful; but here is certainly a *lusus naturæ* worthy of the attentive consideration of our vegetable physiologists."

The plant, which has only recently been brought out in England, is well deserving of extensive cultivation. There is nothing more ornamental, or more endeared to us by early memories, than the showy and rosy hawthorn of May; but the colors have always been dull. Now, we have intensity of color, which must add much to the attractions of the plant. We suppose any stock of this variety can hardly yet have reached this country, but have no doubt that our florists, with their usual enterprise, will soon introduce it to the public.

CHINESE PRIMROSES AFTER FLOWERING.— They should be placed in a cold frame, and have air plentifully. Towards the end of June, they should be repotted in the same sized pots as before, most of the old soil being shaken from them. The lights should be drawn on closely, and a very light sprinkling of water given every evening, with shade from bright sun. When the plants recover from the potting, admit air freely, and keep them well supplied with water. At night, the lights may be drawn off, and replaced in the morning, tilting them high at back during dry, hot weather, and when heavy rains occur. In August, shift the plants into six-inch pots, pursuing the same treatment as before. The plants will bloom finely in autumn, all bloom-stems showing before September being pinched off closely. It is only the best that are worth keeping; for seedlings are better for a late autumn and spring bloom.

There is no better plant for the parlor than this.

ALOYSIA CITRIODORA (*Lemon Verbena*) PROPAGATION. — Cuttings may be taken from the shoots of the current year; and such are best when from three to six inches in length, and when the wood is about half ripe, or a little hardened, but not woody. They should have three joints, and not exceeding four if short-jointed. The leaves should be removed from the lowest two joints, and the cutting be cut through with a sharp knife immediately below the lowest joint. A six-inch pot is large enough for a dozen cuttings. The pots should be drained to one-third their depth, and then be filled up with a compost of sandy loam, fibrous peat, and silver sand, in equal parts, surfaced with silver sand. The cuttings are to be inserted in the sand up to the leaves, or nearly so, and placed round the sides of the pot, at about an inch apart. A gentle watering being given, the pot should be plunged in a mild hot-bed of from 70° to 75°, and slightly shaded from bright sun. The atmosphere should be moist, and the sand also, but not excessively so, otherwise the cuttings will damp off. If the atmosphere is close, they will soon root, and be fit for potting off singly in six weeks. Harden them off when well established.

The modern name of this plant is *Lippia citriodora*. Plants may also be raised from seeds; but they seldom ripen in our climate.

"The Botanical Magazine" for April figures the following new plants: —

SACCOLABIUM GIGANTEUM. — A rare and very beautiful orchid, introduced a few years ago from Rangoon, E.I. The species is nearly related to *S. violacea*, but differs in the shape and nervation of the lip.

The flowers are whitish, with lilac and white lip, agreeably fragrant, and last in full beauty about three months.

CORDYLINE AUSTRALIS. — A handsome small tree from New Zealand, almost hardy in the west of England, and wholly so in the Scilly Islands, where it has flowered in the open air. It is often seen in greenhouses under the name of *Cordyline indivisa*, which is a totally different plant, with broader yellow-green, strongly-veined leaves, and a drooping panicle of larger flowers. The trunk of this species is from twelve to twenty feet high, producing at the top a crowded erect panicle of white flowers. It would probably prove hardy in our Southern, and perhaps in the Middle States.

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.*

THE COLORING OF GRAPES. — Gardeners have both heard of and seen grapes badly colored, especially Black Hamburgs. Some ascribe the fault to bad supplies from the roots, others to the want of sufficient sunshine or light and air: but neither seems to be the chief cause; for large berries, badly colored, may be seen upon very strong vines, and the reverse on weak ones. In former days, when vines were not so highly cultivated, and grown under green or dark glass, there were fewer complaints of grapes being red instead of black.

I have been long of opinion that the chief cause is to be traced to injured leaves and unripe wood. In such cases, the supply of crude sap from the roots is not properly elaborated in the unhealthy leaves, nor, in its way through the immature vessels, in the green wood, on which the bunches hang. When this happens, I leave the laterals or young shoots beyond the bunches, instead of pinching them off, in order to encourage the vines to gather or produce more nourishment for the fruit. I have observed that there need be no fear of both the fruit and wood not ripening under the shade. For instance, the blackest cherries are found under the shade of leaves; and, without a proper supply of such, the young fruit on trees and vines may remain green until blackened by frost. I should remark, that neither extra heat nor sunshine has much influence on the unripe wood of vines after the proper time of their growth is past. Hence the inutility of placing vines in pots out of doors, in the full sunshine, after the crop is over, with the view of ripening the wood. Instead of this, the leaves are scorched, and thus all chance of their influence on the wood is gone; and on the condition of this the success of the next season's crop greatly depends.

TINNEA ÆTHIOPICA (*Violet-scented Tinnea*). — A beautiful plant; one of the results of the recent explorations of Central Africa, being brought home by no less than three of the expeditions. It is a bushy stove-plant, growing from four to six feet in height. Flowers profusely produced all along the shoots, of a purple-maroon, with light-green calyx, and having a delicious violet fragrance.

DICTYOPSIS THUNBERGII (*Thunberg's Dictyopsis*). — A climbing plant of the Smilax family, from Southern Africa, and well adapted for greenhouse culture. Flowers drooping, white, and bell-shaped.

DOMBEYA MASTERSII (*Dr. Masters' Dombeya*). — A small bush with bright pale-green leaves; native of Tropical Africa. The flowers are pearly-white, about an inch in diameter, in drooping panicles. A curious fact has been observed in the fertilization of this plant. The staminodes in the opening flower curve downwards and outwards, so as to come into contact with the stamens, whose anthers open outwardly, and allow their pollen to adhere to them. Being thus provided with a freight of pollen, the staminodes uncoil, and bring their points to a level with the stigmata, which curl round them, and thus receive the pollen.

We extract from an amusing article in "The Cottage Gardener" the following in reference to an orchard-house. It makes all the difference possible whether we look at the bright or dark side of the matter.

"I shall beg to introduce to your readers my friend Mr. Potts, who has lately built an orchard-house, as placing each dark reflection that arises in his mind in juxtaposition with its corresponding white.

"*Black.* — I have built a large orchard-house. It has been a considerable expense. The extras, including a tank, pump, and shelf for strawberry-plants, have exceeded by almost one-third the original estimate. My wife taxes me with extravagance, and thinks that the money would have been better expended in adding to my stock of household furniture, or providing an adequate supply of table-linen.

"*White.* — Never mind its liberal dimensions. Size, if a fault, is one on the right side: it argues in me, surely, a Sir Joseph Paxton largeness of mind. Besides, it has been all paid for, and so is fairly my own; which is more than can be said of every coat on every man's back. Extras are an inseparable accompaniment of every grand design. I do not much mind what my wife says. She really thinks that 'e'en my failings lean to virtue's side;' and I have as much reason for charging her with a lavish expenditure when she rides her hobbies as she me when riding mine.

"*Black.* — I cannot say that my house quite answers my expectations. I perceive that several spurs have only blossom-buds at their extremities (barren spray, Mr. Bréhaut calls these): a pretty kettle of fish, after all my painstaking! Other lanky shoots have, indeed, a leaf-bud at the end; but all the other buds, both leaf and blossom, have clean dropped out, — effects of unskilful pruning, of course.

"*White.* — My house makes a capital lounge. I enjoy my weed in it immensely. How jolly it is to bask in the sunshine when the east wind whistles outside! I am rather glad I built it, after all. When that barren spray is clean cut out,

plenty of spurs will remain; and several of them, I am glad to see, are furnished with double shoots. Hurrah! one for wood, the other for fruit. Alternate pruning.

"*Black.* — My trees were covered with blossoms; but not a quarter have set: they strew the ground, and make me think of a place said to be paved with good intentions. I believe those little busy bees have knocked half of them off. I wish they would improve each shining hour, instead of injuring my property. I saw a great bumble fellow on a very promising blossom, making it quite top-heavy.

"*White.* — I suspect, that, if all the blossoms had set, they would have been more than my trees could bear. A dozen peaches on each tree would not be a bad crop at a period when my trees can hardly be said to have arrived at years of discretion; and more than a dozen blossoms have set. In any case, I need not take the trouble to thin them, — an operation recommended in the books, but requiring great strength of mind. By the by, I remember to have heard that bees are invaluable; and they seem to have been sent for the special purpose of scattering the pollen, which it would be tedious to effect with a camel's-hair brush. How wonderful is the economy of Nature!

"*Black.* — Alas! some boys have been throwing stones over the wall, and have smashed several panes of glass. What wretches boys are! I should like to give them all a sound cuffing. At this rate, a fine glazier's bill I shall have to pay!

"*White.* — Boys will be boys. I was a boy once myself, and a bit of a pickle. I am fond of pickles, and appreciate exuberant spirits. There is something very charming in that freedom from care, that recklessness of consequences, and that mischievous disposition, which characterizes boys. It was very natural, now, of those urchins, who have accidentally broken my glass, to have been testing their projective powers; and it is a comfort to reflect that the apertures they have made in my roof will materially increase the ventilation of my house, — no mean factor, I am told, in the product of orchard-house success.

"*Black.* — The leaves that have made their appearance look queer. What makes them seem as if they had been twisted in curl-papers? Why, I declare, they are covered with aphides! Whence did they all spring from, I wonder? It is of no use killing off one when a thousand come to his funeral. No wonder flies were considered one of the plagues of Egypt. I will make instant arrangements for giving my house a thorough fumigation.

"*White.* — Others are quite as much bothered with insects as I am. Is there not comfort in the thought? I cannot help feeling glad that so many innocent creatures have been indebted to me for the jolly time they have had of it. Why, my house must have been to them a perfect Elysium. My man, who, bellows in hand, is busy in the work of fumigation, must have the lungs of a rhinoceros to stand that smoke: he seems to like it; for he has a pipe in his mouth as well. The smoke almost stifled me, and the one whiff I had of it sufficed to convince me of its necessarily fatal effects upon entomological existence."

And so on to the end of the chapter. White gets the better of it, as is always the case where one is determined to succeed.

The determination to succeed is success half achieved.

Bedding Roses. — Some people have an idea that any rose is a good pole or wall variety that grows strong enough to run up a pole or wall, and that any rose which is of a striking color and free-flowering is good for bedding. A pole or wall rose should be short-jointed, break well at all the eyes, with foliage or bud-stalks, and its side-branches should not grow longer than twelve inches without flowering.

My present purpose, however, is to speak of bedders. These should be roses of moderate growth, of striking colors, and of tolerably erect habit, requiring no props. Cardinal Patrizzi is a perfect type of a bedder. Let us suppose that you have parterres, and wish to have each filled with a separate sort on the principle of Tom Thumb pelargoniums: I think these would gratify your wishes: —

Hybrid Perpetuals. — Cardinal Patrizzi, deep rich purple-crimson; Triomphe d'Angers, brilliant velvety red-purple; Géant des Batailles, scarlet-crimson; Le Rhone, ruddle red; Jean Bart, the nearest to lake; Pauline Lanzezeur, bright crimson; Louise Margottin, delicate satin-pink; Prince Henri de Pays Bas, brilliant crimson, folded like a ball; Madame Alfred de Rougemont, white; Vainqueur de Goliath, crimson-scarlet; Madame Bonnaire, white, with peach blush; Duke of Wellington, rich crimson, with dark shade; Belle Normande, pale rose shaded with silvery white.

Bourbons. — Dupetit Thouars, beautiful crimson; Queen, buff-rose.

China. — Cramoisie Supérieure, rich velvety crimson; Eugène Beauharnais, amaranth.

Tea. — La Boule d'Or, egg-yellow; Auguste Vacher, very curious: the petals are pure deep gold at the base, and pure bright copper at the edges. The colors are half-and-half, without confusion.

Gallican. — The only good variegated roses suited for bedding-purposes are Œillet Parfait and Perle des Panachées. The former is by far the best variegated rose known, and most beautiful.

The best roses of a very dark nature for bedding-purposes are Alexandre Dumas and Vulcan, both hybrid perpetuals.

Beds of the above, with from twelve to twenty plants in each, would look well; and they are best suited to the purpose. — *W. F. Radclyffe, in Florist.*

A Plea for the Phalenopsis. — To the class among plant-lovers (it is hoped not small) whose pleasure lies not only in possessing what is rarest of floral beauty, but in the sharing the æsthetic delight it offers.

One tiny plant, imported within the year, has yielded so munificently of unequalled bloom, and given so many cultivated people a new pleasure of the right sort, and doubtless awakened much dormant love for what is best, that it would seem selfish to retain the experience.

The plant in question, *Phalænopsis amabilis*, came from England in July of last year, opened its first flower Nov. 14, quickly followed by four others, which, for an average of seventy-one days, afforded a delight hard to convey through words. Eighty-two days was the longest duration, in perfection, of any one of these flowers, and fifty-six the least. In the mean time, the same stem

had pushed, and three buds more formed and expanded before all the others had faded; and these, lasting an average of fifty-eight days, were succeeded by six others (the same stem still serving), which at the present writing (the middle of May) retain their incomparable purity and freshness, while the stem begins to form other buds anew. The flowers have measured three inches and a half across. What plant besides, for a period of six months, never without a flower, with a still incomplete record, is offered us?

In "The Gardener's Chronicle" for April of the present year is mentioned a display, in a private orchid-house, of this plant, where, "though a hundred flowers had been taken off for a ball, there were still, a few days ago, about a thousand flowers open."

The petals are of great purity of white, with a shallow throat beautifully marked with purple, rose, and yellow. It is a plant that deserves its rank, the "Queen of Orchids." *S.*

Troy, N.Y.

A friend having a plant of this same variety had at one time eighty flowers upon one stem and its lateral branches.

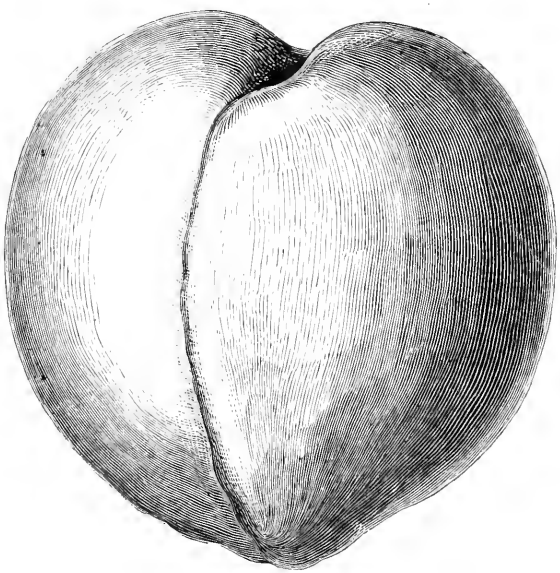
The Van Buren Golden Dwarf Peach. — This distinct and remarkable variety was discovered by Mr. J. Van Buren of Clarksville, Ga., in the year 1857. Mr. Van Buren states that he discovered it growing in his nursery, and expresses his opinion that "it is a sprout from some ordinary variety." Evidently it is a chance seedling; but its habit of growth and other characteristics are so marked, that it is hard to understand how it could have sprung from our common peach. The wood is so short-jointed, and so thickly set with fruit-buds, as to resemble the wood and buds of the currant; the buds not being more than a quarter of an inch apart. I should judge that the tree would rarely exceed four feet in height; and it will bear full crops at half that height, as I have had experience the present season. In its dwarf habit, it is probably exceeded by the Italian Dwarf, though the latter is not equal to the Van Buren in other respects. This dwarf habit is no stunted growth: on the contrary, the growth and foliage are most luxuriant, the leaves being of the richest green. It is obvious that a fruit having this character will prove invaluable for many purposes, provided its quality is up to the standard. Its habit is perfect for house culture, never requiring pinching, and little pruning of any kind. Considering its productiveness, and the small space required, we may say, that, in habit of growth, it is the *ne plus ultra* for forcing. In the colder sections of the country, many cultivators are adopting the plan of keeping peaches in pots throughout the year; removing them to the cellar during the winter as a protection from frost, and plunging the pots in the open ground during summer. Of course, a good dwarf would have manifest advantages for this purpose. So also dwarf trees, when planted in the open ground, can be much more easily protected from frost by means of boughs or barrels. Now as to the quality of the fruit, and other characteristics of the variety.

As one of the fruits of the late war, we have been deprived of this fruit up to this date. Mr. Van Buren had just prepared to send out his stock of trees

when the war broke out. A few trees got into Pennsylvania before the lines were established ; and from these come our present stock, which is now in the hands of most nursery-men. In some instances, I have heard that the wood was injured by the cold of last winter in the vicinity of Boston. Trees standing in my own ground were uninjured in wood, though the fruit-buds were killed. The indications are that it is not as hardy as some other kinds. This is a great drawback for open culture. I would here mention that peach-wood does not bear burial in the ground as well as most other kinds of fruits. If the soil is any other than light and sandy, the wood of the peach is liable to blacken and rot. Evergreen boughs with leaves around the roots will probably be quite sufficient protection for the wood and fruit-buds.

I have had the good fortune to ripen this fruit in pots this season. The trees were started very gradually in the house, and plunged in the open ground in early June. I should judge it might ripen in the open ground about Sept. 15.

The following representation of the fruit shows the average size, though the form varies considerably : —



Description. — Fruit large, oblong, sometimes round ; apex often very prominent and pointed ; color a golden yellow, with rich crimson cheek ; flesh yellow, firm, juicy, sub-acid, sprightly, and good ; clings firmly to the stone. Time probably Sept. 10 to October. Notwithstanding the general objection to clingstones, and also the doubt as to its entire hardiness in full exposure, yet it has other qualities, which, to all appearance, make it a decided acquisition.

W. C. Strong.

LEAF-BEET, OR SWISS CHARD (*Beta cicla*). — The leaf-beet is a native of the sea-coasts of Spain and Portugal. It is a biennial plant, and is cultivated for its leaves and leaf-stalks. The roots are much branched or divided, hard, fibrous, and unfit for use.

Propagation and Cultivation. — It is propagated, like other beets, from seed sown annually; and will thrive in any good garden-soil. The sowing may be made at any time in April or May, in drills eighteen inches apart, and an inch and a half deep. When the plants are well up, thin them to ten or twelve inches apart, and treat during the season as the common red beet, stirring the surface frequently, and keeping clear of weeds. The excellence of this vegetable consists in the succulent character of the stems, and nerves of the leaves; and these properties are best acquired in moist and warm seasons, or by copious watering in dry weather.

Taking the Crop — "The largest and fullest-grown leaves should be gathered first: others will follow. If grown for spinach, the leaves should be rinsed in clean water, and afterwards placed in a basket to drain dry; if for chard, or for the leaf-stalks and veins, these should be carefully preserved, and the entire leaves tied up in bundles of six or eight in each."

Seed. — During the first season, select a few vigorous plants, and allow them to grow unplucked. Just before the closing-up of the ground in autumn, take up the roots, and, after removing the tops an inch above the crown, pack them in dry sand in the cellar. The following spring, as soon as the ground is in working order, set them out, with the crowns level with the surface of the ground, and about two feet and a half apart. As the plants increase in height, tie them to stakes to prevent injury from wind; and in August, when the seed is ripe, cut off the stems near the ground, and spread them entire, in an airy situation, till they are sufficiently dried for threshing out.

The seed, or fruit, has the appearance peculiar to the family; although those of the different varieties, like the seeds of the red beet, vary somewhat in size, and shade of color.

An ounce of seed will sow a hundred feet of drill, or be sufficient for a nursery-bed of fifty square feet.

Use. — "This species of beet — for, botanically considered, it is a distinct species from *Beta vulgaris*, the common or red beet — is cultivated exclusively for its leaves; whereas the red beet is grown for its roots. These leaves are boiled like spinach, and also put into soups. The midribs and stalks, which are separated from the lamina of the leaf, are stewed and eaten like asparagus, under the name of 'chard.' As a spinaceous plant, the white beet might be grown to great advantage in the vegetable garden, as it affords leaves fit for use during the whole summer."

The thin part of the leaves is sometimes put into soups, together with sorrel, to correct the acidity of the latter.

The varieties are as follows: —

Green or Common Leaf-Beet. — Stalks and leaves large, green; the roots are tough and fibrous, and measure little more than an inch in diameter; the leaves are tender, and of good quality.

If a sowing be made as soon in spring as the frost will permit, another in June, and a third the last of July, they will afford a constant supply of tender greens, nearly or quite equal to spinach. For this purpose, the rows need be but a foot apart.

Curled Leaf-Beet. — Stalks white; leaves pale yellowish-green, with broad midribs, large nerves, and a blistered surface, like some of the savoys. It may be grown, as a substitute for spinach, in the manner directed for the common or green-leaved variety.

Red Stock Leaf-Beet. — Leaf-stalks bright purplish-red; leaves green, blistered on the surface; nerves purplish-red. A beautiful sort, remarkable for the rich and brilliant color of the stems and nerves of the leaves.

Yellow-stalked Leaf-Beet. — A variety with bright-yellow leaf-stalks and yellowish leaves. The nerves of the leaves are yellow, like the leaf-stalks; the color is peculiarly rich and clear; and the stalks are quite attractive, and even ornamental. Quality tender and good.

Silver-leaf Beet. — *Swiss Chard.* — Stalks large; leaves of medium size, erect, with strong, white ribs and veins. The leaf-stalks and nerves are cooked and served like asparagus, and somewhat resemble it in texture and flavor. It is considered the best of the leaf-beets. — *F. Burr, Jun.*

Blue-flowered Bedding-Plants. — It is a very common remark among flower-gardeners, both amateur and professional, that we have only one really good blue-flowered bedding-plant; namely, *Lobelia erinus speciosa*, with its varieties. Now, to say the least of it, this assertion is very unfair, as by implication it reflects rather seriously upon the good name and character of more than one very respectable blue flower. The lobelia certainly is the most serviceable, because the most manageable, of any blue-flowered bedders which we as yet possess, and, for certain situations, could hardly be surpassed by any the most visionary could imagine. In scroll or chain-borders, associated with *Cerastium* and other low-growing plants, nothing can be better: but I have seen beds eight or ten feet in diameter massed with it entirely, with a view to complete some complicated combination of colors which nobody but the designer himself could detect; and, however well such beds may look from a bird's-eye point of view, to ordinary earth-walking mortals like myself they appear decidedly weedy.

Delphinium formosum, while admired by everybody, is but little used as a bedder; though why this should be the case is not very evident. As regards color, it is in no way inferior to *Salvia patens;* while in form, habit, and storm-enduring capabilities, it is, beyond all doubt, greatly its superior. For mixing in large informal beds, as centres for such, or as a second back row in ribbon-borders, it is very effective: in fact, by a moderate amount of pegging-down, it may be made available for nearly every situation in any design not absolutely arabesque. The sole blot in its character is, that, between the first and second flowering, there intervenes a period of six weeks or two months, according to the season: therefore, to obtain a succession of flower, it is necessary to plant doubly thick, and retard every alternate plant by cutting it back a week or so

before the time it would be in flower. This naturally induces an earlier second growth, which will come into bloom in good time to take the place of the plants not subjected to the same treatment.

I have thus grown this *Delphinium* with varied success for the last three years, keeping the plants in reserve-beds over winter, and transplanting them about the end of April, by which time the flower-stems are well developed; and the operation serves the purpose of retarding them considerably, especially if a good part of the roots are cut off in the process.

I am now inclined to think that the same result might be better effected by using only seedlings of the preceding year. By raising them from two or more distinct sowings, there is little doubt that a succession of superb blue spikes might be obtained from June to November; and I think it would be interesting to many readers of "The Journal of Horticulture" if some correspondent would show a little light on the subject.

Another blue bedder, the merits of which I think are but scantily appreciated, is the beautiful little Cape aster (*Agathæa cælestis*). Its tidy habit, dark-green foliage, and sky-blue, star-like flowers, all indicate it as a plant almost worthy of its name, — certainly of more patronage than it has yet received. — *Ayrshire Gardener.*

SOWING PENTSTEMON-SEED. — The seeds should be sown in May, in pans well drained, and filled to the rim, or nearly so, with light turfy loam. Scatter the seeds over the surface after having made it smooth, and cover with fine soil to the depth of a quarter of an inch. The pan may then have a gentle watering, and be placed in a cold frame, or on the front-shelf of a greenhouse; shading it from sun, so as to keep the surface moist until the plants appear; then discontinue shading, and admit air freely. Keep moist; and, when the plants are large enough to handle, prick them off in a bed in the open ground, shading for a few days until established, and finally planting out where required.

CYCLAMEN PERSICUM CULTURE. — Sow the seed in February. When the seedlings are large enough to handle, prick into small 60-pots; giving the last shift into large 60's, which are quite large enough for the first year.

From the time the seed is up, the plants should be kept in a moist, growing temperature, but by no means with a confined atmosphere; and, at the end of ten or twelve months, fine blooming plants can be had.

After the blooming period, the plants should not be allowed to become dry at any time of the year, or to be exposed to the mercy of the weather during the summer months. When they show signs of starting, they should be repotted, but without destroying any of the roots; and as little as possible of the old soil is removed. Keep them in a cool house, with a free circulation of air.

A good way to preserve them during the resting-season is to bury the bulb, as soon as the foliage decays, in the flower-border, covering it (pot and all) with about a foot of earth. Let it remain until October; take it up and repot: it will be found fresh, and in good condition.

Chinese Potato, or Japanese Yam (*Dioscorea batatas*). — Stem twelve feet or more in length, of a creeping or climbing habit; leaves heart-shaped, though sometimes halberd-formed; flowers small, in clusters, white. The roots are club-shaped, about two feet in length, two inches and a half in their largest diameter, of a rusty white or yellowish color without, remarkably white within, very mucilaginous, and so easily broken, that they are rarely taken from the ground in a perfect state.

Propagation and Cultivation. — The Chinese potato requires a deep, light, rather sandy, and tolerably rich soil; and this should be thoroughly stirred to the depth of at least two feet. No fresh manure should be used; but fine, well-decomposed compost applied, and deeply as well as thoroughly incorporated with the soil; avoiding however, if possible, its direct contact with the growing roots. It is propagated either by small roots; by the top or neck of the large roots, cut off to the length of five or six inches; or by the small bulbs, or tubers, which the plants produce in considerable numbers on the stem, in the axils of the leaves. These should be planted the last of April, or as soon as the ground is in good working condition. Lay out the land in raised ridges two feet and a half or three feet asunder, and on the summit set the bulbs, or tubers, with the point or shoot upwards, eight or ten inches apart, and cover about an inch deep. Cultivate in the usual manner during the summer; and late in autumn, after the tops are dead, and just before the closing-up of the ground, take up the roots, dry them a short time in the sun, and store in the cellar for use. The roots are perfectly hardy, and will sustain no injury from the coldest winter if left unprotected in the open ground. During the second season, the growth of the old root is not continued, but gradually decays as the new roots are formed.

Use. — The roots are eaten either boiled or roasted, and require rather more than half the time for cooking that is usually given to the boiling or roasting of the common potato. When cooked, they possess a rice-like taste and consistency, are quite farinaceous, and unquestionably nutritive and valuable for food.

Though strongly recommended as a vegetable likely to become a substitute for the potato, the cost of preparing the ground for planting is so great, the harvesting is so difficult and laborious, and the yield is generally so small, that the plant must be classed as one not worthy of cultivation. — *F. Burr, Jun.*

Taking up Tulips, Anemones, and Ranunculuses, after Flowering. — The bulbs and roots of these plants may be taken up after flowering, and when the foliage turns yellow, as they are then perfected. They may be dried a little on a shelf in a cool, airy shed, and, when dry, stored away in sand. It does not injure them much, if at all, if they are mature when taken up, and they are planted early in autumn.

Stuartia pentagynia (*Five-styled Stuartia*). — This charming shrub pleases us more and more every year. We know not which is more pleasing, — the elegance of foliage, or the beauty of the flower. The bud is very beautiful, especially when half expanded. Altogether, it is one of the most valuable ornamental shrubs, and should be extensively planted.

CHUFA, OR EARTH ALMOND (*Cyperus esculentus*). — A perennial plant, from the south of Europe. The roots are long and fibrous, and produce at their extremities numerous small, rounded or oblong, jointed, pale-brown tubers, of the size of a filbert. The flesh of these roots, or tubers, is of a yellowish color, tender, and of a pleasant, sweet, and nut-like flavor. The leaves are rush-like, about eighteen inches high, a little rough, and sharply pointed. The flower-stalks are nearly of the same height as the leaves, three-cornered, hard, and leafless, with the exception of five or six leaf-like bracts at the top, from the midst of which are produced the spikelets of flowers, which are of a pale-yellow color.

Propagation and Culture. — It is propagated by planting the tubers in April or May, two inches deep, in drills two feet apart, and six inches apart in the drills. They will be ready for harvesting in October. In warm climates, the plant, when once introduced into the garden, spreads with great rapidity, and is exterminated with much difficulty. In the Northern and Middle States, the tubers remaining in the open ground are almost invariably destroyed by the winter.

Use. — It is cultivated for its small, almond-like tubers, which, when dried, have somewhat the taste of the almond, and keep a long period. They are eaten either raw or roasted.

When dried and pulverized, they are said to impart to water the color and richness of milk. — *F. Burr, Jun.*

CASTLE-KENNEDY FIG. — We find in "L'Illustration Horticole" a fine representation of this excellent and popular variety. This fruit has existed at Castle Kennedy, Scotland, for more than a century; and its origin is unknown.

Its great value is its earliness, and the facility with which it can be forced. It is, under similar treatment, a fortnight earlier than the White Marseilles, — the earliest variety of any value, — three weeks earlier than the Brown Turkey, and more than a month earlier than the Brunswick. The fruit is thus described: —

Of the largest size, turbinate or somewhat obovate; the skin of a pale dingy brown on the half nearest the eye, and of a greenish yellow on the half towards the stalk, the brown part being mottled with ashy-gray specks. The flesh, when fully ripe, is of a dull opaline color, with the slightest tinge of red towards the eye; very melting, and of good flavor.

When within a few days of being ripe, a clear, honey-like substance, of exquisite flavor, begins to drop from the eye of each fruit. When quite ripe, this substance becomes somewhat viscid, hanging like an elongated dewdrop from half an inch to three-quarters in length, giving a very remarkable appearance to the fruit.

The Annual Exhibition of the Lake-shore Grape-growers' Association, Ohio, will be held at Elyria, Oct. 15, 16, and 17. Mr. Bateham, the secretary, says, "The prospects of the coming grape-crop are reported as very favorable in all parts of the county; and a very hopeful feeling exists in regard to the future of grape-culture, especially in the Lake-shore region."

TUBEROUS-ROOTED TROPŒOLUM (*Ysano. — Tropœolum tuberosum*). — This is a perennial plant from Peru, and deserves mention as a recently-introduced esculent. It produces an abundance of handsome yellow and red tubers, about the size of small pears, the taste of which is not, however, very agreeable. On this account, a particular mode of treatment has been adopted in Bolivia, where, according to M. Decaisne, they are treated in the following manner: —

The tubers designated "Ysano," at La Paz, require to be prepared before they are edible. Indeed, when prepared like potatoes, and immediately after being taken up, their taste is very disagreeable. But a mode of making them palatable was discovered in Bolivia; and the ysano has there become, if not a common vegetable, at least one which is quite edible. The means of making them so consists in freezing them after they have been cooked; and they are eaten when frozen. In this state it is said that they constitute an agreeable dish, and that scarcely a day passes at La Paz without two lines of dealers being engaged in selling the ysano, which they protect from the action of the sun by enveloping it in a woollen cloth and straw. Large quantities are eaten sopped in treacle, and taken as refreshment during the heat of the day.

Propagation and Culture. — The plant may be propagated by pieces of the tubers in the same manner as potatoes, an eye being preserved on each piece. The sets should be planted in April or May, according to the season, about four feet apart, in light, rich soil. The stems may be allowed to trail along the ground, or pea-sticks may be placed for their support. In dry soils and seasons, the former method should be adopted; in those which are moist, the latter. The tubers are taken up in October, when the leaves begin to decay, and stored in sand. — *F. Burr, Jun.*

"The Floral Magazine" for June figures —

AURICULA PETER CAMPBELL. — A fine florist's variety, with a bright-green edge, and dark crimson-brown ground-color.

EARLY TULIPS (*La Plaisante and Van Spaindonck*). — The former, golden-yellow, barred at the sides with crimson, and a broad flame of crimson-lilac in the centre of each petal; the latter, cream-color, slightly stained with green, flamed and barred with lilac-crimson.

ODENTOGLOSSUM ALEXANDRÆ. — One of the loveliest of the cool-house orchids, which thrives under the same treatment as its congeners; requiring an abundant supply of water when growing freely, the soil never being dry. In summer, they should be carefully shaded from sunshine, and a moist temperature maintained; the night temperature being then 15° or 20° lower than the day temperature. In winter, little or no water should be given, and the atmosphere be kept as dry as possible. The temperature in winter should be about 50°, and in summer from 60° to 80.

HIPPEASTRUM PARDINUM. — A remarkable addition to this portion of the Amaryllis family, sent from Peru to Messrs. Veitch. The flowers are from six to seven inches in diameter, very spreading and open, spotted all over with dark crimson-red dots on a cream-colored ground. The plant is peculiar in expansion, in color, and in marking. It flourishes under the usual modes of culture of the family.

TARRAGON (*Artemesia dracunculus*). — A hardy, perennial plant, said to be a native of Siberia. Stalk herbaceous, about three feet in height; the leaves are long, narrow, pointed, smooth, and highly aromatic; the flowers are small, somewhat globular, greenish, and generally infertile. There is but one variety.

Soil, Planting, and Culture. — As the plants seldom produce seed, tarragon is usually propagated by dividing the roots. Select a warm and comparatively dry situation; stir the ground deeply and thoroughly, and in April set the roots in rows fifteen inches apart, ten or twelve inches apart in the rows, and cover two or three inches deep. They will soon send up vigorous shoots, which may be cut for use the first season.

It is sometimes increased by cuttings, set three or four inches deep in moist earth. If seeds can be obtained, they should be sown in April or May, in a nursery-bed or in a common frame. Sow in shallow drills six or eight inches apart; and, when the plants are three or four inches high, set them out as directed for the roots. They will early become strong and stocky, and may be used in August or September. The plants are more healthy, yield more abundantly, and are of finer quality, when not allowed to run to flower.

Use. — "Tarragon is cultivated for its leaves and the points of its young shoots, both of which are used as ingredients in salads, soups, stews, pickles, and other compounds. Tarragon-vinegar, so much esteemed as a fish-sauce, is made by infusion of the leaves in common vinegar. It is also added to most salads to correct their coldness. Three or four plants will be sufficient for a family." — *F. Burr, Jun.*

In Curtis's "Botanical Magazine" for May, we find the following plants figured: —

DALECHAMPIA RŒZLIANA (*Rœzl's Dalechampia*). — A superb plant, native of Vera Cruz; an erect shrub, with bright-green leaves. The beauty of the plant lies in the bright rosy involucres which surround the flowers, and which entitle it to rank in splendor with the Bougainvilloaæ.

AGAVE SCHIDIGERA (*Splintered-leaved Century Plant*). — This species, nearly allied to *A. filifera*, flowered in England last January. The flowers are green, about three inches long. As an ornamental plant, it may well claim a place in collections.

GOMPHIA THEOPHRASTA (*Theophrasta-like Gomphia*). — This species, recently introduced from South America, is a small stove-shrub, producing panicles of pale greenish-yellow flowers.

EPIDENDRUM EBERNEUM (*Ivory-flowered Epidendrum*). — A handsome orchid, discovered on the line of the Panama Railroad in 1866. The sepals are of a pale citron-green; the lip large, spreading, and ivory-white.

MYRTUS CHEKEN. — An evergreen myrtle from Chili, with white flowers, which may prove hardy in the Southern States. It forms a pretty thick-spreading bush, plentifully furnished with starry flowers.

"The Dayton (O.) Journal" says it is estimated that the peach-crop in the Miami Valley this season will be greater than for a dozen years before.

A Trio of first-class Marantas. — There are few family groups of plants with ornamental foliage that would go farther in affording materials combining rare beauty and picturesque variety for the decoration of a plant-stove than that of the *Marantas*, in which are popularly included certain species that more strictly belong to *Calathea* and *Phrynium;* though, for all gardening-purposes, they may be regarded as one. The *Caladiums* may be more flaunting in their coloring, and may create a more favorable first impression; but we doubt if even they, with their soft-textured flabby leaves, could stand a close comparison with the polished party-colored and more permanent-leaved *Marantas*. Whatever his special predilection, whether in favor of arads, ferns, palms, or other popular groups, no one could deny that the *Marantas* come into the first rank of fine-foliaged plants of moderate size.

The *Marantas*, taking the name in the broad sense above indicated, form not only a well-favored, but, as we have intimated, a numerous family; no fewer than twenty-five new members whereof were shown in one group by Mr. Linden at the International Horticultural Exhibition of 1866. Our present object is not, however, to exhaust the catalogue of beauty which the genus affords, but to invite especial attention to a few of the choicer gems which our gardens have recently acquired from it. These are *Maranta Veitcheana*, *M. illustris*, and *M. roseo-picta*.

Maranta Veitcheana, referred by Dr. Hooker to *Calathea*, was the first known of the foregoing. It was a stout, free-growing herb, attaining the height of two feet or upwards; its stalked leaves being more than a foot in length. These are ovate-elliptic, with a dark, glossy green ground: in strong contrast with which occurs a series of large obcuneate patches of pale-yellowish or grayish-green close to the midrib; and these, being closely placed, form an irregularly-defined pale centre. Exterior to these, and about midway to the margin, occurs another series of bold, connected markings of a lunate or scalloped outline, and of a transparent yellowish-gray, giving the leaf a remarkably pictorial effect, either when seen from above or beneath; for the paler portions, as seen against the light, show themselves to be quite transparent. The under side is of a rich vinous purple, paler where the spotting occurs. The effect of this coloring is very rich; so that the plant is remarkably attractive, especially when it acquires mature size, and has thrown out a spreading head of beautiful leaves.

Maranta illustris is of a somewhat different type, being of dwarfer habit, and having comparatively broader leaves, with shorter petioles. The leaves are roundish-oblong, deep reddish-purple beneath, and with a red footstalk; the base of the costa being also red. Along the centre, on each side the costa, is a band of yellowish-green; and thence, directed outwards, occur alternate zebra-like bands of pale and deep green; next occurs a scalloped belt of pale, grayish-green, almost white; and finally a shaded dark-green margin. The contrasts presented by these tints, which here and there, except in the case of the white belt, blend softly into each other, is very charming; and the plant is one of the most beautiful of its race.

Maranta roseo-picta is of the same character as the last, but is apparently of smaller growth. It has roundish-oblong leaves of a shaded dark-green color

throughout, except that a wavy or scalloped belt of clear deep rose-color extends from the base to the apex, a little within the margin; and that the costa is conspicuously deep rose-colored throughout. The petiole and back of the leaf are of a deep-reddish purple or wine-color. These *Marantas* all come from Tropical America. The exact habitat of *M. Veitcheana* is not stated; but that of the others is the country bordering on the Upper Amazon. The plants are figured *M. Veitcheana* in "The Botanical Magazine," t. 5535; *M. illustris* in "Flore des Serres," t. 1691–2; and *M. roseo-picta* in the latter work, t. 1675–6. — *Florist.*

VIOLETS IN POTS. — The runners should be taken off in May or early June, and potted in small pots in a compost or turfy loam and leaf-mould, with a free admixture of sand. The old plants may be divided, potted in small pots, and placed with the runners in a cold frame, a gentle watering being given. Sprinkle the plants overhead morning and evening, and keep them close and shaded until they are growing freely; then admit air, and diminish the amount of shading; dispensing with it altogether in a few days, or as soon as they will bear sun In July, shift them into 4½-inch pots; and the most promising may, early in September, have 6-inch pots. They should be well watered, but not excessively, and have a good watering overhead on the evenings of hot days. The lights should be drawn down after the plants become established. They are better off in a rather shady place from May to September. Winter in a cold frame, the pots being plunged in coal-ashes, with air during mild weather, and the protection of mats over the lights during severe frosty weather.

CUTTING DOWN STEPHANOTIS. — It is not desirable to cut back the shoots of this plant, as they flower very freely from moderately-strong shoots. It is generally sufficient to thin out the old, weak, and useless shoots, and to train the young in their places. This should be done annually. If the plant is bare at bottom, cut it in to within a few inches of the soil, the shoots having dormant buds or eyes below where headed; but it will not flower next year. If cut back one-half, it is likely it will be as bare of shoots at the bottom as ever. It should be plunged in the pit for some time to secure the breaking of the buds and a good growth. The latter cannot be too well ripened.

A letter from Moorefield, West Va., says that the wheat-crop in that valley will be the largest and probably the best in the last ten years. Corn, though a little backward, bids fair to be a full average crop: rye, oats, potatoes, grass, &c., are all satisfactory, and vegetables of every kind are in abundance.

The Annual Exhibition of the Wisconsin State Agricultural Society will be held this year at Madison, Sept. 23, 24, 25, 26, and 27; Horticultural Convention, 24th.

PEACHES. — The peach-growers of Kent County, N.J., have contracted to send into market eight hundred thousand baskets of peaches this season.

HELLEBORUS NIGER (*the Christmas Rose*). — This kind is a native of woody mountains in many parts of Europe, especially those of Austria, Piedmont, Styria, Greece, Provence, the Pyrenees, and Apennines; and is an old inhabitant of English gardens, for it was introduced so far back as the year 1596.

The Christmas Rose grows from nine to twelve inches high, and has rather large, smooth, pedate leaves, somewhat resembling a large bird's foot, and produced in the spring after the flowers have faded. The flowers are large, cup-shaped, with a white or rose-colored corolla-like calyx, and produced in scapes from the end of December to March; at first pure white, afterwards rather pink, and finally becoming green before fading.

In mild seasons, the flowers begin to expand towards the end of December: which circumstance has gained for the plant the name of Christmas Rose.

There are two varieties of the black hellebore, — one the common kind, and the other with larger flowers and narrower leaves. The latter is an Austrian plant, sometimes named *vernalis* in gardens, on account of its flowering much later in the spring than the common or broad-leaved kind.

The virtues of the *Helleborus niger* were formerly too much extolled in the old herbals. It is probably now undeservedly neglected: but its use requires great caution; for its effects are very uncertain and dangerous, as it loses its virtues by keeping. Its medicinal uses are as purgatives in cases of mania, melancholy, lethargy, dropsy, and for worms. Snuff made from the dried leaves causes violent sneezing: while, if smoked like tobacco, it is a good remedy for the tooth-ache.

The roots, however, are the part used in medicine, and consist of a black furrowed roundish head, about the size of a nutmeg, from which short-jointed branches arise, sending out numerous fibres about the thickness of a straw, blackish outside, white or yellowish-white within, and of an acrid, nauseous, and rather bitter taste, exciting a sense of heat and numbness in the tongue, and having a nauseous smell. The root is used in the form of a tincture; but its effects are uncertain and dangerous.

VIOLA CORNUTA AND ITS CULTURE. — This was introduced from Spain to the Royal Gardens at Kew, by Dr. Ortega, in 1776. A very correct figure of it appears in Curtis's "Botanical Magazine," vol. xxi., plate 791. It is strange that the plant should have remained unnoticed by any one, with the exception of its being figured and described in "The Botanical Magazine" above referred to, for nearly ninety years; more especially as it offers a shade of color that has been so long wanted for toning down, and giving effect to the many strong and glowing colors which we possess amongst our bedding-plants. The plant would, no doubt, have perished long ago, but for its extreme hardiness. It thrives in any common soil without care; and, when once the plant is established, there is some difficulty in eradicating it, as the smallest piece of the root will grow if left in the soil, and will soon produce a plant.

It flowers very profusely in a dry soil; but thrives better, and produces larger and more highly-developed flowers, when grown in a rather moist and partially-shaded situation. It seeds very freely, and may be propagated either from seeds or cuttings.

The seed should be sown in shallow pans, and should be buried in the soil about an inch and a half or two inches deep ; the pans should then be placed in a cold pit or frame.

Cuttings may be pricked out in pans ; or some good sandy loam may be put into a pit or frame, if there is enough of cuttings at hand to fill a small box. If, as will most likely be the case, only a few cuttings are to be had at this early period of the plant's second advent, they had better be pricked out in pots or pans, and placed in a cold frame or pit as recommended above for the seed. As soon, however, as they are nicely rooted, they should be pricked out into a small frame or cold pit, in some rich sandy soil, where they will grow very rapidly ; and by the end of March they will have made good, strong plants, when they may again be divided into a great number. They should then be planted out in nursery-beds ; and, by the first week in May, the plants will be ready for planting out in their final quarters, where they will at once begin flowering very freely. The small plants in the seed-pans should have similar treatment to that recommended for the cuttings, but should not be pricked out before they have made the third or fourth pair of leaves.

Where early-spring flower-gardening is carried out, cuttings should be struck early in August and September, and the plants placed in their final quarters about the end of October. — *Cottage Gardener.*

[It is doubtful whether this plant, now so popular in England, will survive our winters unprotected. Seed may be obtained of any seedsman ; and the plants, of florists. We should be glad to hear of the results of experiments in its culture from any of our correspondents.]

Gloxinia Culture. — Early in February, take from their winter-quarters the pots containing the dormant tubers, and place them on a level surface ; then with the watering-can give as much water as will moisten the soil, which will have become dry during the time the tubers have been at rest. This done, plunge the pots in a bottom heat of from 65° to 70° ; but, if bottom heat is not at command, a vinery that is at work will answer very well. With due attention to watering, the tubers will in two or three weeks have started, and begun to grow freely. Then, but not sooner, turn them out of the pots, and carefully shake the old soil from them, doing as little injury to the fibres as possible. Transfer them to clean, well-drained pots a size larger than those from which they were taken ; using the following compost, which I have found to suit them admirably : Two parts decayed leaves, one part fibry loam, and one part dried cow-dung broken into little lumps about the size of cob-nuts ; adding as much silver sand and fine wood-charcoal as will give the whole a nice, friable texture. This compost should, at the time of its being used, be nice and dry, and of the same temperature as the structure in which the plants have been growing.

The soil being in readiness, proceed with the repotting by first draining the pots ; an operation which must be done efficiently, as the well-doing of the plants depends in a great measure on this. On the top of the drainage place the roughest portion of the compost, pressing it firmly down with the hand ; and fill

the pots, until, by placing the tuber on the soil, the crown reaches to within an inch of the top of the pot. Then fill in between the pot and the tuber with the finer portion of the compost; give the pot a few smart taps on the bench, which will cause the soil to penetrate amongst the fibres; and finish by pressing the soil round the tuber with the fingers, leaving the crown just peeping through the soil. This being done, give a gentle watering with tepid water, and return the gloxinias to their old quarters; if in the bark-bed, place a small flower-pot, not inverted, beneath each, which will prevent worms from entering, and allow the water to pass off freely.

After the pots have been plunged for a fortnight, raise them one-half their depth, and in another fortnight lift them entirely out of the bed, placing the plants where they can have as much light as possible, but not near a flue or hot-water pipes, as dry hot air is very injurious to the foliage. Examine the plants daily, and see that none suffers from want of water. That used should always be of the same temperature as the house in which the plants are growing. Be also careful not to over-water, as, if the soil becomes saturated, they will cease to thrive.

As soon as the plants begin to show flower, remove them to the warmest part of the greenhouse, as the flowers should expand in the same heat as that in which they are to remain. In hot weather, a slight shade will be necessary during the hottest part of the day. As the plants go out of flower, water must be gradually withheld; and they should be placed in a position where they can have all the sun possible: this will cause the tubers to ripen and go to rest, which is necessary to their future well-doing. During the period of rest, these must never be exposed to a temperature below 45°.

Rhubarb running to Seed. — It throws up flower-stems more abundantly when planted in poor than in rich ground; but it will produce its large umbels under any circumstances after it has been planted three or four years, some kinds more than others. This weakens the roots very much, and should not be allowed. Cut away the seed-stems, when you first perceive them, level with the ground; and this will induce the formation of crowns at their base, instead of the energies of the roots being expended in the production of seed.

Rhubarb should be grown in rich soil. Manure freely every autumn, covering the bed with well-rotted manure, and especially covering the crowns of the plants. In spring, point this manure into the bed. Propagation may be effected by division in autumn or spring: we prefer the former season.

Plants may be raised from seed; but seedlings often possess unpleasant purgative qualities, and experimenting with seedlings may be attended with disagreeable results.

The correspondent of "The Journal of Horticulture," hailing from Yellow Springs, O., in treating of "the pawpaw," page 262, observes, "We do not remember to have seen, in book, pamphlet, or newspaper, the mention of its name, except in technical botanical treatises," &c. If he will refer to the first Geological Report of Ohio, page 69, he will find that Dr. Kirtland, one of the

assistant geologists, suggests that "it is worthy of inquiry, whether the *custard-apple, pawpaw* (*Asimina triloba*) might not be made to break into rich and palatable varieties by artificial means." That report was dated Dec. 2, 1837, though misprinted 1839.

Apple-Orchards in Maine. — That the apple-orchards in our State have been decreasing both in number and fruitfulness during the past ten years is a fact we are more fully made aware of as each succeeding summer and harvest passes by. Years ago, nearly every farm in the older-settled portions of the State boasted its apple-orchard, which, thrifty and vigorous, produced its annual crop, with rarely a failure. But now it is very different. Perhaps nine-tenths of the trees are dead, dying, or of no value. Occasionally a young orchard is found which bears well, and repays its owner many-fold. Why this state of things? Let us look into the subject a little, and see if we can see any reason for the fact.

During the severe winter of 1855–6, large numbers of apple-trees were killed outright, and many more so badly injured that they never fully recovered. In certain exposed situations, the whole of the previous year's growth on the ends of the limbs of young trees were killed, and the tree thus stunted and dwarfed in its growth. We have not experienced such a season since, and it is to be hoped we never shall. Another cause has been the ravages of insects, especially the borer (*Saperda candida*) and two caterpillars (*Clisiocampa Americana* and *C. silvatica*). The borer does a great deal more damage than he gets credit for; and the two varieties of caterpillars in many sections, last year and year before, stripped whole orchards bare of their leaves. I have seen large orchards of hundreds of trees almost as naked in midsummer as they were in December. Not satisfied with despoiling the orchards, they ravaged the forests, eating the leaves of most kinds of deciduous trees, though poplar and ash seemed to be their favorites. I saw forest-trees last summer from which a bushel of the full-grown larvæ could be easily scraped as they lay gathered in masses up and down the trunk. Another cause of the failure of our apple-orchards is the lack of proper cultivation. We are just beginning to learn, that, to raise a crop of apples, we must cultivate and feed the plant just the same as in growing any other farm product. Years ago, the rich, virgin soil, aided by other attendant circumstances, was sufficient to produce heavy crops, without especial care in cultivation and the need of fertilizers. But those times have gone past, and our farmers find they must continue to return the constituent elements of plants to the soil in the form of manure, else they will have impoverished fields. And a few also, comparatively, have found by experiment, that, if they give their apple-trees care and food, they will make good returns; and further, that a field or soil will not produce a heavy crop of apples and a heavy crop of grass the same season.

There are other minor causes, such as exposure and climatic changes, caused by removing the sheltering forests, the introduction of Western trees, and the grafting of less hardy varieties. A good many Western-grown nursery-trees have been planted out during the past ten years; but the people are now fully aware of the error, and, in future, only home-grown stocks will be set out to any

extent. As to varieties, of course we have many, according to the fancy of the grower; but the Baldwin is yet the standard, and it is the only winter and market variety grown extensively. There has not its superior been found as yet.

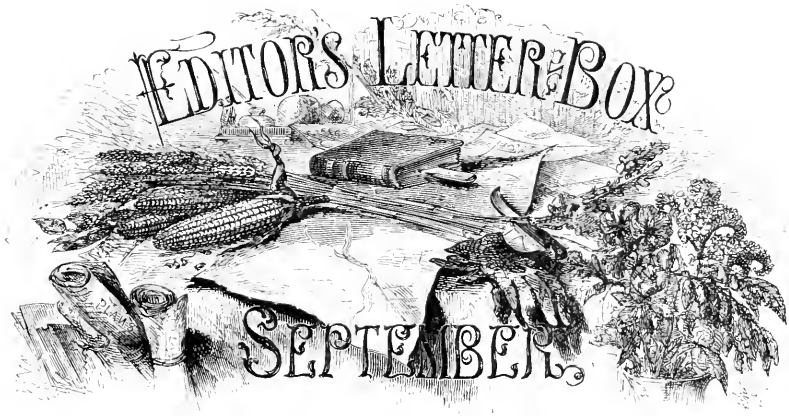
What would, then, seem to be the requirements for successful apple-culture? We will venture to answer, Good stocks and good cultivation. Can any one prove otherwise? If so, please do so: we are open to conviction. The borer can easily be headed off; the caterpillars can be subdued, though it requires care and labor; a good exposure and shelter can be obtained; and with home-raised trees, properly planted, fed, and cultivated, why may we not again produce apples, if not so abundantly, yet as profitably, as of yore?

At this writing (June 10), the trees are just in blossom. There is not a prospect of a full crop. Baldwins are blooming sparsely, many uncultivated orchards being almost without blossoms. The number of caterpillars is very small compared with last year. *George E. Brackett.*

Belfast, Me.

Treatment of Czar Violet after Flowering. — Presuming it to be in a pot in a cool house or frame, remove the plant, after flowering, to a shady border, and plant it out in a compost of rich turfy loam with a little leaf-mould. If the plant is large, and capable of increase, the runners may be slipped off, placed in small pots filled with a compost of sandy loam and a little mould, and set in a cold frame. Keep the plants rather close and shaded until they are established; then remove them to a shady but open situation, and plunge the pots to the rims. When the pots are full of roots, shift into larger pots, say four inches and a half in diameter, using the same compost as before; and in July shift into six-inch pots, using a compost of turfy loam two-thirds, and one-third leaf-mould, with a free admixture of sharp sand. The plants should be well watered overhead and at the root, especially during dry weather; and this treatment should be continued throughout the summer, avoiding any thing approaching to a saturated or sour soil, of which they are very impatient. They may remain out of doors, the pots being plunged to the rim in coal-ashes, in a sheltered situation, or, better, in a cold pit or frame, protection being afforded from severe frost. You may turn out the plants, as already mentioned, in a sheltered, shady situation; previously dividing them, and planting the divisions six inches apart every way, and keeping them shaded until established. They ought to be kept moist, and be frequently watered overhead. Towards the end of September, you may take the plants up with balls of earth, and place them in well-drained six-inch pots, or any size large enough to hold them well. Place them in a frame, and remove them, as required, to an airy shelf in the greenhouse.

Ludwig's Bigarreau Cherry. — This cherry was introduced by Mr. Rivers of Sawbridgeworth, and was fruited in one of his orchard-houses in 1865. This variety is remarkable on account of its shape, which is long heart-shaped, being much more so than any other cherry with which we are acquainted. It is a fine early Bigarreau, ripening just after the Early Red Bigarreau, in the end of June, and beginning of July. The flesh is pale yellow, very melting and juicy, and much more tender than Bigarreaus usually are.



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.

R. B. E., East Bridgewater, Mass. — Take up the dahlia tubers a few days after the frost has killed the foliage; dry them slightly in the sun, and pack them away in shallow boxes, in dry sand or powdered charcoal, in a frost-proof cellar; or simply put them in a dry place where no drip will fall on them, under a greenhouse stage. If you have no boxes, lay them on the dry floor of a cellar, and pour dry sand between them. They are the easiest of all roots to keep.

R. B. E., East Bridgewater, Mass. — The Chinese Wistaria will not prove perfectly hardy with you, especially in the exposed situation in which you have placed it. Even if the wood is not killed every winter, the flower-buds would be. We advise you to plant your Wistaria in a sheltered southern exposure, and place where it is a hardier climber; or, if you wish a Wistaria on *that* trellis, plant our native species (*W. frutescens*), which, though not so handsome as the Chinese, is a beautiful climber, producing short racemes of purple flowers at intervals from June to autumn. It is a rampant climber, and grows very rapidly.

As to the Chinese species, it is not advisable to leave it unprotected during the winter, in Massachusetts; though when well established, and in cities, it is not badly winter-killed, and the flower-buds survive about one year in three. Often a mat is sufficient winter protection. Young plants are better laid down, and covered with earth, during the winter. In New York, Philadelphia, and other places with a milder winter, the Wistaria is the handsomest of climbers, draping the houses from basement to attic, and flowering with a luxuriance unknown in New England.

INQUIRER. — You can easily distinguish our native pines. The white pine has five needles on a cluster, the red or Norway pine two, and the pitch-pine three. Their growth is also so different, there can be no mistaking them.

Shall I improve my buckthorn-hedge by pruning or shearing it during the season? — Yes. After it has made its early growth, if it is shaved, it will start again, and thicken up considerably.

A WELL-WISHER. — What are the three best sorts of Rogers's Hybrids? — There is a great difference of opinion in regard to the Rogers's Hybrids. It is said that Mr. Rogers thinks the No. 15 the best variety he has sent out. We are inclined to the belief that Nos. 41, 4, 9, and 3, are among the best. No. 15 has not proved to be very good with us.

The Salem, the latest variety sent out by Mr. Rogers, is said to be very fine.

G. A. L., Baltimore, Md. — The subject of the application of the *periodic law* to agriculture and horticulture is of vast importance. There is little known on the subject. We should be happy to publish (if within our sphere) the results of any investigations or any facts which may have come under your notice. Meanwhile, we subjoin as a text for others the item you send: —

"The peach district is progressive, moving from the north towards the south at the rate of about fifty miles in twenty years; when again it returns, by a single leap, to the place of starting.

"In other words, peaches are grown with complete success only after the ground has rested for a period of about *twenty years;* it having been found that intervals of such length are necessary in order that the soil may become perfectly disinfected from all injurious qualities imparted to it by diseased trees, or that it may fully recover those peculiar constituents exhausted by the growth of previous years."

A. L. S., Springdale P. O., Utah. — The flowers came in good order: all are species of penstemon, except Nos. 1 and 9. On these, as well as on the names of the penstemons, we will report in a future number.

The colors are very fine, and seeds would be acceptable. They will probably prove too tender to be treated other than as bedding-plants with us in New England; being wintered in a frame, and planted out to bloom in summer. In the Middle States, they would prove hardy. The flowers are all good; some very fine.

C. L. M., Vineland, N.J. — Thanks for the information. The roots are probably what we stated; though *why* they should be there, we cannot say. We call them "roots" only for want of a name: we have expressly stated before they are not true *roots*.

A. L. B., Lee, Mass. — The seeds of *Cobea scandens* do not vegetate freely unless planted sideways. As you planted them in the open ground, there would be no chance of their making blooming plants in one season, even if they had come up. You should have obtained a plant from some greenhouse, or planted the seed in a pot in a hot-bed. It is a very rapid climber when once established. The variety with variegated leaves is very pretty.

NAMES OF PLANTS. — A L. B., No. 1, *Dictamnus fraxinella;* No. 2, *Davallea bullata;* No. 3, *Delphineum Hendersoni;* No. 4, *Clematis erecta.* — Subscriber A., some kind of acacia; B., *Acacia cultriformis;* C., *Achimenes longifolia;* D., *Marven.* Your plant is *Ipomea coccinea:* the cypress-vine is *Ipomea quamoclit*, or *Quamoclit coccinea*, a very different plant.

MAUD MULLER. — The Siberian pea-tree is, botanically, *Caragana.* There are many species which you will find fully described in Loudon's "Arboretum." That most commonly grown is *C. arborescens*, which forms a tree of the second class, with pea-shaped foliage and yellow flowers. The species are all hardy, and merit a place in the shrubbery. There are many trailing species, which, grafted as standards, make pretty weeping trees.

A. C. H., Newport, R.I. — It is nothing remarkable for the white thimbleberry to root at the ends of the new shoots. In fact, the best way to propagate the plant is to bury the shoots, when roots will come out every few inches, and you can have plants by the hundred. Let them remain buried, however, until next spring, when each tuft of roots will send up a shoot and make a plant.

Pursue the same plan with your black-cap raspberries.

MARGARET, Nashville. — There are rose-colored and double lily of the valley, also a variety with variegated foliage; but none equal, in grace, purity, and beauty, the common single variety.

The lily of the valley is a native of this country as well as of England. It was discovered by Nutall, lost, and finally, a few years since, rediscovered.

GOOD OLD THINGS, Elyria, O. — We quite agree with you: the Longworth Prolific Strawberry is very good, hardy, and productive; better than nine-tenths of the new kinds. We do not think it as profuse a bearer as the Wilson, or as firm a berry; but it is sweeter and higher flavored. There are several kinds sold as Longworth which are poor berries. The true Longworth is an excellent strawberry: the greatest fault we know is, it sometimes persists in having a white nose.

YOUNG BOTANIST, New London. — It *is* very discouraging to have the names of plants continually changing. Often it seems to be mere caprice; but generally there is good reason, or the change is the result of further study, showing that the name first given was wrong. Names once bestowed and popularized will, however, even if erroneous, cling to plants in spite of all botanists may say: thus *Dielytra* and *Weigela* will cling to the plants so named in spite of their reference to the old families of *Dicentra* and *Diervilla;* and Englishmen, to the end of time, will call *Sequoia*, *Wellingtonia*.

IDEM. — Your flower is the best of our native asclepias, silkweed, or milkweed. It is *A. tuberosa*, commonly called butterfly-weed or pleurisy-root. It is perennial; has a deep root, which you may remove to the garden in spring or autumn, where it will bloom for years. It is a very brilliant flower; and, among all exotic perennials, you cannot find a more showy plant.

WILD FLOWER. — The plant you send is a vigorous specimen of *Lilium Philadelphicum*, the common blackberry-lily. Generally, the plant has but one flower; often two; rarely, as in your specimen, three. It probably might, by high cultivation, be made to produce even more. The bulb is small, and very white.

Of our other native lilies, *L. Canadense* has from one to fifteen drooping yellow flowers, and *L. superbum* from one to thirty drooping orange-red flowers. Both improve in cultivation.

BERRIES, Malden. — We see no reason why the common whortleberry, or "huckleberry," should not be improved by cultivation. The largest and most distinct wild plants should be selected, removed to the garden at the proper season, cultivated highly, and seedlings raised from the berries. It is a field which has been but little experimented in, and you have it all to yourself. White whortleberries are not uncommon; but they are no improvement, and have a sickly, unwholesome look.

I have several grape-vines of the improved sorts that I can layer. Had I better do it? or save the wood, and use it for cuttings next spring? — Plants grown from layers are not considered quite so good as plants grown from cuttings or single eyes; though we confess, that, practically, there seems to be but little difference. They are generally stronger at the same age. You will gain one year by making layers now; for they will get nicely rooted this season, and you can save the wood that comes from higher up the vine for cuttings. Better layer.

ROSE, Marion. — For the rose-slug, use a solution of whale oil-soap, applied with a syringe ; or the new *sapo tabacum* is equally efficacious, and less offensive. For the rose-bug, the thumb and finger and a dipper of hot-water are the best remedy. Rose-bugs are seldom numerous enough to do much injury to the foliage ; but they destroy the flowers : you also find them on many other flowers and trees, such as spirea, cherry, grape-vines.

Is the mountain-seedling gooseberry a profitable sort to raise ? I have already Houghton's Seedling : how does the mountain-seedling compare with it ? — We regard the first-named variety quite as productive as the Houghton : berries larger ; never mildews ; grows more upright and stronger ; more easily picked ; fewer thorns, or spines. It is true that it is not so high flavored when ripe : but, except this latter point, it is superior to the Houghton ; and, as most of the gooseberries are sold green, this is not an important matter.

Please name a few of the best cherries ? — Black Eagle, Black Tartarian, Black Heart, Downer, Mayduke, for early use ; Napoleon Bigarreau, if you want one of this class.

H. S., Milwaukie. — If you wish for a fair bed of pansies next spring, you have only to procure your seed from some reliable seedsman (be sure and get the best), and sow during the month of August or September, either in a box or seed-pan, or, what is still better, in a cool frame on a spent hot-bed, where it may be sheltered both from the direct rays of the sun and dashing rains. The soil should be a light loam, finely sifted. Make the surface smooth, upon which the seed may be thinly scattered ; sprinkle some of the soil over the seed, barely covering it, and gently press the surface ; water when necessary, using a water-pot with a fine rose : on no account let the soil become dry. The young plants will make their appearance in about two weeks, which must be carefully guarded from the direct rays of the sun. Prepare your bed where they are to blow by spading deep, and thoroughly enriching with well-decayed compost : cow-manure, well decomposed, is preferable. Transplant the plants ten inches apart as soon as they can be handled. Upon the approach of freezing weather, cover the bed with hemlock or spruce boughs, so that the plants may be thoroughly protected from freezing and thawing. As soon as the frost is out of the ground in spring, uncover the bed, and, with a hand-fork, loosen the soil between the plants. Should the plants be weak, and show but one flower, this should be pinched off, which will cause the formation of side-shoots and a more stocky plant. Keep the soil well stirred, and free from weeds, and you will be richly rewarded for your labor.

MRS. WILLIAM H., Milford, O. — Will you please inform me what is the best time to gather winter pears, and the best way of keeping them through the winter ? — It is a safe rule to let winter pears hang on the tree until the time of picking winter apples, or until the fruit begins to drop considerably. After being picked, they should be kept in a dry, cool place ; the cooler the better, if they do not freeze. Some pears will ripen up with very little trouble. The Law

rence, for instance, is a variety that may be treated just as apples are treated, headed up in barrels, and they will ripen finely; while other varieties require very different treatment. From time to time, as winter pears are wanted for use, they should be taken into a warm place, when a few days will suffice to ripen them perfectly. The principle involved in the patent fruit-house of Prof. Nyce is to keep the fruit dry and cool until just before it is wanted for the table, and then treat it as directed above, bringing it into a warm place.

VINELAND, N.J., claims to have sent the first water-melon to market from that State this year.

A SUBSCRIBER, Norwich, Conn. — We have stated decidedly and repeatedly that anonymous communications would not call a reply. If the information you ask for is not the value of your signature, it certainly is not worth our time to give.

T. W. O., Eden Home, Chalfaut, O. — What do you mean by the "common alder (*Alnus incana*) bearing a large crop of delicious, rich, and fine-flavored berries"? — Your plant may be the ELDER (*Sambucus*) or the MOUNTAIN-ASH (*Pyrus Americana* or *acuparia*): it cannot be an ALDER. Send us foliage, flowers, or fruit; and, when we have identified the plant, we should be glad to learn the culture by which you produce such desirable results.

A. C., West Cambridge. — Has the Keyes's Prolific Tomato proved thirty days earlier than all other varieties? — We think not. We have asked several farmers who have raised it this year in regard to its earliness as compared with other varieties; and most of them say it is no earlier or better than Cook's Favorite and some other sorts. One or two persons said it might be a *very few days* earlier than some others. It is no more prolific than other well-known varieties. It needs further time to fully decide the question of its value.

SUBSCRIBER, Springfield, Mass. — My peach-trees have ripened their fruit earlier this year than ever before; and on some branches they ripened before they were very large, and before the fruit on the remainder of the tree ripened. What is the cause? — We should think it was a clear case of the yellows, a disease that has destroyed thousands of peach-trees in many parts of the country. The only remedy is to dig up and destroy all that show symptoms of the disease.

H., Philadelphia. — Some of the pear-trees in my garden have shed their leaves, the fruit not being grown. Will it ripen? — If the trees have lost most of their leaves, the fruit will not be good. If it is nearly or quite grown, and would soon have been ripe if the leaves had remained on, it is possible that some of it may be eatable, but probably poor. If the trees so affected are winter varieties, the fruit will be of no value.

OLD AND NEW HOMES.

CHAPTER I.

I HAD always been a *castle*-builder, — I, the daughter of a plain farmer, with pretensions very moderate, and experiences, thus far, not particularly interesting, yet not actually wearisome ; accustomed to all the variety of occupation with which a New-England farmer's daughter is supposed to be familiar, — the inevitable, never-ending butter-making ; the constant, daily milking of cows ; the looking after churns, cheese-press, milk-pans, and the like ; the spring work of watching the young poultry ; the summer work of all kinds, with the large family of harvesters to provide for ; and the autumn and winter employments of apple-gathering, cider-making, paring and drying, hog-killing, and sausage-stuffing. This routine generally brought us within sight of the new year. The men of the family then seemed to have a season of leisure, in which they might read, or improve themselves ; and, except the daily feeding and watering of the stock, then had rest from the toils of a farmer's life.

But not so with the women. If the family was smaller, and if certain of the summer duties were no longer to be performed, there were others to

take their places. There was less butter to be made, but it was churned with more difficulty; and the sewing was all to be done by hand, enough to last the family for a year.

Oh! those were toilsome days; yet now I look back to them with a few feelings of tender regret. It was then that my air-castles were reared, as I sat wearily at my needle, plodding towards the conclusion of some long task, which, when ended, would only be followed by another equally uninteresting. It was then I pictured to myself some quiet, less toilsome mode of life, both for myself and parents, in which our labor would be better compensated. Nay, more than that: I even dreamed of some far-future day, when, after some intervening years of industry and frugal management, we might cease from toil, and live on the income of our savings. These were my castles, upon whose building I expended so many happy thoughts: whether they were ever to be realized, or would vanish into thin air like many other visionary schemes, remained to be seen. Yet I kept the notion in my heart, and to me my castles were very real and practical things.

My father was a man of considerable intelligence, and fond of reading. It had long been customary among the farmers around us to subscribe for sundry agricultural papers; and he, like his neighbors, took his favorite weekly journal, in which were sure to be discussed the comparative merits of this or that mode of ploughing or planting, or breeding stock. A system of exchange brought many of these different agricultural publications into our house, and many a hint was thus gained which afterwards proved useful. There were various theories just starting into vogue, and some practical experiences given, whose timely warnings were calculated to prevent the waste of at least a season or two in needless or unprofitable labor. Farming was evidently becoming a science, not a mere drudgery of ploughing, planting, and reaping. Men's minds were being diverted somewhat from the whirlpool of mercantile affairs to the more certain and less fluctuating business of tilling the soil. Thousands were leaving the crowded streets of the cities, the turmoils and discouragements of the money-marts and the stock-exchange, where, in these times, fortunes were made and lost in a single day. These were the days of scarcity of dwellings, and of high rents. One might well wish to escape from the caprice of landlords to repose beneath the cool shade of his own grape-vine, whose fruit would be

far more refreshing than any which a stranger could show. For such reasons, the science of farming is being studied by a different class of people from those of former days. Men of education and refinement are bringing their learning and common sense to bear upon questions of soil and subsoil, labor-saving machinery, and other details of farm-life; thus producing great changes in the old routine of agriculture. Most of those, who, as yet, had been unable to break away from the irksome business of the city, had some treasured dream of the future, whose consummation was only awaiting their convenience.

During the latter part of the time to which I now refer, quite a change had come over my father. He had read the various accounts of farming and farmers in other sections of the country, and was surprised to find how different were the modes of proceeding. There were the rich, rolling prairies of the West, just ready for the plough, and suited best for grain and grass. No manure was needed, for there had been no exhausting crops to impoverish the soil; there were no stones to dull the ploughshare; with many other real or supposed advantages, which seemed to strike the attention of a Connecticut farmer: but then there was the long distance from home, from markets, from churches and schools. When he sometimes broached the subject of a removal to the West, we all, with one accord, clung with longing to the old homestead in New England, preferring its rocks and hard-earned crops, with those other precious advantages, to the most promising of Western prairies.

Still, it was evident that his mind was bent upon a removal somewhere. As winter wore on, we were not surprised to hear him propose a trip down through New Jersey, the great fruit-growing section, of which he had so often read. It was a new field; for he had never before travelled beyond the boundaries of his native State, nor witnessed the style of horticultural farming which is peculiar to some portions of that region. The Camden and Amboy Railroad, let me here remark, traverses a belt of country from the south-west to the north-east of New Jersey, which is wonderfully productive; but to his eyes, accustomed to the stubborn soil of New England, it had a strangely unpromising aspect.

It was the end of February, and the Connecticut farms were still covered with snow a foot deep. Not a thought of out-door work had entered the

minds of the farmers at home ; yet here, only three hours away from New York, the fields were being ploughed, and early pease were planted in many places. Next would follow the early potatoes, beets, and onions. Rows of green spinach were even now ready for the market ; for it had been growing bravely all winter under the snow. Then by every little farm-house were to be seen the hot-beds, covered with sash, in which were but just sown the seeds of tomatoes and egg-plants : they would be ready for planting out on the first of May. It is true, there might be some cold weather yet, and a few light snows ; but they would do no injury to pease or potatoes : and by the middle or end of March, unless the winter was unusually prolonged, the rows of pease would be up, and vigorous. There were acres of strawberries, only awaiting the advent of milder and more settled weather to be cleared up, and made ready for the crop ; while everywhere were peach-orchards, with blackberry and raspberry bushes to fill up the intervening spaces. This was another grand difference between the New-England and New-Jersey farming. Small fruit-farms were the favorites here. "A little farm well tilled" was, in some neighborhoods, the prevailing sentiment ; for the plantations were near together, and seemed to contain not more than fifty acres each, many even less. All this my father took in at a glance, as he moved swiftly along in the cars ; and so well pleased was he with his observations, that he determined to stop at the next town. He had set out on a tour of investigation, and was bent on carrying out his plans.

"Burlington!" shouted the conductor as the train came to a stand-still before a handsome hotel in the midst of an old-fashioned-looking town. My father alighted on the platform, and made the best of his way in at the open door of the bar room. Others were registering their names, — persons who were evidently strangers like himself : so, glancing his eyes over the list of arrivals, judge of his astonishment at discovering there the name of one of his own neighbors ! A natural curiosity arose in his mind to know what could have brought this old-fashioned farmer — more so, if possible, than himself — to travel down into this region. He knew how careful he had been to say nothing of his own trip beforehand, or of the secret purpose that had induced him to become a traveller for the first time in his life. Could it be possible, then, that the same motive had actuated both ?

Supper-time came before long; for the days were short, and it was late in the afternoon when the train arrived: so, answering the summons of the gong, he followed the cavalcade of hungry travellers and boarders into the dining-room, where, already in his place, was to be seen his old friend Brown of Waterbury. The surprise was, of course, mutual; and, after discussing the merits of the good things spread out before them, these two old-fashioned Connecticut farmers sat down together to talk over the subjects in which both were immediately interested; and, curious as it may seem, both had come hither on the same mission. Had they met at home, neither one would have been disposed to be communicative; but, as it was, they concluded to join in their investigations for mutual benefit and consultation.

Mr. Brown had been here for several days already, during which time he had been riding around the country, intending to satisfy himself by actual survey, and inquiry from those who knew best, as to the real prospects for farmers in this region. He had the figures to show how much could be made from an acre of ground if thoroughly cultivated, and the theory upon which these experiments had been conducted; namely, the ground must be well manured, economically planted, and assiduously tilled, following up one crop after another in quick succession, at the same time feeding the soil with fresh applications of manure.

"It is true," he said, "that to us this would seem too extravagant and costly a style of proceeding; but the fruit-growers around here tell a different tale. 'Where is the saving,' say they, 'if you make but half-crops in consequence of a diminished supply of their proper food? It is surely wise to spend fifty dollars in fertilizing your acre, if it produces you a hundred dollars more in consequence. But it does even more, at the same time keeping up the condition of the land.' This is a new theory for us, neighbor; but there may be something in it, after all."

My father was surprised also, yet obliged to admit that there was philosophy in the argument; and, when the figures were given to show the average products of the various little fruit-farms around the neighborhood, new light began to dawn upon him.

A very limited survey of the farms lying within reach of some of the numerous stations on the great iron highway between New York and Phila-

delphia unfolded to these pioneers a section of country of which they had no previous conception. The views obtained upon the carriage-roads were altogether more favorable than those afforded from the cars. On the latter, a hasty passing glance could give only a bird's-eye view of the region; while, on the former, the perfect cultivation and thrift could be clearly observed.

In their carriage-rides around the country during the two following days, they made long calls at various farms where fruit-growing was a speciality, and learned from the communicative owners a multitude of particulars touching crops, labor, markets, and profits. There, if the facts were fairly represented, an industrious, managing man might annually produce, and send to market, far more fruit than would be sufficient to maintain his family, while his farm was slowly, but surely, increasing in value. No one depended on any single crop; for all had many in succession. If the strawberries were cut short by excessive rains, the raspberries and blackberries were benefited. If the hot sun shortened the hay crop, it would insure the perfecting of those luscious melons with which New Jersey feeds all New England. So ran the story with regard to other products: if any one crop should fail, the variety which each season yielded was so great, that the loss was in no case embarrassing. They looked suspiciously on the light sandy loams of these farms, and found it hard to believe that they could be made thus permanently productive.

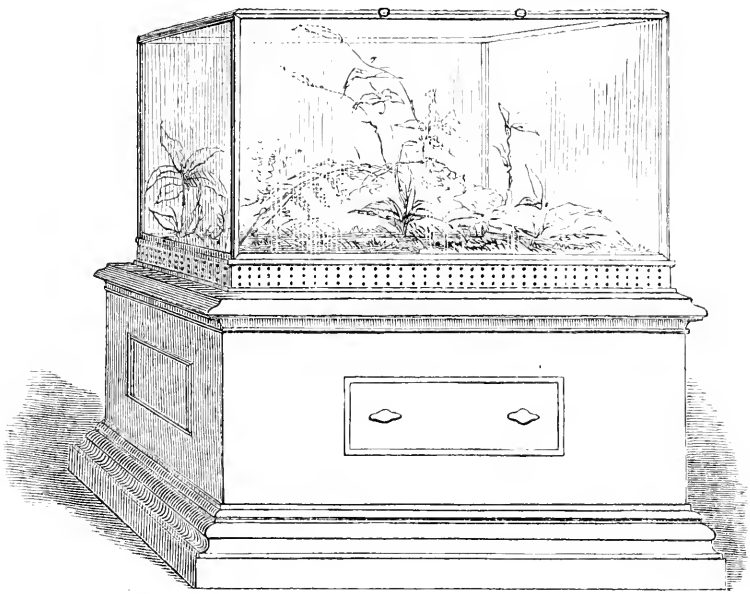
Well, the result of this prospecting was, that my father, being well pleased with what he saw and heard of horticulture in New Jersey, bought a farm, of which, it was agreed, he should have possession by the end of March. We were properly astonished when he returned, and told us of his doings. I must say that I had some misgivings as to whether the move was for the best; but his sanguine temperament re-assured me. We were soon too busy in preparations for our departure to spend much time in discussions, for the time was short; and what we saw and did and suffered and enjoyed must be deferred to future papers. *H.*

BURLINGTON, N. J.

THE WARDIAN CASE.

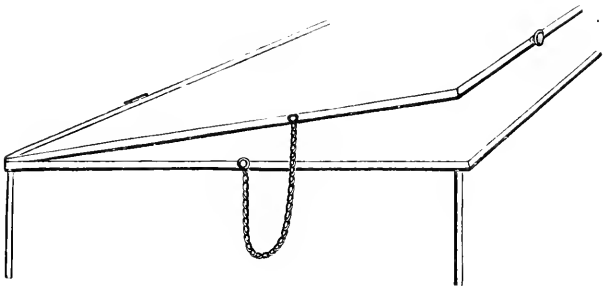
In writing of Wardian Cases, let me be understood as referring only to my own. I have no general knowledge on the subject. A few years' experience with one, however, according to the old Latin proverb, qualifies me to judge of all.

The following sketch will give an idea of the general appearance of the Case I have had in operation for three winters:—



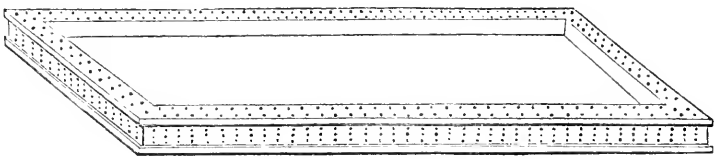
The best French plate glass is used, the lights of which, on front, back, and top, are three feet by two, and on the ends two feet square. The wooden base is black walnut, with simple but bold mouldings, and a panelled drawer in the centre. The entire Case measures four feet six inches from the floor to the top, and moves on castors, so concealed that it appears to stand solid on the floor. The frame in which the glass is set is composed of one-inch brass pipe, oxidized so as to resemble steel in color.

The cover is raised on light hinges, and secured from falling back by delicate chains at the sides, as shown by the cut annexed.



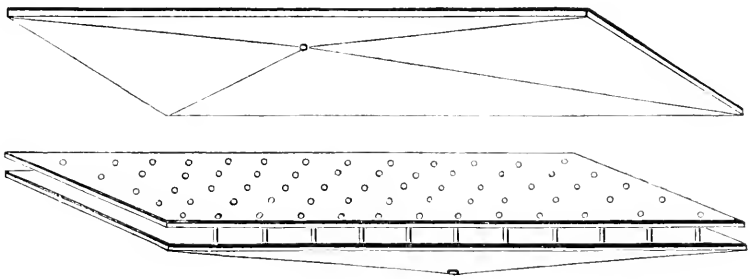
The pipe on the upper line of the frame is cut through the centre; so that half of it rises with the top, the glass being secured by thin brass clamps.

Between the glass frame and the wooden base is a zinc ventilator, about two and a quarter inches square, perforated with fine holes on the outside and upon the upper surface of the inside. The glass frame rests upon the ventilator, which on the exterior is beautifully decorated with illuminating colors, gratefully relieving the sombre character of the black walnut below. The cut following will explain the ventilator better than words can do:—



This apparatus admits air; and the glass frame, not being air-tight, has escapes enough to produce a gentle current of air through the Case: but at times, for part of the day, it is well to wedge the top open half an inch with a piece of cork. If moisture in the Case should become excessive, the top must be raised entirely for a while. Five or ten minutes will clear it entirely of vapor. That Wardian Cases should be air-tight is a mistake, although I had some satisfaction with such a one for several years; but, in a Case where air is judiciously admitted, a much larger number of plants may be successfully grown, and among them many flowering ones.

There is danger from too much moisture, and especially from stagnant wet: so a thorough system of drainage is absolutely necessary. I have a false zinc bottom, perforated with holes at least an eighth of an inch in diameter, supported by zinc standards in the shape of a quarter-inch pipe, an inch high at the sides, that rests upon a true zinc bottom, falling from all sides an inch or so to a common aperture in the centre, which, by a pipe, communicates surplus water to a vessel in the drawer beneath. The whole basin in which the earth and plants rest is lined with zinc; and the ventilator has a small conductor on each interior side opening into the soil, to allow the water that may collect there to pass out. The drainage is shown by the accompanying cuts: —



My Case is constructed to turn upon a pivot, as all plants will gradually draw towards the light; and an occasional turning prevents their becoming awry, and thereby contributes to general neatness, which is an important consideration to be observed in the management of these Cases. The Case turns under the first member of the lower mouldings of the wooden base, which to the eye, however, appears entirely solid.

My Case has a Southern exposure; but my neighbor's house, about forty feet distant, cuts off the winter sun, so that the direct rays reach the window, where the Case is exposed, only for an hour every day. I have a linen shade at the window to screen the plants whenever the sunshine is persistent; and this precaution is important. I hardly think I would prefer a southern exposure if other situations were equally convenient, especially where no buildings intervened to modify or obstruct the direct rays of the sun.

The plants are generally in pots, resting upon an inch of broken charcoal; the spaces between being filled half way up with charcoal and crocks. The surface soil is composed of one-third loam, one-third sand, and one-third leaf-mould. I water copiously when the plants are first introduced in the fall, and perhaps twice again during the winter; while I sprinkle moderately every two or three weeks. With a little care and judgment, the Case may be kept in excellent order all through the winter. My Case is in my dining-room, where the temperature ranges constantly from 60° to 70° Fahrenheit.

Slugs occasionally do considerable damage, and must be watched for and exterminated. Some things they are partial to, and these may be used as traps. A bit of *euphorbia* has succeeded well with me in attracting these pests. The green fly sometimes appears, and may easily be put to rout by the use of tobacco-smoke. I resorted to this remedy once this winter with great success, and without the slightest inconvenience. Place the bowl of an empty pipe over one filled with burning tobacco, the stems being in opposite directions; introduce one stem into the top of the Case, and, by blowing in the other, the Case will be soon filled with smoke.*

George B. Warren, Jun.

Troy, N.Y.

(To be continued.)

Aucuba Japonica. — We long since noticed the introduction from Japan of a male plant of the Aucuba Japonica, and the consequent production of plants bearing fruit in this country. Previously we had only plants bearing female blossoms. Mr. Standish, promptly taking advantage of the production of fruit, has raised seedlings, and with more than expected success: for one of them exhibited at the Royal Horticultural Society produced hermaphrodite flowers; that is, each flower had stamens and pistil. Many naturalists consider that when either set of organs is not developed in a flower, yet the rudiments of that set exist, and only require some particular mode of cultivation for their development. — *Cottage Gardener.*

* I introduce plants into my Case about the 1st of November, and remove them about the 1st of May. I then put the Case away, and consign the plants to a florist's greenhouse until the next fall.

STRAWBERRIES IN 1867.

I DESIRE to keep a promise made to the Editors of this Journal, and give a brief *résumé* of the behavior of various kinds of strawberries under garden-cultivation the present season.

The season itself has not been extremely favorable, and there has been a general complaint of the sourness of most strawberries.

Yet the fruit in the market has been fully up to the usual size, and timely rains kept the berries on sale till quite late in July.

AGRICULTURIST. — One-year-old plants of this much-talked-of kind bore this year a large crop of monstrous berries, from second to third rate in color and flavor. Two-year-old plants bore a full crop of small to medium poor-flavored and easily-decaying fruit, and are comparatively worthless. The Agriculturist must be raised after the Belmont plan; i.e., annually.

BIJOU. — A moderately-good foreign kind, better than the Triomphe de Gand, and not so good as La Constante. Of no special value.

BONTÉ DE ST. JULIEN. — It is strange that this old variety should be so greatly neglected. It is vigorous; productive beyond the usual run of foreign sorts. Its fruit is handsome in shape and color, and of an exceedingly rich and sweet flavor. The berries are held well up from the ground. It is a mistake to let less valuable kinds supplant this old favorite.

BROOKLYN SCARLET. — Plants vigorous, hardy, and moderately productive; fruit small to medium, conical, scarlet, long-necked, of rich and delicate flavor. Excellent for a family berry, but unsuitable for market.

EXPOSITION À CHALONS. — Plants vigorous and hardy, not very productive; berries medium, sometimes monstrous, often coxcombed, bright scarlet, with a peculiar flavor, much like the Triomphe de Gand. This kind perhaps deserves a place in a large collection, but has no great merit.

FRENCH'S EARLY. — A native variety. Plants vigorous and hardy; fruit medium in size, bright-colored, moderately-early, soft, and not very rich or good.

FROGMORE LATE PINE. — The fruit is large to monstrous in size, crim-

son, white-fleshed, always regularly conical, and as good in flavor as a strawberry can be. Plants set out in August, in the middle of the dry weather, stood the winter unprotected, and bore a good crop. In a too rich or too poor soil, the Frogmore bears but little. A soil of medium fertility suits it best. Too soft for market, but will prove, I think, one of the best kinds for the amateur.

LUCAS. — This new kind sustains its reputation as a very large, rich berry, with a peculiar and pleasant flavor, much like a raspberry.

LUCIDA PERFECTA. — A very beautiful and striking plant; foliage dark, glossy green; berries flattened (much like the sketch of the Boule d'Or in Fuller's new book); dark-scarlet when ripe; rich, sweet, and juicy. The Lucida is a very poor bearer: and this is extremely unlucky; for it is the very latest kind I know; very few blossoms being open before the 25th of May, and not many berries fully ripe till after July 4. The fruit continues to ripen till August; and I am in hopes that some of my seedlings from the Lucida will outdo the parent plant.

LA NÉGRESSE. — A peculiar and easily distinguishable variety. Fruit a very long, round cone, pointed, rich, and sweet; variable in color, being sometimes scarlet, and sometimes of the color of a dead-ripe Agriculturist.

MEAD'S SEEDLING. — Plants vigorous, with dark-green leaves, and medium conical, round-pointed scarlet berries, rather acid, and of no peculiar merit.

PRINCESSE ROYALE. — A handsome, conical, firm berry, neither rich nor sweet. Plants moderately vigorous, and not very productive.

PRINCE'S SCARLET MAGNATE. — A good hardy, native variety, moderately prolific, and of medium flavor. Worth cultivating, but undeserving of the praise lavished on it by its originator. Not worth so much as the Green Prolific.

QUINQUEFOLIA. — An exceedingly fine foreign kind. Foliage peculiarly crumpled and wavy; berries large to monstrous, conical, slightly flattened, but never coxcombed, bright-scarlet, glazed, and very rich, juicy, and refreshing. Two-year-old plants bore this season a medium crop. With high cultivation, I think this or the Lucas would prove a formidable rival to the La Constante, as I have raised splendid specimens of these two kinds on poor soil unmanured for two years.

RUSSELL'S PROLIFIC. — This is really a prolific variety, the two-year-old plants bearing a large crop without any manure. It is, however, a poor, coarse strawberry, lacking in richness and flavor. I cannot see that it is any better than Downer's Prolific, except in size.

I have come to the conclusion that Lennig's White and the Orb are worthless, on account of shyness in bearing; Madame Cologne for the same fault, and for the pastiness and small size of its berries; and the Wizard for poor growth and inferior quality of fruit.

River's Eliza bears a few monstrous berries the first year, and next to nothing the second.

The Green Prolific is a prodigiously vigorous and rather productive kind; the berries being large, and, when fully ripe, quite sweet and pleasant, although too soft.

Downer's Prolific is almost as good a bearer as the Wilson, and very much better in quality.

In common with many other readers, I am much obliged to Mr. Moore for his valuable paper in last month's Journal; but I venture to think he makes a mistake in not trying to raise strawberries by the Van Mons method. Splendid kinds have been obtained by simply planting the seeds of good varieties.

Although the varieties of strawberries are like the sands of the sea for number, I firmly believe that no fruit offers so good a chance for experiment as this.

We have not found, and may never find, the perfect berry; but this should not deter us from seeking for a strawberry as hardy as the native, as productive as Wilson's, as handsome as La Constante, as rich as the St. Julien, and as high-flavored as Lennig's White. We may not reach the goal; but we shall undoubtedly win some splendid prizes on the way.

J. M. Merrick, Jun.

WALPOLE, MASS.

GRAPE-CULTURE.

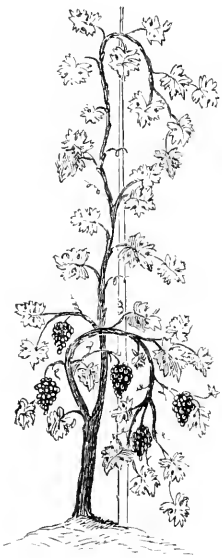
(Continued.)

A GRAPE-VINE, if left to itself after planting, will usually put forth a shoot from every well-developed bud. The uppermost buds being strongest, one or more of the upper shoots will take the lead, especially if the plant is near any object to which it can cling for support, and make an upward growth proportionate to the strength of the parent plant. This growth will be much stronger if the shoots are continually supported, and kept looking upward during the whole period of growth, than if they are left to trail upon the ground, or run horizontally. As the plant progresses in growth, laterals or side-shoots spring from the axils of the leaves; and its strength is so diffused among their numerous branches, that it often assumes more the character of a bush than a vine. In following years, if the vine be still left to its natural tendencies, this process is repeated and amplified: the upper and stronger shoots still spreading, and tending upward; the lower growth becoming weaker and more feeble, until we have only bare stems below, and the annual growth farther from the root with each succeeding year. The strength of the plant being so widely diffused among numerous branches and laterals, but little of its wood is strong enough to produce fruit-buds; and it is long before it comes into bearing. As a general rule, while vines thus left to themselves are vigorous in growth, and of healthy constitution, they yield inferior and very little fruit in proportion to their growth and foliage.

In strong contrast to this vine, in a state of nature, is the artificial condition of the cultivated vine in the hands of a skilful vine-dresser; and the art of so conducting the process as to check the diffusive tendencies of the natural growth, and to induce earlier and greater fruitfulness, without injurious interference with the natural habits of the vine, constitutes the science of grape-culture.

Suppose, after planting a young vine, instead of leaving it to its natural tendencies and allowing all its buds to grow, we prune it back to two or three eyes, and, as soon as they begin to push, rub off all except the strongest one. Then, as the single cane from this bud progresses, keep it carefully tied up to a stake or trellis. As laterals appear, pinch them off

at the first joint, leaving one leaf only on each lateral. By this course, instead of diffusing the strength of the vine among many small and weak branches, we concentrate it upon one strong, vigorous cane, leading it gently and without violence into its artificial and cultivated condition. By checking the lateral growth, the vigor of the main cane is increased; and the one leaf left upon each lateral so checked strengthens the buds formed at the axils of the leaves on the main stem, and also prevents them from breaking prematurely. If the vine is of sufficient age and strength, these



buds form the fruit-bearing branches, or spurs, of the next season. When treated in this way, all the energies of the vine are directed towards the production of fruit, and it comes into bearing two or three years sooner than if left to run wild. A judicious application of these principles, extended or modified according to varying circumstances, may be regarded as the foundation of successful grape-growing.

In the simplest vineyard-practice, if the one cane above described be of suitable age and strength to bear, and be trained to a stake, it should be shortened back at the fall or spring pruning to five or six or more buds, according to its strength and habit, and bent in the form of a bow, tying the tip downward. This bending checks the tendency of the upper buds

to take the lead, and equalizes their growth. From one of the lower buds a shoot is selected the next spring, and kept tied up during the summer, for a fruit-cane the next season. The buds on the bow are allowed to bear in proportion to the age and vigor of the parent vine.

It is impossible to state accurately the amount of fruit a vine should be allowed to bear; but it may be safely asserted that it is never injured by bearing too little. On the other hand, the most serious evils result from bearing too much. The influence of cultivation upon all productive varieties is to induce over-bearing. If this tendency is not restrained, the ability of the vine is so over-taxed, that, at the end of the season, its crop of fruit is inferior in size and appearance, unevenly and imperfectly ripened, and of far less value for any useful purpose than if only one-fourth the quantity had been retained. The loss of the present crop is, however, only one of the least of the evils which result from over-bearing; for the vital energies of the vine are so impaired by its exhaustive efforts to ripen its over-burden of fruit, that it will require years of careful treatment to restore its vigor. Its wood-growth is at the same time rendered weak and immature, easily injured by the cold of the succeeding winter. Or, if it passes this in comparative safety, the whole vine will have become so enfeebled, that its next season's crop will be scanty and imperfect, subject to attacks of mildew and rot, which a vigorous and healthy vine would have been able to resist.

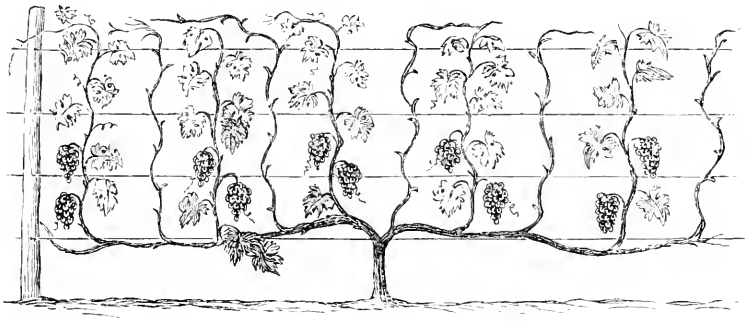
Well-developed buds on strong canes, at their spring growth, usually show three bunches of fruit on the third, fourth, and fifth joints from the main stem. On young vines, it is best to pinch off the two smaller bunches as soon as they are sufficiently advanced to determine which are the largest and strongest, leaving but one bunch to each fruit-bearing lateral. As these laterals progress, pinch off the end of each shoot as soon as three or four leaves are found beyond the fruit-bunch. This pinching, or stopping, diverts the sap from wood-growth to the fruit, and also strengthens the cane, which is to be kept tied up during the season for next year's bearing.

At the fall-pruning, the bow which has borne its crop of fruit is cut away, and the new cane shortened back according to its vigor and ability, and made the bow of promise for the coming year.

The stake or bow system is not recommended as the best, but is used as a means of illustrating one of the simplest forms of culture. By this

mode, difficulty is found, as vines increase in strength, especially with the stronger-growing varieties, in keeping them confined within their prescribed limits ; and it is more than probable that the severe summer-pruning necessary to keep them within reasonable bounds has a tendency to weaken the constitution of the vines.

For these reasons, the trellis-system of training, with permanent arms, and alternate wood and fruit canes, is much preferred, as affording more space, and being more in accordance with the rambling habits of the vine.



With a brief description of one of the various modes of trellis-training, I will close the present article ; remarking, however, that the same general principles are applicable to all methods. For trellis, as soon as the vine is strong enough, two canes are grown from near the ground, as nearly equal in size as practicable, tied up during the season, and treated as directed for the single cane. In the fall or spring, these canes are shortened back according to their strength, and bent downward right and left, and tied to the lower wire, or bar, of the trellis, with the ends lower than the branch, or fork, on the main stem. This breaks up the tendency of the upper buds to push most strongly, and equalizes the growth along the whole cane. These arms are intended to be permanent, and may be lengthened as the vine increases in age and strength. The canes springing from these horizontal arms are trained upwards, all superfluous buds and shoots rubbed out and finished off, and those remaining so arranged, that between the fruit-bearing canes of the present season, which would be cut away at the fall-pruning, new shoots are trained up each year for the next season's bearing.

DELAWARE, O. *George W. Campbell.*

ON THE CLASSIFICATION OF PLANTS.

CLASSIFICATION is a long word for a common operation of every mind. When we consider those animals that have bones, as either beasts, birds, fishes, or reptiles, the philosopher says that we classify vertebrate animals into four divisions.

We always want to classify when we can. If I tell you that the *Chætodon rostratus* is a creature that shoots a fly with a drop of water, you do not feel as well satisfied as when I tell you that it is a *fish* that shoots flies.

We classify animals more naturally than plants. What I wish now is to give you the satisfaction of classifying plants better. By plants, I mean all living things — organic beings — that are not animals. In fact, we classify when we divide the organic world into animals and plants; and it is rather difficult, when we get down to the sponge, to decide to which kingdom it belongs.

The first step in classifying plants is easy. It is with *flowering* and *flowerless;* or, if you like tough words, into *Phanerogams* and *Cryptogams.* But the flowering plants include those whose flowers are not showy, as the oaks and willows.

The flowerless plants you classify so well into ferns, ground-pines, mosses, fungi, and seaweeds, that I shall say no more about them; certainly not at this time.

The flowering plants are divided into three sections; and for these we cannot well avoid the use of the scientific names, — *Endogens, Gymnosperms, Exogens.* In all these words, the *g* ought to be hard as in *gimlet.* Most people sound it as *j* in *Endogen* and *Exogen.* All have the accent on the first syllable, — En′-do-gen, Gym′-no-sperm, Ex′-o-gen.

Between the other two sections stand the *Gymnosperms.* Except the *Cycas,* seen in some greenhouses, all of the *Gymnosperms* you are ever likely to see are called evergreens. I do not recollect of ever hearing of a *Gymnosperm* that was not a tree or a bush. The *Cycas* we generally see as a tree a few inches high, about six in diameter, and crowned with leaves several feet long. The pine is the type of the rest.

Gymnosperm means "naked-seeded." The seeds are generally hid among the hard, woody leaves of a cone: the leaves do not grow together over the seeds as the skin does over the seeds of an apple. If grains of wheat and corn were "*seeds*," they would be *gymnospermous;* for nothing grows together over them.

You can tell the Pine family without difficulty. But how? "They are evergreens." The larches shed all their leaves. "Their leaves are needle-shaped." Those of the *Salisburia* on Boston Common are more than an inch wide. "The wood is softer than *hardwood*." Basswood is softer than a pine-knot. "They bear cones." The few pulpy leaves of the juniper-cone take the shape of a berry. But these are exceptional freaks, and do not deceive you.

The *Endogens* are not so easily told from the *Exogens*, even though the *Gymnosperms* stand between them. The seeds of the *Exogens* sprout into two leaves, as the bean, pea, and maple: those of *Endogens* thrust out a single one, or two very unequal ones. This distinction is almost without exception; but it is not easy of application. The dodders, which are *Exogens*, never have leaves except in their little flowers.

Endogens seldom have branches except to their flower-stems. Asparagus is an exception. All the parts of their flowers are in threes: this is true of very few *Exogens*. The leaves of *Endogens* have no branching veins as those of *Exogens* have. Compare the leaves of grass, onions, and lilies with those of buckwheat, horse-radish, or oak. But the *Arum* family (wake-robins, Indian-turnips), though their leaves have branching veins, are *Endogens*.

So you see that the criteria used in classification are not perfect like those for finding words in a dictionary. Bats can fly; ostriches cannot. Whales and porpoises are not fishes; eels are not snakes; we are not certain whether sponges are animals or not. But one who uses all the criteria in his power need not go far astray. It is most desirable that the mental classification of plants should be habitual, as that of the higher animals always is with all of us.

Now let us sum up our classification of plants so far as we carry it to-day: —

I. — Flowerless Plants (*Cryptogams*).

1. Algæ. — Mostly seaweeds. 2. Lichens. — "Mosses" on rocks, bark, fences, &c. 3. Fungi. — Toadstools, mushrooms, puff-balls, mould. 4. Hepaticæ. — Liverworts, lichen-mosses. 5. Mosses. — Well known. 6. Equisetaceæ. — Horse-tail rushes, scouring rushes. 7. Ferns. — Well known. 8. Hydropterides. — Water-ferns, little known. 9. Lycopods. — Ground-pines.

II. — Flowering Plants (*Phanerogams*).

1. Endogens. — Seeds produce but one original leaf; stems mostly herbaceous, unbranched; leaves without branching veins; parts of flowers in threes and sixes. Examples: grasses (including bamboo, corn, and cane), palms, orchids, lilies (pond-lilies are not lilies), iris, tulip, and hyacinth.

2. Gymnosperms. — "Evergreens."

3. Exogens. — Seeds produce two equal original leaves; stems branched, often woody; veins of leaves branching; parts of flowers mostly in fives or fours. Examples: all our trees and shrubs, most food-plants except grains and onions, the paw-paw with its flowers in threes, the salsify with onion-like leaves.

The discrimination between *Endogens* and *Exogens* is the first step in botanical knowledge. As our description of an unknown person always begins with the sex, so the search for the unknown name of a flower always begins with the question whether it be *Endogen* or *Exogen*. The *Exogens* outnumber the *Endogens* more than four to one. The *Endogens*, therefore, may be noted as exceptions. And, if you ever hope to be a botanist, you should lose no time in learning the first step, — to recognize every *Endogen* you see; and, when you have mastered this problem, you will find that here, as in so many other things, the first step is the hardest.

S. Malden, Mass. *I. F. Holton.*

HEDGES.

THE inquiry is often made as to what shall be used for a hedge. It is difficult to answer such a question without knowing fully what the hedge is intended for, — whether for a protection against cattle, a dividing-line between two estates, or parts of the same estate, for protection to a garden or an orchard, or for mere ornamental purposes on the top of a face-wall or some such place. If the first, then it would not be best to use evergreens, but to plant three-thorn acacia, Osage orange when it will stand the winter, buckthorn, and many other things that will in time make a barrier sufficient to stop the cattle. If for a dividing-line where no cattle are to come to it, evergreens may be used to equal advantage with the deciduous trees and plants above named. If protection is wanted from the severities of winter or the sweeping winds of other seasons, then, by all means, plant evergreens. If a mere ornamental hedge is desired, the white-berried privet, a sub-evergreen, is a very good thing; the Siberian arborvitæ, a slow-growing evergreen, is also a very excellent thing to plant; or the American arborvitæ and hemlock. No tree or plant makes a better hedge than the latter, either for ornamental or useful purposes. When the new leaves are coming out with their pea-green color on the darker-green background of the old foliage, it presents a striking and beautiful appearance not surpassed by many flowering trees or shrubs. It may be kept quite low merely for ornamental purposes, or it can be allowed to grow up sufficiently for the purposes of protection. It is not so easily transplanted as the arborvitæ, and will not, when small, bear so severe treatment; but, as it advances, it becomes more hardy. If the plants are procured from the nursery, they are almost sure to grow. The ground should be well prepared when a hedge of any kind is to be set; for half-way work in such a matter is not profitable. The American arborvitæ is more extensively used for hedges than any other evergreen. It accommodates itself to almost every soil and situation, lives readily when transplanted, grows rapidly, and, when properly cared for, makes a very compact and perfect hedge. Its principal defect is its dingy color in spring. When it suffers severely from drought, it sometimes kills out the following winter, and makes bad gaps in

the hedge. The buckthorn is a very excellent hedge-plant, perfectly hardy. not liable to borers, a good grower: it makes a good, compact, useful, and quite ornamental hedge. Hedges of buckthorn can be found about Boston thirty or forty years old, and still very fine. It is hardly sufficient to stop cattle until it has attained considerable age and been well cut in for several years. It is not profusely furnished with thorns; but, as the trunks of the trees or bushes thicken, it will become so dense, that a mad bull could not go through it.

In most places where a live fence is required, the buckthorn will be the best article that can be used. Willow-hedges may be used to good advantage, in low, moist lands, for division-fences. The osiers for basket-making that may be cut from them every spring will make the fence a source of some profit. Some of the rather strong-growing varieties should be used. They grow so readily from cuttings, and that, too, with little preparation and subsequent care, that every person may supply himself with such a fence at trifling cost. For mere ornamental purposes, there are few better plants than privet or prim. The white-berried is preferable, as it does not kill out so much, leaving unsightly gaps. It can be used to good advantage in back walls, each side of main walks or avenues, or wherever a low, compact hedge is desired. It holds its leaves until near mid-winter, some months after most deciduous trees and shrubs have lost their foliage. The Norway spruce is being used considerably for hedge-purposes, and to good advantage. It seems to bear the shears well. It will answer a most excellent purpose where a large evergreen-hedge is desired. The high price at which they are held prevents the extensive use of them. The white pine can also be used, and can be so handled as to make a very compact hedge; being ornamental, and very useful as protection to gardens and orchards. There are many other trees and plants that are sometimes used for hedges; but those considered best have been named. This is an important subject, and one that should engage the attention of every person owning land, especially those who suffer from the effect of cold and severe winds. In an economical point, there can be no doubt that a hedge is very desirable in portions of the country where stone cannot be had for walls; and there is little doubt that it will prove the cheapest fence where timber is expensive for fences. When ornamental fences are needed, nothing can equal a

hedge. After the hedge has once got up to the size or height required, the labor of keeping it in repair is very small ; an annual clipping or two being all that is needed, — less expense yearly, taking a term of years, than will be required to support a wooden fence. If these things are true, let us plant hedges. *J. F. C. Hyde.*

NEWTON CENTRE, MASS.

POMPON CHRYSANTHEMUMS.

OUR earliest recollections recall the chrysanthemum as the last flower of autumn ; and we well remember the large ragged, white, yellow, and dingy-red flowers so common even now in old gardens.

In the onward progress of floriculture, the chrysanthemum has not been left behind ; and the last ten years have witnessed great improvement in both the form and color of the flower. The ragged, shapeless blossoms have become symmetrical ; and the colors now vie in brilliancy with those of any flower.

Not many years ago, Mr. Fortune brought from China a miniature chrysanthemum, commonly called the "Chusan Daisy."

The introduction of this plant was an epoch in chrysanthemum-culture; for from it, by hybridization, have sprung all the so-called hybrid pompons. These dwarf or rather small varieties far excel the larger kinds in profusion of flower, perfection of form, and variety of color.

For autumn blooming, we have nothing which can fill their place ; and we depend upon them for the decoration of the greenhouse during the later months of the year.

Many of the varieties thrive in the garden ; and, in mild autumns, are very conspicuous at a season when other flowers are gone.

They can be flowered perfectly in a cold pit ; the process being simply to grow them out of doors in the summer, and, upon the approach of severe weather, to remove them to the pit, where they will bloom freely until early winter without fire-heat, as they can bear much frost without injury.

The general treatment is very simple. Plants are easily obtained from cuttings, or by division of the roots; an old stool of the last year furnishing an indefinite supply of plants.

The young plants may be placed at once in the blooming-pots, which should be about twelve inches in diameter; or they may be shifted from size to size as required.

The compost should be moderately rich, but rather strong, and retentive of moisture, as the plants are impatient of drought.

During the summer, the plants should be kept in shape, or may be grown in any required form, by frequent pinchings; but this should not be continued after the first of August. When the flower-buds appear, give waterings of guano-water or other liquid manure.

The varieties are very numerous, and every year gives us new and often finer varieties.

The following list comprises the best English kinds. We are not aware that the hybridization of this plant has been attempted in this country.

Andromeda. — Cream with brown points. *Christiana.* — Canary-yellow with brown points. *Rose Trevenna.* — Rose and blush. *Salamon.* — Rose carmine. *Miss Talford.* — White. *White Trevenna.* — White. *Miranda.* — Bright rose, fringed petals. *Canary-bird.* — Canary-yellow. *Lizzie Holmes.* — Canary and rose. *Mrs. Dix.* — Blush bordered with rose. *Sensation.* — White with variegated foliage. *E. S. R., Jun.*

SEPTEMBER, 1867.

RECLAIMING THE WILDERNESS.

ON the 7th of August, 1861, the train from Philadelphia for Cape May carried two passengers, who sought from one of the high officials of the railroad (then on the train) the unusual privilege of being left at a place of their own selection in the wilderness of New Jersey, some thirty-four miles from Philadelphia. The request was refused; and the two passengers were carried perhaps eight miles beyond their destination, with the cheerful privilege before them of making the return distance on foot at their leisure. One of the men was a surveyor; and the other, though chief in the enterprise on which they were bent, was, for the time, his assistant. So they shouldered their instruments, and began the weary journey; but, the day being far spent, they were glad at nine o'clock to seek shelter and rest at the house of one of the few old settlers of the region for whom solitude had no terrors. The next day, they reached their destination, and, as the start-

ing-point of their operations, drove down a stake ; these operations having no less ambitious an aim than the founding of a *city* which should stand in the centre of a great pomological, horticultural, and agricultural settlement. To an ordinary observer, it was any thing but an inviting enterprise: but its projector had faith, energy, and perseverance ; so the stake was driven down, the survey went forward, and the brain-born city soon had an existence — on paper.

In the month of June, 1867, within a few feet of the spot where this first stake had been planted less than six years before, about two hundred thousand quarts of strawberries were shipped to the great markets of the North ; and nearly fifty thousand more were forwarded from two neighboring depots lying in opposite directions, but only two miles away, and all embraced in the same township. Besides, as the growers of this fruit did not scruple to eat what they asked others to buy and eat, and as there were from eight thousand to ten thousand of them, it is fair to conclude that from fifty thousand to seventy-five thousand more quarts were grown which found a home-market ; making, as the total crop of a small part of the lately barren tract, over three hundred thousand quarts of strawberries as the product of a single season.

The reader can, from these facts, no doubt readily determine whether *Vineland*, N.J., is, or is not, a success. He will naturally conclude that this rich harvest of luscious fruit was not grown in a thicket, nor on an unreclaimable desert ; nor will he suppose that other fruits would be generally neglected by those who possess the energy and the skill to grow the strawberry ; nor that several thousand fruit-growers should reclaim a wilderness, without bringing with them, and establishing in their midst, all the usual accessories of an enlightened civilization, — churches, schools, literary associations, societies of art, learning, and benevolence, newspapers, and manufactories. Some of the ironically-called " adjuncts of civilization " they are indeed without ; for instance, the traffic in intoxicating liquors as a beverage : and, at each annual town-meeting, the electors (mostly New-England born, of course) persistently refuse, by a *unanimous* vote, to license any persons to engage in this business. As a consequence, the genus loafer is almost unknown, and never a product of the place. Perhaps it was selfishness rather than philanthropy which prompted the founder to incorporate this anti-

liquor provision in his plan for peopling this place ; but, if so, it is thought here that the world would gain by an extension of such selfishness.

It is, however, the relations which this young and growing town sustains to pomology and horticulture which will most interest the patrons of a magazine like that for which this article is intended. The recent strawberry crop, some very general statistics of which the writer has already given, ought to be a conclusive answer as to the adaptation of the soil here for that delicious fruit. Hill-cultivation, with plants set three feet by twelve or sixteen inches, is the most common method. The variety most popular, indeed almost the only one grown largely for market, is Wilson's Albany. No very full statistics as to the area planted, or the average yield per acre, have yet been collected ; but from personal experience, and some few facts gathered from others, there seems to be good reason to estimate the average yield per acre this year at not less than seventy-five bushels, or twenty-four hundred quarts. The writer's plantation, covering a little less than three quarters of an acre, yielded slightly over this rate, with very little manure, no mulching, no winter protection, and no cultivation after the runners began to be firmly rooted. An acquaintance, who took more pains and raised better berries, gathered four thousand three hundred and ninety-nine quarts from an acre and three-fourths ; another picked four thousand quarts from about the same area ; and still another, six hundred quarts from a plat a hundred feet by a hundred, — something less than one-fourth of an acre. Winter protection was very rarely attempted; yet a near neighbor, who tried it on eighty-four square rods of land, picked some sixty bushels from his "patch," or at the rate of three thousand six hundred and forty-eight quarts per acre. This crop was grown on a piece of "old" land, very *sandy*, which old Jerseymen say has been in cultivation sixty years or more. It had no special manuring, as the present owner only came into possession of it in the spring of 1866; but the land had been well manured for several previous seasons. The next best crop to this, that I have heard of, was a yield of six thousand one hundred quarts from an acre and three-fourths. About one hundred bushels of ashes were used on this crop. There were two varieties, — Wilson and New-Jersey Scarlet ; and the owner assures me, that, had the latter been as prolific as the former, he thinks he could have marketed ten thousand quarts.

The area in bearing next year will be considerable greater than it was this year, and the cultivation will be better; as, last year, so many runners were allowed to mature, that the home-market was completely overstocked. With a favorable season, we may confidently look for better fruit and a better yield. I should have stated before that the yield this year was decreased somewhat by a sharp frost on the night of April 27, just after blossoming had commenced. One-twentieth of the crop was probably cut off in this way, and possibly more, and that also the earliest and most valuable part.

The cultivation of the other small fruits is not yet so general as that of the strawberry, but is now rapidly extending, as it is found, that, considering the labor involved, raspberries and blackberries pay as well as strawberries, if not better. The Philadelphia Raspberry is especially becoming popular, not so much from its quality as from the hardiness and productiveness of the plant, and the ready market the fruit finds at good prices. A leading fruit-grower of Burlington County claims to have raised two hundred and twenty-one bushels to the acre, by extra cultivation and fertilizing of course. The Lawton or New-Rochelle Blackberry is rather waning in popularity, although, as yet, extensively grown. In spite of its merits, its faults are so serious, that only positive information as to the imputed merits of certain new candidates is needed to secure its general dismissal. The crop will be very considerable, but not superior in quality, on account of an excess of rain and cloudy weather since marketing began.

As regards other fruits, grapes and pears take the lead. Of the former, a very large area has been planted; and the production of young vines during the present season for further planting, as well as for marketing abroad, is literally immense. One grower advertises already *eight hundred thousand* for the fall and spring trade; another has over a hundred thousand; another, forty thousand; while almost every "small-fisted" grape-cultivator has from a hundred to several thousand vines in course of propagation. Nearly all are from open-air cuttings, and of superior quality; the moist and warm season having been unusually favorable. As to the quality of the fruit now maturing in the vineyards, it is too early to speak: the *quantity* is as great as vineyards so young ought to produce. The variety giving the most satisfactory results so far is the Concord, and it alone is

largely planted; although the Catawba and Diana are doing well. The Delaware may be said to be "on trial:" so far, at least, it fails totally with such cultivation as makes the Concord thrive. But its friends are sanguine, that, with high fertilizing and thorough cultivation, it will excel the Concord in profit. The fancy sorts, such as the Iona, Israella, and Ives's Seedling, are being tested on a limited scale, with as yet doubtful results. It is quite probable that a deeply-worked soil and thorough cultivation, with judicious fertilizing, will pay as well here as elsewhere; but there is no doubt, that, with such a system, grape-culture here is destined to a complete success. Pear-culture also promises well, and is receiving a large share of attention. No large amounts of fruit have as yet been produced; but the specimens exhibited at last year's Fair (and in very considerable quantities) produced both surprise and admiration, and select specimens forwarded to the Fair of the American Institute the next week unhesitatingly received the first premium. The same success also attended the exhibition of grapes, particularly of those of the Catawba and Diana varieties. Samples of Catawba wine, analyzed by Dr. Jackson of Boston, have been pronounced very rich in the constituents usually deemed essential to a good wine; though whether wine-growing might be considered as consistent with the temperance principles on which the place is founded, is an open question.

As some evidence of the interest felt in fruit-culture, it may not be improper to mention that there are no less than six societies holding weekly meetings in as many parts of the township, whose objects are, in brief, the collection, discussion, and diffusion of the various facts connected with the cultivation of the soil. Each society is collecting a library, and occasional lectures are given by gentlemen from abroad who are eminent in some branch of agriculture or pomology. The annual Fair is given by the central or parent society; and its fine show of fruits and vegetables attracts great numbers of people from this and the adjacent counties of the State, as well as a good representation from "The Farmers' Club" of New York and fruit-growers elsewhere, who desire to judge, through the medium of its productions, whether any good can really come out of this part of Jersey. But, besides these societies, there is also a "Floral Society," holding fortnightly and sometimes weekly meetings, managed entirely by ladies, whose aim is

to develop the floral beauty of the place; and it is only just to them to say, that, largely through their influence, there is probably no place in the country, where, in proportion to the pecuniary resources of the inhabitants, flowers are so generally and so tastefully cultivated. Every visitor, no matter how sceptical as to the good quality of the soil, is forced to concede that the taste, no less than the energy and enterprise, of the people, coupled with the foresight of its founder, is certain to make Vineland, in the not distant future, one of the most beautiful localities in the Union; and, when this result is reached, it is fair to conclude that its other aims will not be far from their accomplishment. *Philip Snyder.*

VINELAND, N.J., 1867.

DENDROBIUM NOBILE. — The pseudo bulbs or stems which are the growth of this year do not die in the next, but lose the leaves, and flower in that or the following year; but under cool treatment, or when grown in a vinery, they will not flower until the commencement of the growth of the third season. When the stems have ceased to grow, and have become thick and plump, the plant should be put to rest by withholding water and keeping the atmosphere dryer. In spring, the old leafless stems will exhibit a number of small knots, or excrescences; and, when these begin to swell, a moister atmosphere may be afforded: but, if such do not appear, then the new growths will be produced from the base of the last year's stems, and upon them; and this is the indication by which you may know when to start the plants. The flower-buds are formed in summer, and the flowers appeal about the time the new growths are being made, — sometimes before, but generally with, the new growth, according to the temperature. It usually flowers in April and May. It does well in an early vinery, but not in a cool one.

CURL OF THE PEACH-LEAF.

EVERY spring, those who cultivate the peach must have noticed that the first leaves become more or less distorted and swollen; turn a variety of colors, — yellowish, whitish, crimson, and purple; and soon afterwards drop.

On searching such leaves, oftentimes multitudes of green lice (*Aphis sp.*) would be found nestling in the depressions and sinuosities produced by the unnatural growth. The evil is often attributed to the presence and action of these little insects; and also to numerous ants, which are very busy among the supposed insect depredators. Similar results may be traced to a similar presence of ant and aphis on the growing shoots of the *Œnothera biennis*, and of many succulent and quick-growing perennials raised in the garden. The similarity of the two appearances does not, however, indicate the same fact.

The morbid condition of the foliage of the peach, with which we have at present to do, has given rise to various conjectures and theories as to its cause, attributing its appearance and subsequent development to cold weather, unfavorable soil, or to sudden atmospheric changes. But having noticed it for several successive seasons, and under a variety of circumstances, we attribute the fact to the presence of minute fungi, which, by some unknown process, feed upon the cellular tissue, and convert its nutriment-juices to their own use.

The propagating organs of all the fungi are of extreme minuteness, and discernible only by high magnifying powers. This minuteness of size renders them capable of being readily absorbed by moisture, and conveyed through the roots of plant into the tissues of the other parts. The germination of these organs is effected in the young and pulpy portions of the plant, which abound in starch and sugar, and, on starting into growth, produce a sort of beaded mould similar to the *torata*, or yeast-plant, which occurs in fermenting liquids. On cutting a thin section of a diseased peach-leaf, traces of this moniliform arrangement of round globules can be seen. It is well known to mycologists that a great variety of developments issue from the same cause, and have hitherto borne in science distinctive terms of appellation, indicating not only separate species, but distinct genera.

One such is the genus *Sphæronema*, a little swollen wart filled with minute curved *spores*, or seeds. Some distorted and discolored leaves which had fallen from my peach-trees a few weeks ago were covered with the *Sphæronema protuberans* (Berkeley), and the microscope revealed the beaded fibres (*mycelium*) and the curved spores.

Now, I have no reason to suppose that the cold and tardy spring, nor the frequent cold rains, had any agency in the matter; but from what source these skin-humors, pathologically speaking, proceeded, further discoveries in the nature and origin of vegetable growths, whether by chemical combination or other causes, must ultimately decide.

At one time, I supposed it might be from sudden check of the rapidity of growing by some cold winds or low temperature of the night; thus arresting the development of the foliage, which in all plants is most felicitous when heat and light and moisture are present.

Having noticed in the peach-houses of a friend the identical condition, some of the leaves of trees trained near the heated flues being quite as much affected as if growing out doors, this supposition had to be relinquished.

The presence of the aphides merely showed that the morbid growth secreted some saccharine-juices, on which they greedily fed.

Several sorts of ants always attend aphides, in order to solicit from them drops of honey, which they have the power to extort by some pleasant process: so entomologists assure us.

Does the *Sphæronema* injure the peach-tree? I have come to the conclusion that little injury need arise from its presence. The shedding of these diseased leaves is succeeded by a vigorous growth of healthy ones; though, occurring as it does about the time of blossoming, it may injuriously affect the crop: but this is only conjectural.

I think it advisable to treat trees, thus affected, with wood-ashes piled at the base of the trunk: the alkali, washing slowly out by each shower and rain, soaks into the ground, and feeds the roots, thereby effecting some chemical change in the fluids which permeate the growing tissues, and which may prevent the development of the fungus.

Whether this disorder has any thing in common with the *yellows*, I am unable to say, not being familiar with that pest of peach-growing.

SALEM, July 19, 1867. *John L. Russell.*

GRAPE CROP. — There is great complaint from almost every quarter concerning the grape crop, the wet weather having affected the grapes very unfavorably. A gentleman from Maryland informed us last week, that in his vineyard of eight acres, devoted principally to Catawbas, the rot had destroyed nearly all. In Massachusetts, many small vineyards of Concord and other varieties have been nearly destroyed from mildew and rot. Our own crop will be nearly a failure: no variety has suffered so much as the Concord, — rot of the fruit more than mildew of foliage. We understand that along the lakes, and in some other portions of the country, the crop is uninjured, and will prove as good as usual. It is very seldom that we have as much wet weather as during the past month or two. Many crops have been injured by the excessive rains.

THE KING OF STRIPED HOLLIES. — The French journals mention a tree, growing in the garden of the Deaf and Dumb School of Nantes, which is probably one of the largest which exist. It belongs to the finest variety, with large, plain leaves, edged with gold. It is twenty-six feet high, and pyramidal or conical in shape; and its branches, which touch the ground, are so close, that it is impossible to see through it. The proprietor of this fine plant asks a thousand francs for it.

VINELAND, N.J., which was a wilderness less than ten years ago, but now numbers over ten thousand inhabitants, has produced, the past season, nearly *three hundred thousand boxes* of strawberries.

SANCHEZIA NOBILIS VARIEGATA. — *Sanchezia nobilis* is one of the finest amongst the brilliant-flowered acanthads that are so abundant in our plant-stoves, being remarkable for its numerous fascicles of erect blossoms, collected into a dense paniculate inflorescence, and consisting of long, bright-yellow tubular flowers, emerging from broad crimson bracts, as brilliant in every way as the gayest of aphelandras, but much less formal in aspect.

Of this most beautiful and interesting plant, the Messrs. Veitch and Sons of Chelsea, who were its introducers, are fortunate enough to have also secured a striped-leaved variety, which is the subject of these remarks. The bold character of the leaves of this plant, and the conspicuous markings or bands of yellow by which they are decorated, — recalling to mind those of the handsome *Aphelandra Leopoldii*, though much more beautiful, — render it an ornamental object in every stage of growth, and justify us in asserting that it is one of the most valuable plants of modern introduction. The leaves are, when fully grown, from twelve to fifteen inches in length. This *Sanchezia* is a native of Bolivia, and has been introduced by the Messrs. Veitch through their most fortunate collector, Mr. Pearce. Its free growth and fine habit, together with its bold leafage and elegant markings, indicate a valuable exhibition-plant; and, altogether, we do not hesitate to pronounce it to be the finest novelty of the present season.

LARGE PEAR-TREE. — At the Abbey of Lindores, on the estate of Mugdrum, are some unusually large pear-trees, mentioned a hundred and fifty years ago by Sibbald in his "History of Fife." The trunk of the largest measures seventeen feet ten inches in circumference at a foot from the ground; at nine feet higher up, where it branches off, it is seventeen feet in circumference; and it is forty-four feet in height. The spread of the branches is fifty-three feet in diameter. The circumference of one of the branches is ten feet eight inches; and that of another, eight feet ten inches. It grows in deep alluvial soil, and bears abundant crops.

LIQUID MANURE FOR CALADIUMS AND ACHIMENES. — The best liquid manure that we have tried for these plants, and, indeed, for all plants in pots, is that formed by pouring thirty gallons of rain-water over one peck of sheep's dung fresh from the pens, and one peck of soot. Stir the whole well up twice a day for two or three days; allow the liquid to stand a day or two longer; then stir again, and use it for watering with once or twice a week. A pound of guano in twenty gallons of water, along with half a peck of soot, will form one of the best liquid manures known.

The wheat-midge is doing considerable injury in some localities.

Accounts from all sections of the country confirm the opinion, that the harvest this season is very abundant: where it is light in some localities, it is unusually heavy in others.

Sugar from beets is made in large quantities in Illinois.

SELAGINELLAS. — These are excellent plants for clothing the shady walls of a plant-stove. No better illustration of this fact can be found than is now to be seen in the Sheffield Botanic Garden, where the north wall of the Victoria House is draped with them, several species being mixed up together. We have never seen so pretty an effect produced by these refreshing-looking plants in any other situation. The wall is faced with a six-inch layer of coarse peat and rubble, with a little moss outside, the whole being held in position by strong galvanized wire-netting, with rather wide diamond-shaped meshes; and the only attention required by the plants is a damping with the syringe daily. — *Florist.*

A gardener of Ghent has, after many trials, succeeded, writes Galignani, in giving any kind of fruit the flavor he pleases while it is still on the tree. Let us take an apple for instance: he pricks it rather deeply in four or five places with a large needle, and then lets it dip for a while in a bowl containing a liquid possessing the flavor he wishes to communicate. After a few seconds, this liquid will have penetrated into the pulp; and, this operation being repeated two or three times at intervals of eight or ten days, the apple is left to ripen on the tree, and will subsequently be found to have acquired the taste either of strawberry, raspberry, or cloves, according to the liquid employed.

FICUS STIPULATA. — It is scarcely possible to overestimate the merits of this plant for a certain purpose; viz., that of covering the back wall of a stove or orchid-house. It will succeed in positions where scarcely any other creeper would exist. A damp wall suits it admirably; but it must have plenty of room, especially root-room. A plant permanently planted out forms a dense carpet of green foliage all through the season, clinging ivy-like to the wall, but, if possible, with more tenacity. The only attention bestowed upon the plant is frequent syringing during the summer season, and an occasional pinching-in of the shoots when they advance too far from the wall. It strikes freely in a little heat from half-ripened wood. It is often called *Ficus repens.*

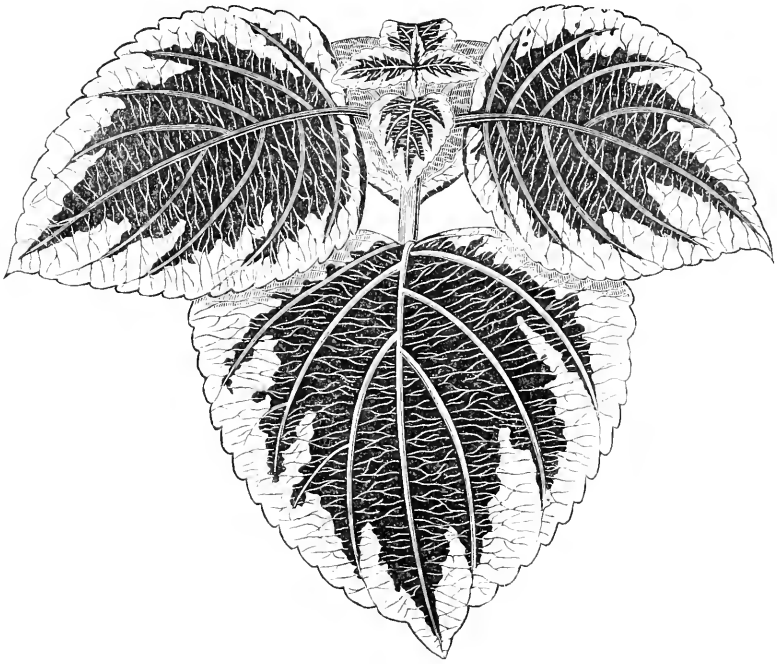
THE COLEUS. — These plants are of comparatively recent introduction, though several species have been well known as stove-plants for half a century. Of these the most common is *C. Blumei*, known also by the euphonious name of *Plectranthus concolor pictus*, which has been for seventy-five years an inmate of every stove, and which, when well grown, is really a very pretty plant. The great trouble with it is, that no one with only a moderate amount of glass at his disposal can afford space to grow it. When *C. Verschaffeltii* was introduced, it was a great advance, and the old species soon fell into disfavor; but that, for a time, was grown as a stove-plant. It is only within a few summers that the growing taste for bedding foliaged-plants has developed the fact that many of our soft-wooded semi-herbaceous stove-plants do admirably as summer-bedders; and of this class none are better examples than the different species of *Coleus.*

The old species (*C. Blumei*) is not, however, of much value as a bedder, as the variegation is not sufficiently marked, and the colors are apt to run; but

when we come to the newer species, such as *C. Verschaffeltii* and *C. Gibsoni*, we have bedding-plants of the highest merit.

The brilliancy of foliage which they present is unrivalled; and the sunnier the situation, the better do they develop their foliage.

The last season gave us as one of the best new introductions "*Coleus Veitchii*, which is a free-growing plant, having more of the stout vigorous habit of *C. Gibsoni* than that of *C. Verschaffeltii*. Its leaves are flat, ovately heart-shaped, of a velvety brown-purple on the disk, with a narrow edge of bright green. In its class, it must be regarded as an effective plant. From its appearance, it is likely to be useful both in doors and out. We owe to Mr. J. G. Veitch the introduction of this novelty, as also that of *C. Gibsoni*."



Our figure of this species is taken from "The Florist." The culture of these plants is extremely simple. The soil should be sandy loam, with a slight admixture of peat. Plenty of water while in growth, and constant repotting when the roots touch the sides of the pot, will give a specimen in a few months. Propagation is very easy from cuttings of the half-ripened wood, which root freely in sand, with or without bottom heat.

These plants are well adapted for summer-decoration of the conservatory, where their dark foliage is very conspicuous. The flowers are small, yet, on a large plant, rather add to the effect. Seed is also produced, from which plants may be raised. *E. S. R., Jun.*

THE WARATAH, OR NATIVE TULIP-TREE OF NEW SOUTH WALES. — The flower called by the aborigines "Waratah," and "Native Tulip" by the colonists of New South Wales, is considered the most beautiful vegetable production indigenous to the colony, and is produced from a stiff, erect, and rigid shrub, having the leaves of a hard woody texture, marking the proteads, to which order the waratah (*Telopea speciosissima*, R. Br.) belongs. The leaves are oblong, more or less unequally toothed, and from four to six or eight inches in length; dark-green, but, when just expanding, of a dark-red color. The fruit is a pod containing many winged seeds. The waratah is indigenous to, and grows luxuriantly and in abundance in, the vicinity of Sydney, and other parts of New South Wales; and, when first described by botanists, was classed with a genus now known as Grevillea, named *Embothrium speciosissimum*, and figured under that name in Smith's "New Holland Plants," and in Curtis's "Botanical Magazine" (edited by Dr. Sims). It afterwards formed a new genus, called Telopea, derived from *telopas* (seen at a distance), from its bright-crimson blossoms being discernible far off; and those who have had an opportunity of seeing this plant in flower, either wild or cultivated, will readily admit the correctness of this name.

There are some peculiarities of its natural habits and reproduction worthy of notice. The first year the waratah blossoms, it throws out from two to four shoots from each flower-head; in the second year, only two; and in subsequent years, only one, or more rarely two. To ascertain the way these shoots are produced, it is necessary to procure a flower-head, full-blown or just fading: and, on looking closely among the flowers, from one to two or four young shoots will be observed just developing themselves; and these will form the branches of the following year, from each of which a flower-head will most likely be produced. A knowledge of this fact will explain why the plucking of the flowers destroys the new branch, injuring its natural development, keeping the shrub stunted in growth, and preventing its flowering in the ensuing year. The waratah produces seeds every second year. A tree growing in a garden at Hunter's Hill, in the vicinity of Sydney, five years old, and ten feet high, produced, in 1864, as many as twenty fine heads of flowers at one time, forming a gorgeous sight; and, in a tree growing in the Botanic Gardens at Sydney, I observed in the spring of 1865, from one flowering-branch produced in the previous year, three stems, each of which was crowned by a magnificent full-blown flower-head.

When a waratah-tree grows in a dense thicket of shrubs, or among creepers by the side of a wall, in the shade, it runs up to a great elevation, — a tall, slender shrub, seeking the sun's rays; and to obtain light and air previous to developing its blossoms, in several instances, when so situated, the plants have been seen to attain the height of from ten to twelve feet, or even fifteen feet, and then flowering for the first time. In suitable situations, in their wild state, they usually flower when about four to six feet high; and, when at that time stripped of their blossoms, they become stunted, devoid of beauty, and so remain until suckers are thrown up from the roots, by which flowering-branches are reproduced. I have also observed that the rice-paper plant (*Tetrapanax papyri-*

ferum, C. Koch) only produces branches from the flowering stem. In order to prove it, I removed all the panicles of flowers from a young tree flowering for the first time: the result was, that the main stem increased in height, and developed a new canopy of fine foliage; but no lateral branches were produced as obtained with those permitted to flower as usual. Those desirous of growing the waratah in perfection should not permit a flower to be gathered or otherwise destroyed. Many who are aware of the habit of this highly ornamental plant have some magnificent specimens in their gardens, attracting attention by their rich and brilliant mass of bright-crimson blossoms.

The waratah thrives in a poor, sandy soil, well exposed to light and air. The usual time of flowering is in September (the early spring in New South Wales), and it continues for nearly two months. There are two kinds of flowers, — one, the normal state, of a deep, rich crimson, calyx segments tipped with white. The blossoms, when just expanding, are of a delicate light pink, a rose-color, gradually changing to a more or less deep-crimson hue. — *Dr. G. Bennet in Journal of Botany.*

ACROPHYLLUM VENOSUM CULTURE. — This plant requires a light and airy situation in a cool house, to be well supplied with water when growing, and at all times to have the soil moist. A compost of two-thirds sandy peat, and one-third turfy loam, with a free admixture of sand, will grow it well. Good drainage is essential; and not less so are light and air plentifully furnished. The plant should be potted in spring after flowering, and may then be cut in as required, to give it a suitable shape. It is not hardy, but requires a house in winter from which frost is excluded, otherwise it cannot be kept too cool in winter. It is the better of a cold pit or frame in summer.

CAUSES OF GRAPES SHANKING. — There is, perhaps, no malady to which grapes are subject which has given rise to more difference of opinion than that termed *shanking*. This is not surprising, if, as is probable, almost any thing which militates against the health of a vine may produce it.

Shanking may be described as the death of the footstalk which unites the berry to the bunch, or part of the main stalk to which the footstalks of the berries are attached. The effect is to prevent single berries, or the part or whole of a bunch of grapes, coming to perfection, by the stoppage of the necessary supply of sap; thus destroying the hopes of the cultivator at a period when he feels secure of success.

Nothing is more certain than that either a low wet border will cause shanking, or that a soil totally unfit to grow grapes will produce it; but I am more than ever convinced that many a border is condemned, and many a house replanted, where the fault is entirely in the mode of cultivation.

Vines may often be seen mismanaged in the following manner: The side-shoots are correctly stopped at one leaf above the fruit, but afterwards are allowed to make seven or eight, or even more, leaves, which are all cut off and carried away in one day. I have seen barrow-loads of shoots and foliage thus removed. Now, is it possible such an amount of foliage can be removed from a

growing vine without injury? that we can, whilst a vine is in full growth, with impunity cut through scores of fruit-bearing branches almost as thick as a man's little finger, and the plant not feel any ill effects? that roots growing rapidly will receive no check? that roots thus checked, particularly if the sort be a weak grower, will receive no permanent injury?

I believe it only requires attention to be directed to the subject to see the absurdity of the practice. Let us next see what takes place where vines are properly attended to.

The shoots are stopped, as in the other case, as soon as one good leaf is formed above the bunch of flowers. This checks the sap, and diverts it to the fruit. The strongest shoots soon recommence growing; and, when two leaves are formed, the point of the shoot is taken out with the thumb-nail. There is no loss of foliage in this case. The weaker shoots take advantage of the check their more robust fellows have received, and are in turn treated in the same manner. The sap is thus equalized, and no useless foliage is formed merely to be removed. This treatment is a gradual one, spread over the whole time a vine is growing, and not the work of one day. The plant, as a whole, receives no check.

Again: some vines are not allowed to carry foliage at all in proportion to the fruit expected from them. Can they, under these circumstances, make healthy roots? Some of your readers will ask, "Did you ever see Barbarossa or Black Alicante made to shank by such pruning?" I answer, "No; but I have seen them reduced to barrenness by it."

Having thought long on this subject, I have observed closely the conditions under which shanking has occurred, and in some cases have been able to predict it a year beforehand; and I am more than ever convinced that the mode of management pointed out is its most prolific source. — *J. R. Pearson in Cottage Gardener.*

GRAPES SHANKING AND SPOTTING. — Grapes shank owing to two causes; viz., a deficiency of sap, and vitiated sap.

1st, *Deficiency of Sap.* — This may result from the great disparity between the temperature of the ground in which the roots are situated and that of the house where the foliage and fruit are. In the case of outside borders, there is very often a difference of ten degrees between the mean temperature of the house and that of the border: and in a hot, dry day, the leaves and fruit will throw off moisture rapidly; but, the roots furnishing sap slowly, too little will be pumped up to meet the requirements of the expanding fruit. The footstalks of the berries will therefore shrivel, or become ulcerated; and a complete stoppage of the communication between the roots and the berries will be the consequence, ending in the shrivelling of the berries thus cut off from further supplies of sap. Shanking may, therefore, be the effect of the roots not furnishing sap in sufficient quantity for the demands of the expanding fruit, through the disparity between the temperature of the ground and that of the air: and yet that, in all cases, will not cause shanking; for the condition of the roots may be such, that they will supply sap fast enough, or there may be enough stored up in the stems to meet

any sudden demand of the expanding fruit. This, however, can only be the case where the roots are in a medium favorable to the formation and preservation of the fibres and their points, or spongioles. Shanking, therefore, may not be the effect of too great a difference between the temperature of the soil and atmosphere: but the conditions unfavorable to shanking are elevation, dryness, and openness of the border, which are essential to the preservation of the fibres in health until the crop is mature; whilst the predisposing causes of the disease are lowness, wetness, and closeness of the material of the border. In short, all outside borders have a tendency to cause shanking; for however dry they may be rendered by drainage, and the materials of which they are formed, yet very wet and cold weather when the fruit begins to color may so retard root-action as to induce shanking through an insufficiency of sap, arising from inactivity of the spongioles.

A deficiency of sap may also result from the border being not only outside, but also below, the level of the surrounding ground, and deep, rich, and imperfectly drained. This is generally the case when shanking is most severe. Than roots situated deep beneath the surface, and in a manner shut out from all sun and atmospheric influences, in conjunction with excessively rich soil, nothing further is required, except a period of cold rainy weather when the grapes commence ripening, to cause the speedy destruction of the fibres (never very plentiful), rendering the supply of sap insufficient for the expansion of the fruit; and, as a consequence, the berries shank. Examine at what time we may the roots of vines situated in a deep, rich, low, wet border, we shall find them little better than so many bare sticks, with a few fibres at the ends, — in winter, almost entirely rotten and dying back; and what can we expect but that similar destruction of the fibres will take place in summer when the same conditions of coldness and wet present themselves? Too great a depth of soil, roots too deep, soil wet, too rich, and cold in comparison with the temperature in which the branches and fruit are situated, will destroy the fibres, and cause a deficiency in the supply of sap; owing to which, the footstalks of the berries, or parts of the bunches, will become ulcerated.

An insufficiency of sap may also result from depriving the vines of too much foliage either in the current or the previous season. It is not unusual to keep vineries warm and moist, with no great amount of air after the fruit has set, in order to secure root-action. A great breadth of foliage is produced; and when the fruit begins to color, or a little before, a great part of the leaves is suddenly removed under pretence of getting the fruit well colored; and thus, the foliage not being in proportion to the fruit and to the root, it cannot assimilate the extraordinary amount of sap driven into it: hence the roots are rendered inert, and their destruction follows, either when the weather proves wet and cold, or a good supply of water is given to help the second swelling. The roots are now gone; but more air is given, the evaporation from the leaves becomes excessive, the roots do not supply sap fast enough for the swelling fruit, and shanking of the footstalks of the berries and bunches follows. This is not so common a cause of shanking as coldness, and wetness of the border; but it does sometimes occur with vines planted in an inside border.

The remedial measures are, to form the border inside, or have it warmed by hot-water pipes in chambers under it; to protect it from heavy and cold rains; to form it, in all instances where practicable, above the surrounding ground-level; and to provide the most effectual drainage possible, and this more particularly where the soil is of a cold, wet, clayey nature. I found that the vines planted in a border sunk so as to be level with the surrounding surface always had a tendency to shanking in the bunches which they produced, even after they had been lifted and the border thoroughly drained. The following course was therefore adopted: The surface of the border was concreted with lime-riddlings and gravel well pounded; and two-inch drain-pipes were laid thereon, so as to form one drain lengthwise eighteen inches from the front lights, another a like distance from the back, and one in the centre. These drains extended the length of the border, came out a yard beyond it at each end, and were crossed by similar pipes extending from the front to the back of the border, forming, where they crossed those laid longitudinally, a four-inch opening or parting covered with a tile. The cross-drains were four feet apart. Upon the tiles was laid a foot of brickbats, from which the finer portions had been sifted out by an inch sieve; and on the brickbats was placed turf, grass-side downwards. The border was composed of turf, cut three inches thick, from a pasture, the soil of which was a lightish hazel or yellow loam resting on a gravelly sub-soil. The turf was laid on fresh, as cut, grass-side downwards; and between every layer boiled half-inch bones were strewn, until the border had been carried up to the height of twenty-four inches. When finished, it had the appearance of an inclining terrace, with slopes in front and at the ends; the drain-tiles extending beyond these, and being each fitted with a wooden plug, so that they could be opened or closed at will. During the growing season, these plugs were taken out daily, if the temperature of the air exceeded that of the border, but at no other time; and they were invariably put in at night. Vines were of course planted, and the grapes did not shank. The border, having a sloping top or surface, was covered with boards if the weather proved unfavorably wet.

2d, *Vitiated Sap.* — In vineries where the borders are inside, shanking is not wholly unknown; nor in heated borders is it invariably true that grapes do not shank. I have seen them shank under what we may term very unfavorable conditions for the disease, and notwithstanding every precaution taken to guard against it. I fully believe the vine to be no feeder on carrion, nor any of those strong manures which subside during decomposition into a soapy mass, in which no vine-root will live for a single winter, or, if so, only to push into the subsoil, or anywhere out of the reach of the putrefaction. Very often, vine-borders are made so that the mouths of the vines planted in them are rotted off, at times taking up so much food as to cover the roof with an undue amount of foliage, and at other times scarcely enough for the pressing demands of the leaves and fruit; but, if this cause shanking, what is it but an insufficient supply of sap? The roots not taking up the supply of food as decomposed or rendered available, it is absorbed by the soil adjoining; and this goes on constantly, so that the soil not only becomes excessively rich, but sodden, sour, and deprived of air from its closeness. It surely must follow, that the spongioles take up food in a

vitiated state, and that, the plant being unable to throw it off otherwise, new parts are formed: these being vigorously stopped, the vitiated sap chokes the passage in the narrow part between the berry and main conduit of the sap; and the berry, so cut off from further supplies of sap, shrivels.

The sap may be vitiated by excessive watering, too rich soil, and the border being deprived of air from the closeness of the materials employed; and this vitiated sap produces much wood, and long loose bunches of fruit with wiry foot-stalks. The berries swell very irregularly; and when they should become large, plump, and well colored, they stop swelling, remain red, shrivel, and are sour. A soil open, well drained, and poor rather than rich, would prevent the last result; and our best grapes are not grown in borders measured by their depth and the quantity of manure they contain, but by the openness of the soil, the slow decomposition of the manurial substances, and its dryness and shallowness. Naturally, the vine loves the hills and rocks, and will not thrive in bogs, such as we may see without much trouble in almost any garden where vines have been planted some time. Afford the vine a warm, dry, and open soil, and shanking will be less frequently seen. It may only be an idea which I have: but I think calcareous matter is valuable for some kinds of vines, and these are such as are most liable to shank; viz., Frontignans. I have had these free from shanking when grown in a border out of doors resting on a bed of chalk; which substance also entered largely into the composition of the border, as also another variety very liable to shank; viz., the Muscat Hamburg. Of all grapes, this I believe to be the very best, and, at the same time, the most difficult to grow without shanking in an outside border. With me, when worked on the Black Hamburg stock, it is any thing but cured, though vastly improved.

The "spot," as gardeners call it, is mainly due to the same causes as shanking. — *G. Abbey.*

Cherries grow to an enormous size in California. A lot were exhibited, of the ox-heart variety, which measured over two and a half inches in circumference.

Annual Bedders. — To any one in want of a cheap, showy, and easily-managed bedder, I would say, Try the common scarlet-runners. I have grown them for this purpose for two seasons, and have satisfied myself, that, when properly managed, this plant makes a very gay and effective bedder. At the present time, my row of runners is a perfect sheet of orange-scarlet, and this in spite of the drenching rains to which most of my bedders have succumbed. Nothing can be simpler than the management. Sow the seeds in May in poor soil, without manure, but on dry land, and in a sunny position. Put the seeds into the ground with your finger and thumb, at, say, twelve inches' distance from each other. They soon make their appearance, and grow like mushrooms. As soon as the stems begin to taper up, peg them down until you have a perfect row, or, if you grow them in a bed, until the ground is completely covered. After that, you must go over the row or bed occasionally, and nip off with a pair of shears any straggling shoot, together with some of the foliage if it is too thick. You will soon have an even mass of bloom, which will last till the frosts come.

Of course, you will take off the pods as they become ready for the table, and so your bedder will be useful as well as beautiful. The color, as every one knows, is a peculiarly cool brick-red, unapproachable, in my opinion, by that of any known bedder. Combined with blue salvia behind it, and *Centaurea*, or Mrs. Holford verbena, in front, the effect is magnificent. If you object to *Salvia patens* from the uncertainty of its bloom, try a border composed of the following materials: First row, *Lobelia speciosa;* second row, scarlet-runners; third row, *Calceolaria amplexicaulis.* Though professional chromatists may be horrified with the combination, I venture to say that your border will be the admiration of the neighborhood.

Another annual which I never omit to use as a bedder is *Saponaria Calabrica.* As a border close to grass, it is, I think, unequalled for beauty, and duration of bloom; and, when thus used, it saves the labor of trimming the verges of shrubberies on the lawn. It contrasts admirably with *Calceolaria aurea floribunda*, and I have seen it used with excellent effect to fill a small bed on a lawn. It should be sown thickly, and should not be thinned out too much. — *F., Westmoreland.*

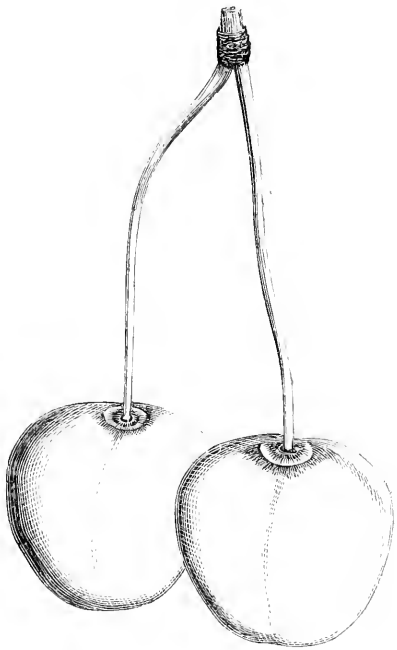
LIBOCEDRUS DECURRENS. — In reference to the propagation of this fine hardy tree by cuttings, which is well known to be a difficult process, a correspondent of "The Gardener's Chronicle" observes, "I have rooted upwards of a hundred: but I consider it a 'slow coach;' and, by grafting it upon *Biota orientalis* or Chinese arborvitæ, I have plants in one-third of the time. I have had cuttings in the propagating-bed for upwards of a year, and with a callus as large as a hen's egg before rooting." This is the tree commonly called *Thuja gigantea* in gardens; a name which really belongs to the plant known as *Thuja Lobbii.*

To form alum crystallizations over fresh flowers, make baskets of pliable copper-wire, directs "The American Journal of Pharmacy," and wrap them with gauze. Into these tie to the bottom violets, ferns, pelargonium-leaves, chrysanthemums, — in fact, any flowers except full-blown roses, — and sink them in a solution of alum, of a pound to the gallon of water, after the solution has cooled, as the colors will then be preserved in their original beauty, and the crystallized alum will hold faster than when from a hot solution. When you have a light covering of distinct crystals that cover completely the articles, remove carefully, and allow them to drain for twelve hours. These baskets make a beautiful parlor ornament, and for a long time preserve the freshness of the flowers.

ROBINIA PSEUD-ACACIA FASTIGIATA. — M. Carrière states, in "Revue Horticole," that while, if a cutting or a graft of this variety be taken from the upper portion of the tree, the fastigiate habit will be reproduced, and the branches will be furrowed, and covered with short prickles, yet if the plant be multiplied by detaching portions of the root, then, instead of a pyramidal tree with erect branches, a spreading bushy shrub is produced, with more or less horizontal cylindrical branches destitute of prickles.

Frogmore Early Bigarreau Cherry. — This is comparatively a new variety, and is as yet not much known. It was raised by Mr. Thomas Ingram of the Royal Gardens at Frogmore, and the original tree is growing against a north-east wall in the gardens there.

Unlike the class to which it properly belongs, it has a tender, melting flesh. In every respect, it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties ; but, as if to set at nought all human arrangements, it persists in having a delicious, melting flesh, instead of one that is hard and crackling.



The fruit is large, obtusely heart-shaped, with a very shallow suture. Skin with a brilliant red cheek, dotted with minute yellow points, and of a remarkably pale, almost pure white, where shaded: so susceptible is it of shade, that the point of a leaf or the shadow of a twig would be photographed on this brilliant red. Stalk two inches long, with a very small receptacle, and set in a shallow and narrow cavity. Flesh very delicate and translucent, perfectly tender, melting, and very juicy, with a rich, sweet flavor. Stone small.

The tree is a great bearer, clusters of a dozen and a half to two dozen large handsome cherries being produced on a small spray ; and the fruit ripens in the middle of June. — *Florist.*

Bulb Cases: Growth of Bulbs in Water, Moss, and Sand. — One of the most satisfactory modes of growing bulbs in the house is in a bulb-case. By this very simple contrivance, all the objections to plants in pots are obviated, and the plants thrive much better.

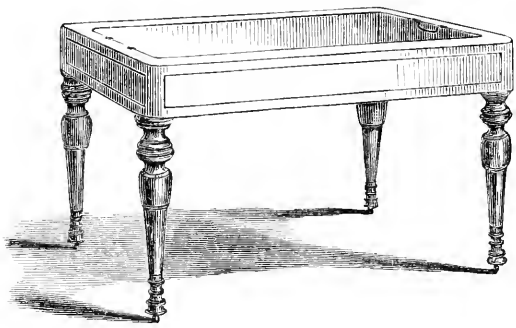
The bulb-case is a simple oblong table, as long as the window where you wish to grow the bulbs is wide, and wide enough to accommodate three medium-sized pots in each cross-row. A very good size is four and a half feet in length by two feet in width in the clear, so as to hold three rows of eight pots each. Let the table be hollow, and eight to ten inches deep, all thoroughly joined together, and well coated with white lead on the inside, particularly around the joints. Into this table fit a zinc pan of the same depth, with wire handles which turn down inside at each end. The prettiest style of table for a parlor is of oiled black walnut, with turned legs, panelled sides, and as high as the sill of the window. It should be fitted with strong castors, that it may run easily, and be turned if the plants grow one-sided. If any other form is employed, — and we give only the above form and dimensions as being those most simply made, — the only care is to see that it is so proportioned that there is no waste room on the inside; that is, that it may accommodate a certain number of pots without small bare places.

If the table is made circular, the whole top may turn on a pivot. After the bulbs are potted in October, they should be put in a dark cellar, and moderately watered for three weeks, to encourage the growth of the roots. When the pots are filled with roots, or when they touch the sides of the pot (which may easily be ascertained by inverting the pot, giving the edge a sharp rap, when the ball will come out entire, may be examined, and may then be replaced in the pot without injury to the plant), the pots may be brought from the cellar, and placed in the bulb-case. Fill the case with pots, and put common moss obtained in the woods, or sphagnum from the meadows, into all the interstices, and as high as the top of the pots; then cover all the pots about an half an inch with the rich green moss which may be found on shady rocks in oak-woods. The shoots of the bulbs will soon push through the moss if the table is placed in a sunny window; and, if the moss is kept well watered, we shall have a bed of hyacinths in a garden of moss.

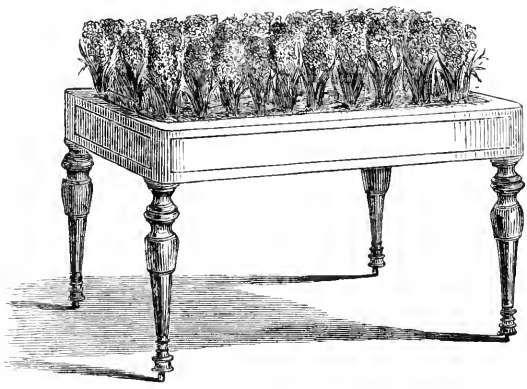
Of course, with such constant watering, much water will accumulate in the bottom of the pan; but this will produce no bad effects, the roots of the plants in time running through the holes in the bottom of the pots, and luxuriating in the wet moss. The plants placed in the case early in November will bloom about Christmas. As soon as the bloom fades, the pots should be taken from the case, placed in a light cellar, watered to encourage the growth of the foliage, and their places supplied with other pots brought from the cellar. As the plants will not all bloom at once, the case will always, by thus renewing, have plants in bloom from Christmas to April.

To maintain this succession, a stock of from seventy-five to a hundred bulbs should be potted; and some attention should be paid to the period of flowering, as some varieties bloom very early, and others always bloom late, and cannot be forced. The early-blooming varieties should be brought forward in early winter, while the later should be left in the cellar till February.

The stock of bulbs may all be potted at the same time, or at intervals of a month. Care must be taken not to over-water them while in the cellar, as too much moisture causes rot both of roots and tops. The larger bulbs should be planted one in a pot; but of smaller, such as crocus, tulips, and jonquils, three may be placed in the same pot.



A number of double Roman narcissus should always be potted for very early blooming: these will be out of bloom by the middle of January, and may be replaced by polyanthus narcissus *Gloriosa* (one of the earliest and best); and these, in turn, by the stronger and later varieties, of which *Grand Primo* and *Grand Monarque* are the best. The narcissus, being of tall habit, should be placed in the middle of the case.



The above engravings may give a good idea of the bulb-case before it is filled and after the plants are in bloom.

The great advantage of growing plants in cases is, that all spilling of water or overflowing of saucers, and all risk of overturning or breaking the pots, is avoided; and thus plants may be grown in the parlor without "making dirt."

In Glass Cases. — Bulbs are sometimes grown in close glass or Wardian cases.

The treatment is very simple; being merely to plant the bulb in the soil, and to give air enough to prevent rot or mould.

We have, however, found that, in every case, the leaves become tall or "drawn," and the flowers were lacking in brilliancy.

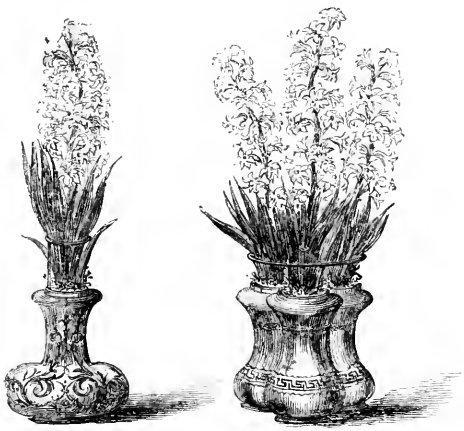
In Water. — This popular mode of growing bulbs seldom gives very fine flowers; but its simplicity and pretty effect will always recommend it. The bulb should be placed in the glass in November; the glass being filled with rain-water up to the neck, so that the base of the bulb may just touch it. Place the glasses in a warm, dark place, keeping them filled with water, for three weeks, or until the glass is half filled with roots; then remove to the light, and gradually to full sunlight.

After blooming, if it is desirable to preserve the bulb, it should be taken from the glass, and planted in earth, to strengthen it.

The water in the glasses should be changed every week, or as often as it becomes cloudy (a bit of charcoal in the water will, however, keep it sweet and clear); and, in renewing the water, care must be taken that that supplied be of the same temperature as that taken away.

There are many forms and colors of glasses: those of dark glass are best for the bulbs.

The accompanying figure shows some of the many attractive forms: —



The bulbs usually grown in glasses are hyacinths: but we occasionally see English iris, tulips, and narcissus, which make a pretty show; the treatment required for them being the same as for the hyacinth.

A few drops of glue or ammonia, added to the water in which bulbs are grown, increases the brilliancy of the flower, and strengthens the bulb.

In Vegetables. — Hyacinths are sometimes grown in a carrot or turnip, hollowed out, and filled with water. The bulb grows well; and a growth of

young foliage springs from the top of this novel flower-vase, and entirely conceals the bulb. In this way, many pretty effects may be produced. The treatment is the same required by bulbs in glasses.

In Moss. — Pots or glasses may be filled with moss, and bulbs grow very prettily therein. The treatment is the same as that required by bulbs in earth. A very pretty way is to make a ball of moss, fill it with bulbs, wire it round, and hang it in a warm, light place ; occasionally turning it to make an even growth, and dipping it in water when it gets dry. The shoots of the bulbs will cover the moss, and the roots will run through the inside. The Jacobean lily (*Sprekelia*, or *Amaryllis formosissimus*), grown in this way, blooms beautifully, and is a fine summer ornament.

In Sand. — This mode is popular, as sand is cleaner than earth, and the contrast of the white sand and green leaves is very pleasing. The only care necessary is to see that the sand contains no salt, and that it never becomes dry. The other treatment is the same required by bulbs grown in earth.

Crocus-Pots. — Crocus are often grown in fancy china-pots, representing porcupines. They are planted so that the leaves may represent the quills of the animal. The pots may be filled with earth, moss, or sand, and treated as directed for bulbs thus grown. The great difficulty is to produce an even growth, the effect generally being a porcupine with quills in a very dilapidated condition ; and therefore this mode of growth is not now so popular as formerly. — "*Bulbs*," *by E. S. Rand, Jun.*

Salvia Patens. — What a splendid bed this fine old plant makes! Large beds, when well filled, soon become masses of intense blue, and are then very striking objects. This is one of those sterling plants that ought to be in every garden. Though not quite hardy, it is one of those plants that can be preserved through the winter by every one. Towards the middle of October, a dry day should be chosen for lifting the roots : all the old flower-stems should be cut clean off, and all the loose soil shaken off the roots. They should then be laid for a few days to dry ; and afterwards be packed away in a box, putting some dry sandy soil between the roots. The box may be put away in any convenient place where the frost cannot enter, and may remain there without further care until the following spring. Early in March, the roots should be taken out of the box, potted, and placed in a warm pit or vinery, where they will speedily begin to grow, so as to furnish cuttings if an increase of stock be desired. Cuttings strike very readily in heat ; and if potted off as soon as rooted, and stopped and shifted into larger pots when necessary, they make fine plants for turning out in beds towards the end of May. The easy way in which this plant can be kept through the winter is a great recommendation in its favor to all lovers of gardening, and particularly to those who have only very limited space for keeping plants in winter, and who require all the room they have for variegated pelargoniums and tender bedding-plants. *Salvia patens*, when well grown in pots, makes a fine plant for the conservatory, and lasts a long time in flower. Young plants should be chosen and kept well stopped back to make specimens, and should have liberal pot-room. — *Florist.*

We extract from the letter of a Western correspondent, dated June, 1867, the following items about native plants : —

"The violets (*Viola pedata*) were beautiful beyond description two weeks ago. If these I send prove true to their professions, some of them will be nearly pure white, some pansy-petaled, and all very large.

"This violet (*V. pedata*) has tried my love more than any Western plant, serving me as *Cypripedium acaule* and *Rhododendron* used to do in my Eastern home. They would do well enough for one year : they rarely appeared after that. This violet will not stay where there is any thing commonplace, abhors 'fussing,' and is in several respects an exception among social plants. I hope it will be friendly to you. I have put my spring-planting in a place which will not be disturbed by rakes or rollers, to give it another trial.

"I wish you could have seen the four or five acres of violets from which these were taken. And yesterday I wished every lover of flowers could see the lady-shoes (*Cypripedia*) as I saw them at home. One side of the marsh where the white infant-socks (*Cypripedium candidum*) are found has a belt of woodland, large oaks and hickory-trees, throwing a deep shade over a strip of meadow half a dozen rods in width. The sward was gay with yellow-slippers (*Cypripedium pubescens*), the largest and most fragrant I ever saw ; and in the wind they seemed giving fantastic kind of welcome to the only admirer they ever had seen.

"Seven years ago, I gathered them in the same spot, without remarking their abundance : now they were thick as dandelions.

"I brought home from my journey after *C. candidum* a treasure of ostrich fern (*Struthiopteris Germanica*) ; this season being just what they need for their perfecting : a root of this is a picture from tropic suggestions. My specimens, I do believe, *beat Brazil !* Fifteen or twenty fronds from one root, and these a yard and a half high ! I have almost divided a Sunday between admiring them and my little *Allosorus*, obtained a week earlier, and already fruiting. "*J. C. C.*"

GOOD WINE. — *Messrs. Editors,* — In a recent very brief horticultural excursion, it was my good fortune to have an opportunity of tasting, and critically testing, side by side, a number of samples of the very choicest foreign and American wines ; and the conclusions I reached with regard to the different kinds seem to me worthy to be noted down. The wines criticised were Concord, Ives's Seedling, Catawba of Mottier's most famous vintage, a good Burgundy, an excellent claret, a Hockheimer of undoubted purity, Steinberg wine brought by a trusty person direct from the cellar of the Steinberg vineyard, and last, thougl not least, two samples of pure Iona wine.

The Concord, in my opinion, stood at the bottom of the list, with the Ives's Seedling next above it ; both of them, in comparison with better varieties, coarse, rough, and very far below Mottier's Catawba. This last, the Catawba, was rich and delicate, with only the least possible "tang" of the foxy, native flavor.

The Hockheimer was superior to the Catawba, but inferior to the almost priceless Steinberg wine ; this last, in my judgment, reaching the highest degree of excellence.

The Iona wine was as good as the Steinberger in all respects. This statement may excite derision among those who have not tasted the fermented juice of the Iona; but it is, in my judgment, a simple, indisputable fact. I had no idea before that *any* American grape could produce wine so pure, rich, and delicate, and with so exquisite a bouquet, as the samples I tasted; but, as Sairy Gamp observes, "facts are stubborn things, and won't be drove."

There may be better American wines than that which the Iona produces; but it has not been my good luck thus far to meet any native wine which combined so many good qualities as the samples of which I am speaking.

If we can have wine like this, we need not grieve that we cannot raise the Kiesling Grape; nor need we envy Prince Metternich and the Duke of Nassau.

J. M. M., Jun.

[We publish the above communication from one of our valued correspondents, without doubt of its being his impartial judgment in the matter. Tastes differ so much, that many will be found to dissent from his conclusions. There can be no doubt that the Iona, when grown under favorable circumstances, possesses more of the qualities of a good wine-grape than any variety now cultivated in this country. Our country is so large, that it seems impossible that any variety can be produced, that can be recommended for general cultivation, and prove, in all sections, superior to all other varieties; and it is absurd for the originator of any grape to make such a claim: while it is equally absurd for one who has failed with the variety in a certain locality to condemn it altogether.]

The Maupay Tomato. — Of all the tomatoes I have yet grown, I think the Maupay the best. In addition to this variety, I planted, the present season, Keyes's Early, Extra-early Red, Lester's Perfected, Feejee Island, and Tilden. The Keyes was planted the earliest, and had the greatest care in forcing, as well as the most favorable position in planting. With all these advantages, it only ripened about a week before the Maupay, and was greatly inferior to the latter in size, productiveness, and quality. The Maupay I find of large size, very smooth, seldom corrugated, bright-red color, very solid and heavy, with few seeds, and excellent flavor. With the same care, I think it would have ripened as early as the Keyes, and from two to three weeks earlier than any other of the above-named kinds. *G. W. Campbell.*

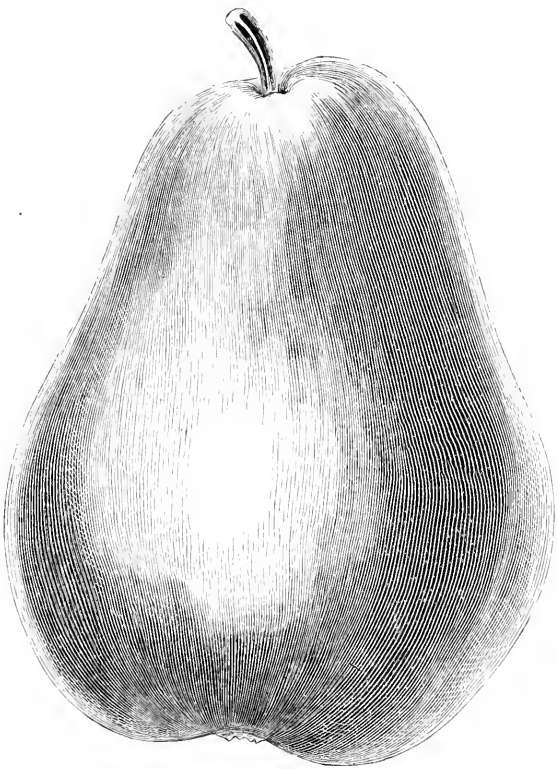
Delaware, O., Aug. 12, 1867.

The Clarke Raspberry. — This new variety has this season fruited finely here, and given great satisfaction. It is of large size; handsome, bright-red color; in flavor equal to the very best; and of sufficient firmness to bear carriage well. Its crowning excellence, however, is its perfect hardiness. In several perfectly exposed locations, it endured twenty-five degrees below zero last winter entirely unprotected, and came out in the spring wholly uninjured. It seems also very productive, and remains long in bearing. All things considered, I regard it as the most valuable raspberry within my knowledge.

Delaware, O. *G. W. Campbell.*

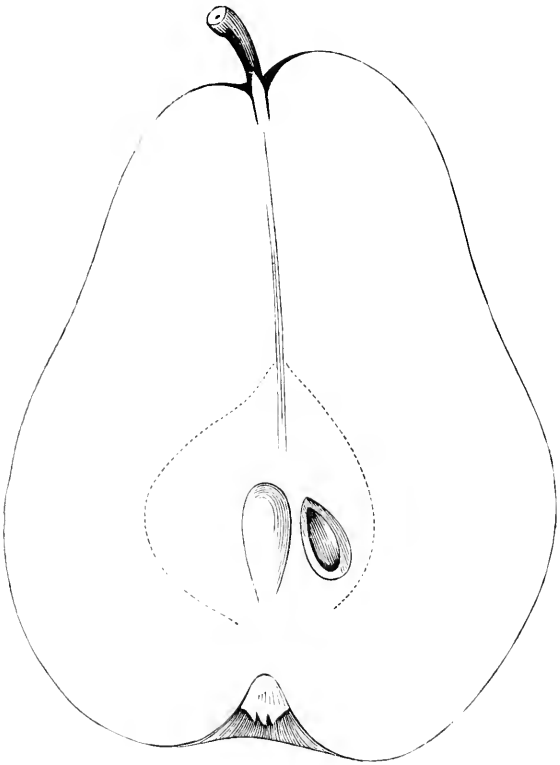
Large Vine. — Mr. J. A. Watson mentions in "The Gardener's Chronicle" a large vine growing on Mount Salevi, in Switzerland, which has been found to increase in size of stem at the rate of an inch annually. In March, 1867, the circumference of the stem at four feet from the ground was a hundred and fourteen centimetres, or three feet ten inches English. The branches have covered and monopolized several large trees, and have had no pruning nor care of any kind for years: still the produce last year was four hundred bottles of first-class red wine. This, at 1*s.* a bottle, is £20 sterling; and, calculating the number of square yards covered by the vine, is at the rate of over £300 sterling per acre.

The Goodale Pear. — This variety was introduced by S. L. Goodale of Saco, Me., who sent it to the Fruit Committee of the Massachusetts Horticultural



Society in 1864. It was raised from a seed of the M'Laughlin by E. Goodale of Saco. The tree is a good grower, and quite healthy and hardy. The fruit, as will be seen from the engraving, is of large size, sometimes weighing ten or

twelve ounces ; form oblong-obovate, large at base, and somewhat contracted in the middle, quite blunt at stem-end ; skin smooth, very handsome when ripe, being yellow with bright red on the sunny side ; flesh yellowish-white, fine-



grained, quite juicy, and of good quality ; stem short, eye small, closed, in a slight plaited basin. Ripe, October. Should be picked and ripened in house ; very promising.

THE RANUNCULUS. — It has always been a question with florists as to what soil is best suited to this plant. While any good, light soil will bloom the ranunculus, care in the preparation of a suitable bed is rewarded by increased size and beauty of flower, both in form, color, and substance.

A compost which is sure to grow them well may be thus prepared : Cut from a good loamy pasture the surface sods, three inches thick : let these be piled one on another in ridges for a year, and then sliced down with a sharp spade to form a crumbly mass. Turn this over carefully, and pick out all wire-worms, grubs, and insects. Then pile it all into a heap again, and let it remain another year ; by which time, all the grass and herbage will have resolved itself into

vegetable mould. At the end of the second year, turn it over again, and again pick out any worms or grubs as before. In a soil of this nature, which is now ready for use, the ranunculus will grow well.

The ranunculus likes a stiffer soil than the anemone, and is very impatient of drought.

Many florists use stimulating manures; but their effect is bad on the tubers, causing rotting and disease, though often the size of the flower is increased.

In forming beds, it is frequently the practice to place a layer of well-rotted cow-dung about nine inches below the surface, which operates in the twofold service of retaining moisture and supplying nourishment.

The compost given above will, however, grow the tubers well, and give satisfactory bloom, without any manure. The bed should be dug out about a foot deep, and filled in with the compost, and the tubers be planted two inches deep, in November, the earth being pressed close around them. On the approach of very frosty weather, the bed should be covered with a frame filled with oak-leaves, and this again with boards, to exclude the frost. Early in the spring, remove the frame, and the plants will soon appear. Keep them clear of weeds, and fork the earth loosely around them, watering them thoroughly if there should be a season of drought. As they come into bloom, and begin to color, shade them from the sun by an awning. When the flowers have faded, and the foliage turned yellow, take up the tubers, and keep them in a cool place until the return of the planting season.

The roots may be kept over the winter, and planted in the spring, as they are possessed of great vitality; but they often become too dry, and more frequently mould.

No plant is more easily increased by seed, which may be sown in February in light soil, in boxes, in the greenhouse, where it will vegetate freely in about a month; but none of the seedlings will be like the parent plant, or like each other. The young tubers should be ripened off in July; and, treated like old plants, will flower the next June.

The properties of a good ranunculus, as laid down by the best authorities, are, — the stem should be upright, eight to twelve inches high, and strong enough to support the flower. The form of the flower should be hemispherical, not less than two inches in diameter, consisting of numerous petals, gradually diminishing in size to the centre, lying over each other so as neither to be too close nor too much separated, but having more of a perpendicular than horizontal direction, in order to display the colors with better effect. The petals should be broad, with entire, well-rounded edges; the colors dark, clear, rich, or brilliant, either of one color, or variously diversified on a ground of cinerous white, primrose-yellow, or flame-color, or diversified with elegant stripes, spots, or mottling.

The ranunculus may be forced by selecting tubers which have been kept several months over the season of planting, as these are more readily excited. Plant these in pots about the first of August; grow them in a cold frame with plenty of air, light, and water; and, by bringing them into the greenhouse at different times, a bloom may be kept up from October to February.

This plant will well repay careful culture, and does not merit the neglect with which it has been treated in this country.

A collection of a hundred varieties ordered from any Dutch florist would probably contain many very fine kinds. — "*Bulbs*," *by E. S. Rand, Jun.*

THE ANEMONE. — The tubers should be planted late in October, in a bed prepared by removing the old soil to the depth of sixteen or eighteen inches. If the situation is cold and wet, drain it well, and do not go so deep; if dry and warm, the bed may be made deeper. Fill in four to six inches of cow-droppings, such as may be gathered in the pastures. Upon this, place as much good fresh earth as will raise the beds to their former level, or a little higher, to allow for settling. On the approach of very frosty weather, cover with a frame, and exclude the frost.

Any common, moderately-light soil suits the anemone: a wet, stiff soil rots the roots in winter.

If necessary to make a soil, take maiden-loam from the surface of a pasture, turf and all: to every load of this add one of cow-dung, and half a load of clean, sharp, fresh sand. Form this into a ridge, and let it remain a year; turning it, and picking out insects, every two months. A very good soil may be made of two parts garden-loam, one part well-rotted cow-dung, and one-half part sharp sand.

The anemone is somewhat more hardy than the ranunculus; but the roots will not bear being long kept out of the ground.

They are easily forced, and may be had in bloom any month in the year by a series of plantings.

Both the ranunculus and anemone are propagated, to preserve varieties, by division; to produce new varieties, by seed.

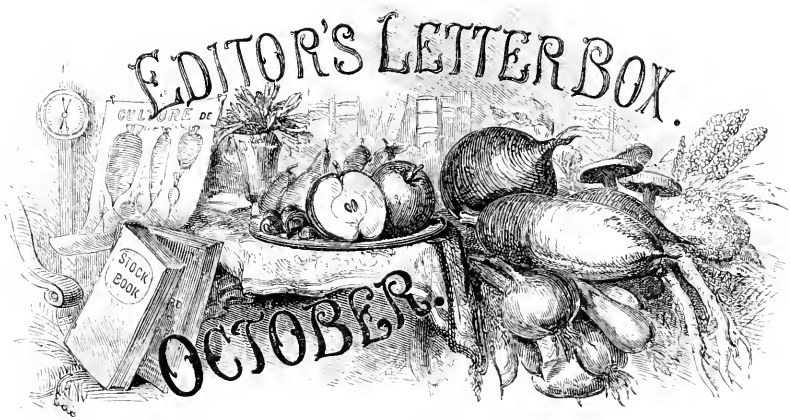
Every part of the crown, or root, which has a bud, will make a plant; but it is not well to divide anemones too much, as they flower very weak if too small. The usual colors of anemones are red, white, and blue; and the flowers are single, semi-double, and double.

The properties of a good single anemone are, —

The stem strong, elastic, and erect, not less than nine inches high; the flower at least two inches and a half in diameter, consisting of large, substantial, well-rounded petals, at first horizontally extended, and then turning a little upwards, so as to form a broad, shallow cup; the color clear and distinct when variegated in the same flower, or brilliant and striking if it consists of but one color.

A double anemone should have the outer petals quite flat, the second series a little shorter, the third shorter still; and so on till the centre is quite full, when the whole should form a rather flat hemisphere. Every double flower should be of one full color.

Of anemones, there are about twenty species with tuberous roots, and some forty herbaceous species. Many of these are very fine: among which we may mention the pretty wood-anemone (*A. nemorosa*) and the double variety; *A. Appenina*, with blue flowers; *A. narcissiflora; A. Japonica*, and the white variety; *Honorine Joubert; A. pulsatilla*, the well-known pasque-flower; and *A. vernalis*. — "*Bulbs*," *by E. S. Rand, Jun.*



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 horticuiture. 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.

TO OUR READERS. — It will be seen that we give the largest liberty for the expression of opinion in our pages. It is often the case, that we differ from the opinions expressed by our correspondents; yet we do not feel at liberty to reject such matter, but prefer to give it space, and let our readers judge for themselves. There is nothing in which people differ so much as that of taste: many, for instance, will declare that the Wilson's Albany Strawberry is a first-rate fruit, and

they prefer it, for the table, to any other variety; while a host of intelligent horticulturists and others will not eat it at all. The same is true of many other things. Now, while these things are so, we feel that it is no more than fair that each party should express its opinion; using care, however, that nothing positively wrong finds its way into our Magazine. This explanation will account for any seeming contradictions that have appeared, or may hereafter appear, in our Journal. Then it is true, and this fact should be constantly kept in mind, that a fruit may be first-rate in the West that is only second or third rate in New England, and *vice versâ*. As our Magazine goes into every State in the Union, it would be very strange if all the articles were exactly adapted to every location: in fact, it would be an utter impossibility to have them so. We shall endeavor to furnish good matter well adapted to each section of the country, that none may feel that their interests are neglected.

The following answers were inadvertently left over, and omitted in our AUGUST number: —

Editor "American Journal of Horticulture," — The success which has attended the cultivation of flowers, and the numerous improved varieties that have been brought into notice within the past ten years, should stimulate those who love flowers to make experiments for the obtaining of new and improved sorts. By good cultivation, the planting of the best kinds near each other, and the selecting of seeds from these plants, good and sometimes very striking flowers may be obtained. The pansy, petunia, and verbena are good examples of what has already been done in this direction; and they afford abundant encouragement to those who may wish to make experiments for the obtaining of new and improved varieties of any particular flower. From a number of seedlings of the *Pyrethrum* raised by me this season, I have selected one of the best, the flowers of which I send you. It is quite unlike the one usually cultivated in our greenhouses, having a quilled leaf similar to the quilled daisy, and of a color more nearly allied to the old *Pyrethrum* of our gardens.

Yours respectfully, *I. C. H.*

CLINTON, ONEIDA COUNTY, N.Y.

[The flowers sent are useful for variety; but, although prettily quilled, they lack the purity and beauty of the well-known double white variety. — ED.]

NAMES OF PLANTS. — E. D. H., Abington, Mass. — No. 1, very much crushed and discolored: probably white martagon lily. No. 2. — Probably *Ceanothus Americanus*. But you must send a better specimen of flowers: we cannot judge from a bit of leaf. No. 3. — *Ligustrum vulgare*. Privet or prim. An introduced plant. No. 4. — *Lysimachia quadrifolia*. No. 5. — *Spirea Reevesii*. No. 6. — *Hieracium venosum*. No. 7. — *Holcus lanatus*, or velvet-grass, a very beautiful and somewhat rare grass.

PYRUS. — Does the seckel pear usually crack before it is half-ripe? — No. Pears crack this season that never did before. The seckel has been somewhat inclined to this fault for several years, but not enough to cause alarm.

E. G., Newburyport, Mass. — What causes my pear-trees to shed their leaves in midsummer? — There may be several reasons; but it often happens, unless the orchard is well drained, that, in such a season as we have had, there would be too much water about the roots. The trees would have wet "feet" for days or weeks, and that would be sufficient to cause the loss of the leaf. If your orchard is not thoroughly drained, have it done, and you may see a change for the better.

SUBSCRIBER, New London, Conn. — I have for years past been very successful in the cultivation of the egg-plant; but this year they have proved a failure. Very little fruit has set; and, of that little, some has rotted. Is it because of the wet weather? — Yes. Your experience is similar to that of hundreds of others this year. The evil effects of too much rain is not confined alone to the egg-plant; but almost every kind of fruit and vegetable has been unfavorably affected.

E. S. B., Davenport, Io., asks "if it may not be possible that the pear-blight is really death from old age;" and "who ever heard of a blighted seedling?" — We answer, that we do not believe it possible that old age is the cause of the blight in pear-trees; for many young trees, even *seedlings* not a dozen years old, have been destroyed in this way. This we have seen and know. The blight is almost sure to appear on the thriftiest trees; which leads many to believe that it is caused by the winter. The tree, making a late growth, is caught before it is fully prepared for the rigors of the winter, and is injured; and the next spring and summer the damage appears. In a similar manner, several years ago, nearly all the Baldwin apple-trees in some sections of the country were killed. The remedy may be the same as has been successfully applied to the cherry-tree to prevent disease, — planting in poorer land, or using less manure: and, if nothing else will check the growth, sow the land to grass; though this latter plan is not highly approved by good horticulturists.

A SUBSCRIBER, New Haven, Conn. — You will never make grass do well under such a thick growth of elms. The roots of the trees exhaust the soil, and run to a great distance. From your description, we cannot recognize the grass you mention: if you will send us grass and flower-stalk, we will name it for you, and tell you how to procure it. Why not plant the space under the elm-trees with lily of the valley? They will grow well, and cover the ground with green from May to November, and give a few flowers in spring, if there is not too much shade. Or, if you need a lower growth, try periwinkle or money-wort (*Lysimachia nummularia*); the former with blue or white flowers in May, the latter with yellow flowers in June or July.

IDEM. — The pit you propose will keep your tea-roses through the winter; but we should advise the covering of oak-leaves. Why not put in a small stove, and have roses all winter? There is no greenhouse which will give so much flower and such general satisfaction as a well-managed rose-pit. After the plants get well established, you can gather roses every day from January to December. The care and expense are very little, and the pleasure is very great.

L. I. S., Taunton, Mass. — Your experience is similar to that of many others who have purchased of plant-peddlers. Our advice is to buy only of regular dealers. We have an article in preparation exposing the many frauds in plants. If you wish to prosecute the man, consult your lawyer as to your remedy and the means.

X. Y. Z., Boston. — You can obtain a fair collection of the cheaper orchids and some of the rarer kinds from George Such of South Amboy, N. J.

By consulting the catalogues of different florists, or, better still, by visiting their greenhouses, a fair collection may be made in this country. Large specimens must be imported.

J. C. K., Petersburg, Va. — We know of no one dealing in Wardian cases. Your best plan is to have one constructed by a local carpenter, giving him directions as to material.

If, however, you desire a metallic case, you must have drawings made, and submit them to some brass-founder for estimates. An article in our present issue, from one who has been most successful in Wardian-case culture, will materially assist you.

All the plants mentioned by Mr. Rand should be found in any well-stocked greenhouse. Send to Parsons & Co., Flushing, Long Island, N.Y., and you will probably obtain all of them.

F. W., Newark, Wayne County, N.Y. — Your suggestions are good. Thank you.

G. C. M., Philadelphia. — Mr. Rand answers, "If the zinc boiler does not prove strong enough, make it of sheet-iron galvanized.

"Waltonian cases are not to be procured in this country. If you wish to import, address James Gray, Horticultural Works, Danvers Street, Chelsea, London, S. W."

L. Tyson, Baltimore, Md. — An article in the present number, to be continued in November, will answer most of your questions upon Wardian cases.

We see no reason why you should fail with begonias in the south window. If the leaves decay, give less water, or rather more air to reduce the excess of moisture. If they droop, your case is too cold; if they grow spindling, they have too little light.

English ivy is the best plant for a hanging-basket, where there is but little light, and in a house heated by a furnace. There are so many varieties, both plain and variegated, that sameness may be avoided even where you have many baskets.

If you have light, try *Lobelia erinus* and *gracilis* (from seed), *Oxalis versicolor* (bulbs), *Lysimachia nummularia*, moneywort (plants or slips).

Thanks for your suggestions.

White jasmine is a beautiful parlor-plant; and the yellow is a fine thing for winter-blooming, if you get a well-established plant.

E. A. F., Meadville, Penn. — The insect enclosed is the pupa of *Coptocycla aurichalcea*. Fab., see Harris's new ed., p. 122, plates 1, 5. The old name was *Cassida aurichalcea*.

The plant it is impossible to name from such a specimen. It seems a small growth of some larger plant. Send us flowers or fruit: it is generally impossible to identify plants from fragments of leaves, single leaves, or small side-shoots.

H. L. — The plant which you enclose as "found in the woods of Martha's Vineyard" is not a fungus, but a very pretty and curious indigenous plant called Indian Pipe; botanically, *Monotropa uniflora*. — See Gray's "Manual of Botany," p. 262. The plant is common in rich dark woods.

Last season we procured a lot of Japan lilies (*Rubrum* and *Roseum*), which bloomed finely. This season, many of the same bulbs have "gone back;" that is, bloom has failed to a great extent: and many of them have turned pale and sickly-looking; budding, but rotting in the buds. Can you give us any information as to the proper course to pursue hereafter?

The auratum has behaved in the same manner.

On behalf of many disappointed ones, Yours, *W. E. H.*

Lancaster, Penn., Aug. 7, 1867.

W. E. H., Lancaster, Penn. — As you do not state the character of the soil in which your lilies were grown, it is not easy to give you a remedy; but, from your description, we should infer that they had been planted where water had covered them during the winter, and exposed to alternate freezing and thawing, which is very injurious. They will bear a hard frost, but, when once frozen in the ground, should remain so until spring. We think your bulbs can be restored to their usual vigor by transplanting them, as soon as the tops are dead, in a compost prepared as follows: Take equal parts of turfy loam and leaf-mould well decomposed; pull this to pieces with your hands until the fibrous portion is thoroughly broken up and mixed with the leaves; add to this about one-sixth of its bulk in sharp clean sand free from iron, all of which should be thoroughly intermixed. If for pot-culture, the soil should be firmly pressed around the bulbs, which should be covered about an inch from the crown: do not omit a few crocks in the bottom of the pot for drainage. If designed for culture in the garden, choose a situation where water will not stand during winter, nor where it is very dry during summer; excavate a portion of the soil a foot deep, which should be replaced with the above compost, and the bulb covered to the depth of four inches from the crown; cover during winter with leaves to the depth of eight or ten inches, which may be removed as soon as the frost is out of the ground in spring. The same treatment will answer for the auratum, though some growers are doubtful as to its being as hardy as the other varieties. It will, perhaps, be as well, while this variety is so expensive, to cultivate in pots, and winter in a cool dry cellar. Plant out as soon as the ground is ready in spring. We are of the opinion, however, that, when fully acclimated, it will prove as hardy as the other varieties.

NORTHBRIDGE, July 6, 1867.

SIR, — Herewith find a grape-stock on which the "growing-bud" has disappeared. Can you tell the cause or remedy? This was a young vine; and the vine stopped growing, when it arrived at this point, until the laterals had time to push and grow. This is a Rogers's No. 19; but my other vines have experienced the same thing in all kinds of exposure and soil.

Will you tell how long it is best to let layers be attached to the old vine after laying down? And is it better to take up the layers in late fall, and keep in the cellar till spring? or let them stay where they grew until the time to transplant in spring? If it is best to put in the cellar, how are the plants preserved?

C. O. B.

This abnormal change of the plumule, or growing-bud, of the vine into a leaf, is unusual, and the cause is uncertain. Do your vines indicate excessive vigor? A similar abortive termination of growth is frequently seen upon squash-vines, and also in the rank shoots which spring from the stump of a tree recently cut down. An unnatural development results from the gorged state of the sap-vessels.

Layers should remain on the parent stock until after frost in the fall. If the wood is well ripened, and the soil well drained, the layers are safer, and will be stronger in the spring if left remaining on the vine through the winter. An earth covering will protect from frost and mice. When it is desirable to dig, in the fall, the layers may be wintered in a cold cellar, heeled in light and rather dry soil. But a better way is to bury roots and top in a dry spot, and cover with boards to turn off the rain and snow of winter. In this position they are safe from any possible accident, they will not start too soon, they cannot winter-kill, and they are sure to be in the best possible condition in the spring.

W. T. H., Harrisville, Butler County, Penn. — We do not know where you can obtain *Passiflora alata:* it is not found in any of the catalogues we have on hand, except Van Houtte of Ghent, and Lawson of Edinburgh. It would hardly be worth importing, unless in a collection. *Passiflora Decaisneana* you can obtain from Parsons & Co., of Flushing, L.I. It will be more direct for you to order than for us, and less expensive.

H. M. F., Worcester, Mass. — You cannot expect *all* the seeds of your double zinnias to produce double flowers: if a large proportion are double, you are very fortunate. The same rule holds good with gillyflowers. The specimens of both which you send are very good. The zinnias are very fine in color; but, in this respect, you have not been so fortunate with the stocks, where dull colors seem to predominate.

I. S. L., Putnam, Conn. — The leaf sent is so much mutilated as to be undistinguishable. In general, it is difficult to identify a plant by a single leaf. Send a flower, if possible; but, if your plant has not bloomed, a leaf-shoot may enable us to determine.

We shall publish directions for forcing strawberries at an early day.

THE "MAIN SEEDLING" GRAPE. — W. C. Strong, in his excellent book, "Cultivation of the Grape," p. 179, says, "It is well known that the same variety of grape will ripen at different times in different localities, and under varying circumstances. A protected southern slope, or an angle of buildings looking southerly, with a loose, warm soil adjoining, will make a difference of two, three, or possibly four weeks in the time of ripening over ordinary localities."

The truth of the preceding extract is very strikingly illustrated in the case of two *Concord grape-vines* growing in this city (Concord, N.H.): one of these vines is growing at No. 9, Warren Street, in the midst of the city, where it is protected by buildings on all sides except the south-east and south, which are open to the full influence of the sun. It was planted in a well-prepared place, in a rich, loose soil; it receives an annual dressing of manure besides the daily contents of the kitchen sink, the spout of which conveys the slops directly to its roots; it is also protecte l through the winter by being laid upon the ground, and well covered up. The result of all these circumstances has been that the vine has grown remarkably, has borne very large crops, and has always, till the last two years, ripened its fruit very early, or by the middle of September. Owing to its having been allowed to overbear excessively, last year it did not ripen its crop fully till after the first day of October, as I saw it that day loaded with grapes, which, judging from their color, were rather more than half ripe; they being only a dark-red instead of black. I saw the vine a few days ago, on the second day of this month (September); and I could not see a berry that had begun to turn its color. All were of the same deep green. Perhaps this may be owing in part to the season; but I think it is mostly on account of its having always been allowed to bear all the fruit that set in the spring.

The other vine is growing at 38, Main Street, in an open garden, with very little protection, in a cold, moist soil, where it is a good deal shaded by trees. It is owned by the same person as the one at Warren Street, and probably receives as good care as that vine, although it is *now* put to a very different use. This vine never bore but a few grapes, and never ripened what few it did bear, if we can credit the statement of its owner. I never saw the vine till quite recently, and find it is now used wholly for raising vines by layers.

As it is asserted that these vines are not the Concord Grape, but are new seedlings, I will give my reason for affirming that they *are* the CONCORD, and nothing else. The owner of these vines had told me repeatedly, previous to the year 1865, in presence of my family, that he bought both of these vines of an agent of Mr. Bull of Concord, Mass., the originator of the Concord Grape, who visited this city for the purpose of selling vines in, I think, the spring of 1855. I bought some vines of the same person, and at the same time. The owner of the vines made these statements when visiting my place for the purpose of seeing my vines and comparing them with his own. He told me where he had planted his vines, and how they were growing: he said that the one on Main Street did not ripen its fruit, and he was going to raise vines from it, and sell them on the reputation of the vine on Warren Street; and that there would be no harm in that, as they were both Concord grapes, and the difference in their ripening was all owing to their different locations. I had frequent conversations with him up

to the year 1863, both at my own place and at his, when examining his vine on Warren Street; and he never intimated that his vines were any thing but the Concord Grape. On Sept. 18, 1863, he had an advertisement in one of the city papers, headed "Concord Grape-vines," saying, "The subscriber is prepared to furnish all in want of grape-vine roots of this fine variety." Here is positive proof, that, up to this time, the owner believed his vines were the Concord Grape. Since that time, "a change has come over the spirit of his dream;" and he now advertises these same grape-vines as "the Main Grape," saying "it was raised by him from the seed." This is the origin of "THE MAIN GRAPE," or, as it is now called, "MAIN'S SEEDLING GRAPE-VINE." *A. Chandler.*

CONCORD, N. H.

[We publish the above communication from one of our subscribers who does not hesitate to give his name, because we believe it to be true; and we hold it to be our duty, as an independent journal, to denounce imposition and humbug in horticultural matters, wherever it comes to our knowledge. We believe the "Main Seedling," or "Main Grape," to be the Concord, notwithstanding the rose-colored advertisements that have from time to time been published; and so remarked to our friends. To better satisfy ourselves, we bought a vine of a well-known nursery firm in this city who had vines of Mr. Main; and we are confirmed in our opinion. A nursery-man and large grape-grower said to us the other day, that he would furnish the "Main Grape" by the hundred or thousand at a low price, as he had plenty of Concord vines on hand. Varieties that have not been fully indorsed by some competent committee of pomologists should be looked upon with suspicion. — ED.]

W. T. H., Harrisville, Penn., writes, "I have in my garden two fine green-gage plum-trees, eight or ten years old, large and vigorous; but not a single plum has ever ripened on either of them. They blossom freely; but little or no fruit sets, and that little never matures. I have pruned freely, cutting out more than half the wood; still no fruit. Last spring, early, I pruned again; and some fruit set this season, but all fell off, stung by the curculio, I suppose, though I saw very few of these insects. Now, what can I do to render these fine-looking but fruitless trees productive? Tell me." — Your trees make so much wood, that they have nothing to spare for fruit. Your pruning in spring only aggravates the evil, and causes them to grow all the more vigorously. Stop manuring; or if your land is very rich, and they will grow too much without manure, sow the land about the trees to grass, and let it remain so until your trees come well into bearing. But it may be that the fruit sets well enough, but is destroyed by the curculio. We have successfully tried the plan of dusting the tree and fruit all over with air-slacked lime, and renewing it every time it is washed off beginning soon after the fruit sets, and keeping it up until the fruit is about half grown. Ashes used in the same way answer a good purpose. The little "Turk" does not like either substance, and will keep off. Another plan is, to go out every morning with a sheet or blanket to spread or hold under the tree, and a mallet with a rubber-head with which to strike the limbs and jar the fellows down, when they

may be gathered up and destroyed. We have known large crops of plums to be raised by following each of these methods. If the trees are low and bushy, and easy to come at, the lime and ashes can be all the more conveniently used.

The publishers received early this season, from Messrs. Hubbard & Davis of Detroit, a lot of choice verbenas, being selections from their large and varied stock of this popular flower. The plants have, during the past summer, grown with remarkable vigor, displayed magnificent bloom, and are now special objects of admiration to all who see them. In depth and purity of color, in size of flower and vigorous habit, they are superior to any we have seen; and we trust they may be generally disseminated.

MARGARET, Nashville. — We were in error in stating in our September issue, p. 189, that the lily of the valley was discovered in this country by Nuttall. The plant was discovered by Michaux, and later by Pursh.

E. H. H., Vineland, N. J. — Twelve good plants for parlor-culture are *Abutilon striatum; Cyclamen Persicum* and variety *album; Daphne odorata; Azalea indica alba;* Calla, or *Richardia Æthiopica; Cuphea platycentra; Epiphyllum truncatum; Heliotrope*, some variety; *Jasminum revolutum; Kennedya monophylla; Mahernia odorata; Primula sinenis* and varieties.

Of the above list, many will be in bloom from October till May.

Add also, if to your fancy, the *Laurustinus*, a double white camellia, a *Pittosporum*, a yellow oxalis, *Ixia crocata*, a rose geranium, and a bridal rose; also a few hyacinths, jonquils, and *Polyanthus narcissus.*

Weathered and Cherevoy's patent boilers have, we believe, given general satisfaction. Address 117, Prince Street, New York. For a small pit, an old-fashioned brick flue would answer, and not be very expensive.

You can obtain crested dog's-tail grass (*Cynosurus cristatus*) from B. K. Bliss of Springfield, Washburn & Co. of Boston, and probably of any seedsman. Price about 75 cents per pound.

MRS. C. E. N., Sewickley, Allen County, Penn. — Parsons & Co. of Flushing, L.I., will furnish you with any of the species or varieties of cyclamen, all potted and started for winter growth.

Sedum carneum variegatum can also be obtained of Parsons & Co.

Pansies do not thrive in the house in winter, and seldom bloom well. They are best grown in a cold frame, for which you will find full directions in our columns.

Send for seed to B. K. Bliss of Springfield, Mass.; who could, perhaps, send you also the cyclamen and sedum.

A SUBSCRIBER, Madison. — You can raise gladiolus from seed, and perhaps get better flowers than from imported bulbs. With ordinary treatment, seedlings bloom the third year; but, by forcing, they will bloom in half that time. The publishers can send you the book upon Bulbs.

I. S. S., St. Paul, Minn. — Your only way to ascertain whether plants are hardy with you is by experiment. Of course, there are many plants which you *know* to be hardy, and even a larger number which you *know* are tender. But between these two is a large class of the hardiness of which you are uncertain. It by no means follows, that, because a plant comes from a cold country, it is hardy in a place farther south. Many plants stand the winter of Canada, and are winter-killed in New England. Many of the so-called "Alpine plants" are perfectly hardy on the mountains, but perish in the winter in the gardens in England. This is due to the protection afforded by the snow during winter in their native habitats, which defends the plants from severe cold; acting as a blanket, and keeping them warm. Again: many plants, which no degree of steady cold will kill, perish if under the alternate freezing and thawing of our winters. Plants hardy on the north of the house are killed on the south; and, as a general rule, the winter sun does more injury than the cold. Herbaceous plants and bulbs perish by thousands after an "open winter."

From all these facts, you can draw your own deductions, and experiment with those plants which give best promise of success. If killed on a southern exposure, try a northern, and protect crowns of the plants and bulbs by a covering of litter in the autumn. If we can assist you further in any particular experiment, write to us.

A. Mears, Albany. — You can cultivate all our native asters and golden-rods; and they all improve by cultivation, increasing in the size of the stools and flowers. On the other hand, the gerardia you will find very difficult of domestication. It will grow for a year, and then die out. We hold the theory, that it is semi-parisitic.

Old Times, Hartford, Conn. — We agree with you. Many of the old-fashioned flowers have never been excelled, and should be more generally cultivated. Give us an article on the subject: we should be glad to call attention to the facts you mention.

Old and New. — Graft your seedlings on old stocks: they will fruit sooner, and you can tell whether they are of any value.

Dwarfs, Watertown. — Plant dwarf-cherries and plums by all means. We propose at an early day to give an article on the subject. Plums thrive on dwarf stock, and are much more easily protected from the curculio.

H. L., New York. — Your plant is *Monotropa uniflora*, Indian-pipe or corpse plant, not uncommon, and a very handsome as well as peculiar plant.

OLD AND NEW HOMES.

CHAPTER II.

Preparations for Removal. — Leave-takings. — Croakers. — The Journey. — Our New Home. — Busy Times. — Getting fixed. — Jersey Ideas. — Improving Tastes.

REMOVING to a new home, at a distance of some hundreds of miles, is no small undertaking, as we soon began to discover. There were so many things to think of! And, when the packing had fairly commenced, we would gladly have parted with many of our superfluous articles of furniture, rather than increase the number of items for boxing and freight. Yet many things of small intrinsic value were endeared to us by long association, none of which could well be spared. My mother fancied that no other place could possess a semblance of the proper home-feeling unless these precious heir-looms were there: hence we went on with our boxing and packing, until, after a week of bare floors and other discomforts, the last day came, and the last load of goods was removed from the now-empty and dreary-looking house that had been home to us for so many years. We took a final look, — not without tears, — and wondered whether it were possible

to love another home as we had loved this. But my father, sanguine as ever, and not much given to sentiment, continued to cheer us with the prospect of that "better time coming," whereof so much has been said and sung.

As two days were to be allowed for the transportation of our goods, my mother and myself, with the two younger children, went to pay some farewell visits to the neighbors; while my father and elder brother accompanied the baggage to the nearest station, whence it would be shipped direct to Burlington. Our move had been so unexpected, and we had kept our plans so quiet, that the neighbors had not yet recovered from their surprise; for, in that old-fashioned region, the new ideas of horticulture which had so impressed my father had not penetrated very deeply into the popular mind. They wished us all success in our new field; but the wise ones shook their heads mysteriously, and prophesied that next spring would probably see us back again. They even fancied it better to continue turning our ploughshares into pruning-hooks against the stout rocks of Connecticut than to throw away our labor altogether on what they called the dry and sandy plains of Central New Jersey. But all their exhortations went for nothing this time; and, on the day appointed, we set forth on our journey to the new home.

It was the first time that either my mother or myself had seen the city of New York. As we passed through the busy, ever-hurrying crowd to the railroad-wharf, we felt inwardly thankful that this was not to be our tarrying-place: the quiet of the country was more to our simple tastes. But steam shortens every journey; and we were quickly landed at the end of this, where, waiting on the platform, my father stood watching for our expected appearance.

Our new farm lay within a moderate distance of the town; but as the day was far advanced, and the house not altogether in readiness, we quartered ourselves for the night at an excellent hotel. Next morning was anything but a promising one for our plans. The rain had fallen heavily during the night, bringing with it a cold wind, that made us shiver even within doors; but we set out from the hotel in the direction of our new home. The road, notwithstanding the recent rain, was hard, smooth, and comparatively dry. It was one of those beautiful gravel turnpikes for which this

section has long been famous, built with a rounded surface which turned the rain as it fell, and so level as to be a great novelty to all who had been accustomed to the rough, undulating roads of New England. No snow was to be seen; but, though only the 25th of March, we saw the ploughs running in a dozen fields. Many had already been planted with early pease. The grass in the headlands along the fences was fresh and green; and cows, turned out by shiftless owners to graze upon the highways, were enjoying this first taste of the new pasture, and able to find substantial pickings.

Every thing was so new and strange to our New-England eyes, that we took no note of distance, and were therefore quite surprised when told that we had reached our future home. How eagerly we looked out through the carriage-window to obtain a view of its condition and surroundings! We had left a trim and snug New-England house; and though warned by my father that we must not expect so neat an establishment here, yet we were wholly unprepared for the sight which now opened upon us. There stood a whity-brown house, with rough clapboards, without blinds or porch, or veranda of any kind, set down within a few feet of the road, and presenting altogether so comfortless an appearance as to strike dismay into the hearts of both my mother and myself. It certainly was not the ideal home I had so often pictured; but we said nothing. One or two decrepit shade-trees threw up their leafless branches near the front-door; and a few stray lilacs and altheas, standing without regularity around, completed the squalid picture. As to landscape, it was everywhere an almost perfect level. No mountains, no hills, so familiar to New-Englanders, but only rolling swells, just enough to carry off the rains. Yonder was an orchard of old apple-trees; and, beyond that, the horizon closed up with clumps of dark evergreens, the remnants, as I supposed, of the vast pine-forests which once covered all this portion of New Jersey.

"There are no mountains here, father," I could not help exclaiming. "Mountains never yet afforded us a living," he replied; adding, "It is time to be trying something better."

The defects of our new location were apparent to us at a glance: its beauties must be sought after, whether any were discovered or not. I well knew what passed in my mother's mind as she took her first survey of the

mansion-house ; and that, in spite of her good resolutions, she was making comparisons. The old home, with its neatly-whitewashed exterior and green blinds, its modest piazza, and pillars intwined with vines and flowers, rose up before her, and put to shame this unsightly house, whose former owners seemed never to have heard of whitewash, or to have needed a protection from the sun.

" Never mind the looks of things," said my father in a comforting tone ; for he evidently conjectured what was passing in her mind. " We'll soon make them all right."

Inside, however, things appeared rather more endurable; and the furniture had been set in order so far as was possible, while a bright fire was blazing away in the large kitchen-stove. My mother, being a sensible helpmeet, was disposed to make the best of every thing ; and so we were all set to work unpacking, and fitting the carpets, and hanging up pictures, until, before night, affairs looked quite promising. Meantime, the rain prevented any further outside views ; and my mother, who well knew the potency of a little whitewash, gave herself no further uneasiness about the before-mentioned shabby exterior : all she wanted was a little time to put a new face on the picture.

We New-Englanders know but little of New Jersey. History has informed us that its early settlers were of a totally different race from that which colonized the Eastern States. They came of nearly all the European nationalities, not one of them developing the thrift and perseverance of New-Englanders ; and, having never acquired the wealth which commerce and manufactures enabled New-Englanders to secure, education flagged, enterprise was sluggish, the arts were unknown, and that of architecture seems to have been altogether lost. Hence most of the old wooden farm-houses of half a century ago are very inconvenient and homely structures. It is only since the advent of railroads and steamboats that any improvement in the building of farm-houses has been apparent. Those great appliances of human comfort brought to the door of every farmer in Central New Jersey a cash market for all that he could produce. That cash enabled him to improve the productiveness of his land by purchasing manures ; and, this double process being continued, his land has been brought up to the highest condition. But discovering that it was the regenerated land which paid

him the profit, not the forlorn old house in which he lived, his profits went into additional land, while the old house remained unpainted and shabby as before. He might put up new barns, because they were necessary; but, according to his utilitarian philosophy, the old wooden homestead was good enough.

These unsightly houses are still abundant in New Jersey. Every stranger notices them, and is astonished at the absence of taste and skill displayed in their construction. Ambitious settlers are compelled to buy such, and build or alter for themselves. The march of architectural taste is gradually sweeping them away, either by pulling down or remodelling; and already the marks of a more cultivated taste are evident in the new structures built by the numerous New-England and Northern men who have recently come to settle here.

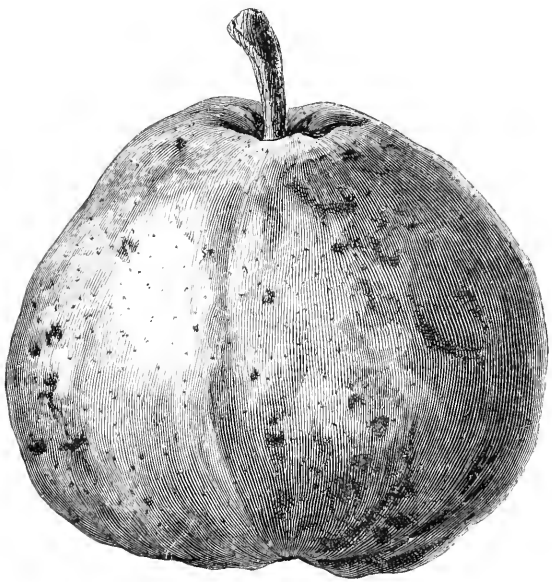
It was one of these time-worn shingle houses that my father had been compelled to purchase. The land was exactly what he wanted; and, to secure that, he was forced to take the house. But we adapted ourselves to its inconveniences without complaint, trusting that the future would enable us to improve it. *H.*

Burlington, N.J.

Asters in Pots. — About the middle of March, sow the seeds rather thinly in pans, and place these under a frame on a mild hot-bed, and near the glass. When up, keep the young plants near the glass, and afford plenty of air. When they are large enough to handle, prick them off in pans, return them to the frame, and, about the middle of May, take up with good balls, and pot in their blooming-pots, shading for a few days until established. Let the compost consist of the richest turfy loam which can be obtained, well-rotted manure, and sand in equal parts; and well drain the pots. Plunge in ashes in an open situation by the end of May, giving plenty of room. Syringe every evening; water when necessary; and liquid manure may be supplied alternately with pure water twice or thrice a week. Top-dressings of reduced manure are also good. A nine-inch pot is not too large for a plant.

THE PEMBERTON PEAR.

Dr. S. A. Shurtleff raised from the seed of Gansel's Bergamotte a promising young tree, which he transplanted from his garden on Pemberton Hill, Boston, to its present position in Boylston Street, Brookline, in the year 1838. It soon after fruited, bearing a pear possessing many of the characteristics of its ancestor. In 1847, a seedling *from this* came up, and in 1863, at the age of sixteen, bore its first fruit, which we now figure as the Pemberton Pear.



Tree. — Purple bark, with dark-green leaves; a vigorous grower, with strong, upright shoots; scions and buds take readily, and grow rapidly; an abundant bearer.

Fruit. — Turbinate, of a bright-yellow color, with a deep-crimson cheek toward the sun; flesh melting and juicy, with a sprightly sweet flavor, of a delicate vinous character, somewhat gritty at core; medium size. Ripens about the 1st of September, and may be kept until the 20th.

The tree, with its brightly-colored fruit and handsome foliage, is quite ornamental in the garden.

This fruit has several times been exhibited at the Horticultural-Society Rooms as the General Banks.

PLANTING TREES.

So much has been written upon this subject, that it seems almost or quite impossible to offer any thing that will prove of interest to the readers of this Journal. It is true, however, that there are some entering the field of horticulture every year who are novices in tree-planting, to whom even that which may appear quite simple to the experienced fruit-grower will be of great interest. If one is to plant an orchard, or even ornamental trees, he must know how to do it, if he would have them live and flourish. There is a great degree of ignorance on this subject, notwithstanding all that has been published; and even those who do know do not always pay sufficient regard to the conditions and requirements of trees and shrubs. It shall be our object to treat the subject of tree-planting so plainly, that any person of ordinary capacity may understand it sufficiently well to perform the work with a good degree of success.

One of the first conditions to the successful planting of trees is a good soil; and, without this, the best results cannot be expected. Presuming the soil to be favorable, then it should be trenched, or subsoiled, and, if needful, drained. If the former be done, the soil is greatly deepened, giving the roots of the trees or plants ample opportunity to stretch themselves far and wide; though, to have them do well when planted on land that has been so treated, a large quantity of well-decomposed manure should be used, and either ploughed or dug in, because much poor subsoil is brought near the surface and mixed with the good. If the land has been so treated, the holes may be dug for the trees only large enough in diameter to conveniently allow all the roots to be straightened out, and deep enough to admit of their being planted a little deeper, say one or two inches, than they were in the nursery. It is quite important to observe this suggestion

concerning the depth to which they should be planted ; for trees too deeply set will either die completely, or struggle along for some years until they can throw out roots higher up, nearer the surface, after which they will usually begin to grow. Dwarf pear-trees budded high are an exception to this rule; for as it is very desirable to get all the quince-wood below the surface, out of the way of the borers, it brings the roots quite low. In such a case, of the two evils choose the least, and plant deep ; for the quince throws out roots very readily, and, in a season or two, will be furnished with a new set of roots at the proper depth.

When the ground is well prepared, and the holes dug of the proper depth, and the trees selected of the best size, the important work of planting begins. Fruit-trees two or three years old, and six or seven feet high, are the very best size to plant ; though some, who wish to train them very carefully, prefer to take maiden trees, or those only one year from the bud; while still others would have very large ones. Whenever a tree is transplanted, and the roots are roughly cut with the spade, it is better to pare off smoothly the ends of all the large roots, that they may the more readily throw out little fibrous roots to support and nourish the tree. This cannot be so easily done when large trees are moved with a ball of frozen earth. Cut the root obliquely, as that will give a larger surface for the formation of rootlets. There is a difference of opinion among the best judges as to the expediency of heading in or cutting back the top of the tree when set. We have practised both ways with entire success ; but we are of the opinion that it is best to shorten in the top of a tree when transplanted. This remark, of course, will not apply to evergreens, shrubs, or ornamental trees, to any great extent, but particularly to fruit-trees and grape-vines. Many of the roots having necessarily been lost in the removal of the tree, we would remove a part of the top to restore the equilibrium, to promote a more uniform and better growth, to strengthen the trees, and to render them less top-heavy, and, consequently, less liable to be blown about by the winds.

If the tree has been frequently transplanted, and is furnished with a great many fibrous roots, and is already of good shape, and not too tall, it may be better not to shorten in.

The work of planting should not be left to ignorant or careless workmen, but should either be performed by the owner or some trusty man well

acquainted with the business. A man should hold the tree with one hand, and with the other straighten out the roots, placing them in the true and natural position, or in such a position as will induce them to grow readily. Then let another person, with a shovel, scatter into the hole the best of soil; the man who is holding the tree, all the time working the same in among the roots with his hand, making sure that every crevice is well filled, and occasionally putting in his foot to press down the earth when the hole is nearly full, and, when quite full, giving the soil a good treading-down about the tree to hold it in its proper position.

Tree-planting should never be attempted unless the soil is dry enough to be easily sifted in among the roots. A good rule would be, that, when the soil is dry enough to be planted with field-crops, it would do to plant trees. If quite large trees are to be set out, more care should be exercised than with small ones in arranging the roots, filling in the earth, and pressing down the soil about the roots.

A better way by far, when *very* large trees are to be transplanted, is to do it in winter with balls of frozen earth about them. Large trees so transplanted will hardly find out the change, but continue to grow, and, if fruit-trees, even bear fruit the same year they are moved; but this should not be allowed to any considerable extent.

In order to perform this operation successfully, the tree to be moved should be dug about on the approach of freezing nights; digging as far from the tree as desirable, according to the size of the same, and letting the earth freeze firmly, and at last digging completely under, so that all the roots will be severed, and the ball of earth frozen hard.

The place to which the tree is to be moved having been kept covered up with old hay, seaweed, or something else, to prevent the ground from freezing, a hole may be dug sufficiently large to admit the ball with a little space round it. Such trees can be transported from place to place by loading them on a stone drag or "float," and dragging them to the place where they are to be set: if there is a light fall of snow, they will slip along all the better.

Place the tree in the hole at the proper depth; and fill up the spaces between the frozen ball and the sides of the hole, treading it down as firmly as possible. Then it will be necessary to support the tree in its place

either by placing large stones about the roots, or by using ropes or wires to serve as "guys," running from part way up the tree down to stakes driven into the ground, that they may not be swayed by the wind. The transplanting of such large trees is quite expensive, and it is not advisable to resort to it generally.

It may be well to consider also the time of planting the various trees. Many contend that autumn is the better time to attend to this work; while others are equally sanguine that spring is the only time when this work can be successfully performed, when all the genial influences of the season combine to bring forward the buds, leaves, and blossoms. Now, we think it may safely be said, that, wherever the winters are severe, the fall-planting of *stone*-fruit and evergreen-trees is not safe, unless, perhaps, the latter are set quite early, say in August or the first of September. Neither has it been found quite so profitable to plant grape-vines at this season of the year as in spring. Our experience does not lead us to favor planting small fruit-trees, bushes, grape-vines, or small ornamental trees and shrubs, with some exceptions, in the fall of the year.

But we have planted large pear, apple, and other deciduous trees, to great advantage. Trees, whether planted in fall or spring, will be greatly benefited the following summer, especially if it should prove a dry season, by a liberal mulching of hay, straw, leaves, or any thing of that kind that will retain the moisture. This should be raked away in the following autumn, for fear of damage to the trees from mice that may harbor in this loose material. The merest tyro for whom this article has been written, if he will follow the directions given, may plant his trees so as to insure fair success. The old experienced tree-planter may possibly have a better way of his own.

Propagating Daphne cneorum. — This plant is best propagated by layering into small pots placed in the ground around the plants. Any disposable bushy shoots put in the soil up to the leaves, and pegged securely about an inch below the surface, will succeed. It is not necessary to make a slit or cut; but that facilitates the rotting. Shoots layered in June will be well rooted by the autumn.

PANSIES.

THESE lovely and popular flowers are true violets; they being all descended from the well-known heart's-ease, or lady's-delight, which is botanically known as *Viola tricolor*, — the three-colored violet.

This little flower is always a favorite; and though, in old gardens, it may increase to such an extent as to become a weed, if we adopt the apt definition that a "weed is a flower out of place," yet even in its abundance it is cherished, and from sunny nooks opens its cheery blossoms even in the inclement months of winter.

The heart's-ease will grow of itself, and care for itself, summer and winter, increase by self-sown seed, and bloom from January to December; but its high-born relative, the pansy, is by no means so easy of culture, and often defies every effort of the florist.

In the first place, our climate is against the successful culture of this flower. Our summers are too hot, and the flowers dwindle, and grow smaller: so only in spring and autumn do we get large pansies. The plants are impatient of drought, and are often dried up and lost in July and August.

Again: our winters are very severe upon the plants, which seldom survive alternate freezing and thawing. If, however, protected by snow, or a thin covering of litter, they often give good spring-bloom.

We are thus forced to grow our pansies in a frame; and we propose to tell our readers just how we do it. At any time from the first of July to the middle of August, having procured seed of the finest strain, sow it rather thinly, broadcast, in a frame, in good light but rather fine soil; cover it lightly; give a watering with a very fine rose from a water-pot; draw on the sash, and shade from the direct rays of the sun, giving also a little air if the frame becomes too hot.

In a few days, the young plants will make their appearance. Let them grow, giving water, light, and air as may be required, but being careful not to water too freely, as the plants are liable to damp off. When the seedlings are large enough to handle, prick them out into another frame, into a fine rich, loamy soil, or into a moist sheltered bed in the flower-garden,

setting the plants about six inches apart. Let them grow until the approach of very severe weather; then cover them with dry oak-leaves, and,

if in a frame, draw on the glass, cover it with an old mat, and let all remain until the middle of March (in New England, but earlier south of New York).

Uncover the bed, taking out the oak-leaves, and the plants will be found in fine condition, and with gentle waterings, sun, and air, will soon start into growth. They will soon show bloom, and for six weeks will well repay the labor bestowed upon them.

If large plants are required, pinch out the end of the leading shoots, which will cause lateral branches to break. When the warm weather comes, the flowers will grow small, and will continue so through the summer; but in autumn they will again grow larger, though the late flowers are seldom equal to those produced in spring, either in color, size, form, or markings.

Water should only be given when the plants are dry. If the soil is kept too wet, the plants are liable to damp off; yet, as drought affects the plants badly, the soil should never become very dry.

Another method of growing pansies is to pot the young plants in small pots, and set them in a frame, filling coal-ashes between the pots. Treat as above directed; and, when desirable to force the plants, take them into the greenhouse.

We do not, however, recommend parlor or greenhouse culture: the pansy succeeds best in a frame or in the garden.

Seed cannot be relied upon for the propagation of varieties. Some of the dark kinds come true from seed; but it is an exception to the rule. Seed saved from a fine bed of pansies will, however, usually give very fine seedlings.

Fine varieties must be perpetuated by cuttings, which should be the side-shoots, taken off about two inches long, and set half their length in sandy loam, under a bell-glass. Shade from the direct sun and keep well watered until rooted. As soon as they begin to grow (which is a sign they are rooted), they should be carefully transplanted to the place where they are to bloom.

When plants get large and straggling, cut them down; and the young shoots which will come up make good cuttings.

The only enemies of the pansy are green fly and damp: fumigation with tobacco easily removes the former, and care in watering prevents the latter.

A pansy may be very large, showy, and well colored, and yet not be a florist's flower. The flowers which come up to the rules of perfection are

very few; yet, as all are pretty and fragrant, we should not neglect the pansy because we cannot grow our flower in conformity with what is, after all, rather an arbitrary standard. The qualities of a good pansy, as laid down and published by the Flower Committee of the Massachusetts Horticultural Society a few years since, and to which the flowers given in our illustration conform, —

1. The flower should be round, flat, and very smooth at the edge; every notch or serrature or unevenness being a blemish.

2. The petals should be thick, and of a rich velvety texture, standing out firm and flat without support.

3. Whatever may be the colors, the ground-color of the three lower petals should be alike: whether it be white, yellow, straw-color, plain, fringed, or blotched, there should not in these three petals be a shade of difference in the principal color.

4. Whatever may be the character of the marks or darker pencillings on the ground-color, they should be bright, dense, distinct, and retain their character without running or flushing, or mixing with the ground-color; and the white, yellow, or straw-color should be pure.

5. The two upper petals should be perfectly uniform, whether dark or light, or fringed or blotched. The two petals immediately under them should be alike; and the lower petal, as before observed, must have the same ground-color and character as the two above it; and the pencilling or marking of the eye in the three lower petals must not break through to the edges.

6. In size, there is a distinct point, when coarseness does not accompany it; in other words, if flowers are equal in other respects, the larger is the better: but no flower should be shown under an inch and a half across.

GENERAL REMARKS.

Ragged edges, crumpled petals, indentures on the petal, indistinct markings or pencillings, and flushed or run colors, are great blemishes; but if there be one ground-color to the lower petal, and another color to the side ones, or if there are two shades of ground-color at all, it is not a show-flower, though many such are improperly tolerated (the yellow within the eye is not considered ground-color). In selecting new varieties, not one should

be let out which has the last-mentioned blemish, and none should be sold that do not very closely approach the circular four. One of the prevailing faults in the so-called best flowers is the smallness of the centre yellow or white, and the largeness of the eye, which breaks through it into the border. We are so severe in these matters ourselves, that we count the very best of them no bloom in summing up the good ones.

GLEN RIDGE, October, 1867. *E. S. R., Jun.*

THE CULTIVATION OF SMALL FRUITS AS AN EMPLOYMENT FOR WOMEN.

" Wife, into thy garden, and set me a plot
With strawberry-roots of the best to be got."
TUSSER'S *September Husbandry.*

THE author of " Needle and Garden," published in " The Atlantic " a year or more since, and a late writer in " The Independent," have anticipated a good deal of what I wish to say ; but the subject is perhaps new enough to most of the readers, fair or otherwise, of " The Journal of Horticulture," to justify my adding a few words on the feasibility of the cultivation of the " small fruits," as a partial or entire employment and means of support for women.

Having entire faith in the ultimate civil and social emancipation of woman, I recognize the fact that she will shortly succeed to many pursuits and callings from which social prejudices and legal relics of barbarism now exclude her, and will assume the performance of new duties as well as long-denied rights. But, even if this were not so, it is certain that our American women imperatively need more open-air labor, a wider range of industrial pursuits, and employments where the remuneration will be in a direct ratio to the ability and industry engaged, and not given on an arbitrary distinction of sex.

In the cultivation of small fruits, I think I see a desirable employment for woman's labor, especially where the natural head of the family is wanting. The unmarried or widowed woman and her dependent relatives too often devote themselves to *saving* the scanty fortune of a deceased

parent or husband, without taking thought of *bettering* their condition by any enterprise in which forethought, energy, and business ability, have their place. All these are taught without very dear experience in a business such as this. The capital required is small; and, while providence and diligence must be exercised, the pursuit is free, for the most part, from that exposure to rough manners and coarse chaffering from which the sensitive shrink.

The woman of small means and uncertain income can scarcely hire, much less own, a lodging-place in the larger cities, and too often goes the downward way of struggling poverty and desperate sin; and they who would keep the wolf from their door, and preserve a respectable position as workers in the world, look to a quiet cottage in a country village as the safest abode of feminine frugality. In such a spot, a few hundred dollars will often purchase in fee-simple a residence and an acre or more of ground, and the soil be made to furnish no small part of a comfortable subsistence.

To those who are, or can be, thus situated, I would suggest the culture of small fruits as a profitable, pleasant, and healthful occupation.

Under the name of small fruits are generally included the strawberry, raspberry, blackberry, currant, and gooseberry (some might practically add the grape and cherry with good reasons; but these I omit from this list). These fruits, excepting the heavier labor of preparing the ground (all of them requiring a deep and thorough preparation of the soil before planting), can be easily managed by women; the labor being of the dexterous, patient, and neat sort, rather than the hurried, hard, and unclean.

All of these fruits may be grown to advantage on any of the main lines of railway leading into our great cities. Here in Illinois, for instance, the Chicago branch and lower trunk of the Illinois Central carry fruit directly from the grower in latitude 37°, where the strawberry ripens early in May, to Chicago, whose market is bare of home-grown berries until late in June. The Ohio and Mississippi Railway terminates in Cincinnati and St. Louis. The Chicago and Alton connects St. Louis and Chicago. All these great cities purchase, first for their own wants, and then to supply the areas of surrounding country into which their railroads radiate; thus furnishing a constant and increasing demand for all fruits.

For nearly all these fruits, too, there is an increasing *local* want. They are passing from the rank of luxuries to that of the necessaries of life.

They are no longer sweetmeats, but food. As they increase, the demand increases in a larger ratio. Do they grow cheaper, everybody buys them; and, whether they cheapen or not, a conviction of their value as a prophylactic continually increases their sale. Careful parents would rather pay the fruit-grower than the physician.

Along the various railways of our country, lands in small quantities, suitably enclosed and with sufficient buildings, may be purchased, in convenient proximity to stations, at from fifty to three hundred dollars per acre. The land may be double-ploughed, by one plough following in the furrow of another, to the depth of ten or twelve inches (eighteen would be better), and harrowed smooth and fine, at an expense of not over five dollars per acre. This done as early in the spring as may be, the remaining labor can readily be performed by women. The tools used should be selected with an eye to lightness, strength, and good temper (in tool and worker). Good yearling plants should be used in setting the plats. The following number of plants is needed to plant an acre each of the several sorts at the distances given, and will cost about the sums stated: —

10,000	Wilson's Albany Strawberry, 1 by 4	$30.00
1,700	Doolittle's Raspberry, 5 by 5	34.00
1,700	Lawton Blackberry, 5 by 5	34.00
1,700	Red Dutch Currant, 5 by 5	34.00
1,700	Houghton Gooseberry, 5 by 5	68.00

From this the cost of a plantation of larger or smaller dimensions may be approximately determined.

A line stretched across the plat, at the width assigned for rows, either upon the level ground, or, better, in a shallow furrow, marks the place of the row; and white or red threads tied upon this line at the proper intervals mark the places of plants in the row. By this help, the labor of the shallow planting may be rapidly performed with the single help of the trowel or hoe.

This planting is generally best done in the spring. Culture should be commenced *before* weeds have time to start, and kept up until midsummer. The hoe and the light hand-cultivators can do this; though the horse-cultivator is more rapid, and requires less manual labor.

The strawberry-plants, as they make their runners, should be directed to first filling the rows and any vacancies in them, and then to filling a space

of a foot on either side. This leaves alternate strips of strawberries and bare ground two feet in width. Farther than this I would not permit them to go. Some would even confine them to hills; but it is still questionable whether this will be best, all things considered. If blackberries or raspberries make a strong growth, their ends should be cut or pinched off, at the height of four or five feet, in latter July or August. Cultivation, generally, should cease early in July, or be confined to the extirpation of weeds without much stirring of the ground, which would produce late growths to be nipped by early frosts. The rows should be ridged up a little in their cultivation, so as to be free from surface-moisture.

For winter, in our almost snowless prairies, the best treatment for strawberries is to cover them entirely, after the ground freezes, with old straw (the more decayed, the better). The raspberry and blackberry may sometimes be benefited by a similar mulch applied to their roots and more pliable canes. The gooseberry and currant need nothing of the kind, unless, it may be, in wet places, where the plants are more liable to be thrown out by the alternate freezing and thawing.

When spring comes, the straw should be pushed aside from the strawberry-rows into the intermediate spaces, and there remain, as a protection against weed-growth and drought, during spring and early summer. The blackberry and raspberry bushes, where their growth has been feeble, should be cut down to the last bud, and give their whole strength to forming canes for next year's fruit. The strong plants may be tied to one another or to stakes for support, and permitted to bear fruit. The currant and gooseberry will probably need only cultivation. The strawberries will need no cultivation until the crop is gathered; when the spaces should be dug or ploughed well, unless the straw-mulch prevent.

This, the second year, the first and finest fruit should be produced by the strawberry; and, *if the work has been well done*, there should be a product of a hundred bushels per acre. For the considerable labor which this involves, provision must be made in anticipation. In case there are many strawberries, it will be necessary to employ assistance. During some days, perhaps, as many as ten persons to the acre are necessary. Women, boys, and girls can pick at two and two and a half cents per quart, and make good wages. I have heard this year of a smart boy who picked a

hundred quarts in a short day's work. Packages for fruit must be purchased. These must be neat, strong, and adapted to the market to be supplied. The most satisfactory that I have seen is the "Halleck Fruit-box," — a quart box made of two strips of sliced wood, which can be purchased "in the flat" at eight dollars per thousand: thirty-six of these can be packed in a crate, or case, also made of ready-cut strips. This case costs about twenty-eight dollars per hundred. Thus far, for an acre of good strawberries, one may need —

100 cases	(a hundred and twelve and a half bushels) . . .	$28.00
3,600 boxes	" " " " " " . . .	28.80
	Total, not including freight	$56.80

A small sum must be expended in tough tacks, No. 3, and a magnetic tack-hammer. The material should be kept in a cool, shady place, and put together at intervals of leisure. The cases should be kept in the same way, and put together with No. 3 and 4 nails.

The "Burlington Free-fruit Box," Platt's "Fruit Box," and a large shallow box containing half a bushel, and probably many others, are also used, and have their respective admirers.

The fruit should be neatly picked, taken up tenderly, when it is dry, directly into the boxes. Small and unripe berries should not be put in, and all leaves or other litter excluded. The boxes should be filled with precision, packed in their turn neatly in the case, and the top nailed on firmly. If, as is generally the case, the fruit is sent by express, care must be taken to direct properly, and send away promptly, as the fruit is perishable.

Commission-merchants must be engaged at the principal place or places of sale. "Men are deceivers ever;" but the impression, not without foundation, has got abroad, that they are more than usually tempted in the business of fruit-selling. But any experienced friend can point out reliable dealers everywhere, who, for about ten per cent commission, will receive and sell small lots of fruit. One should keep the run of the markets, and sell at home, or send to different markets according to quotations.

In case the raspberry and blackberry bushes produce a little fruit the second season, it can be shipped in the same kind of packages, and in a similar way. The gooseberries, when they begin to come, can be shipped

in barrels, with holes bored in the heads to prevent heating. Currants, if large and fine, can sometimes be shipped to advantage in the quart packages. But these two last do not bear so early as the first.

By this time, some propagation of plants can be begun; and this is one advantage in the cultivation of small fruits. The runners of the strawberry, the tips of the raspberry, the sprouts of the blackberry, and the cuttings of the currant and gooseberry, can all be made into independent plants, and sold, or planted as an enlargement of the area of culture. In this way, a double harvest can be reaped.

The wood that may have borne on raspberry and blackberry bushes is now dying, and may be cut out. The runners from the strawberry-plants may be permitted to fill the vacant spaces, if plants are wanted; or may be restricted in case something like cultivation in hills is preferred.

The second and subsequent winters, the straw-mulch will still be desirable. Corn-stalks and planing-mill chips will answer the same purpose, and can be substituted according to the *capabilities* of the neighborhood.

Subsequent seasons will be much the same; except that, sooner or later, the plantations of strawberries and raspberries will be the better for being renewed, and the gooseberries and currants will need thinning and manuring as they advance in years. The blackberries will need manure, and a suppression, with the hoe, of sprouts, unless plants be a special object.

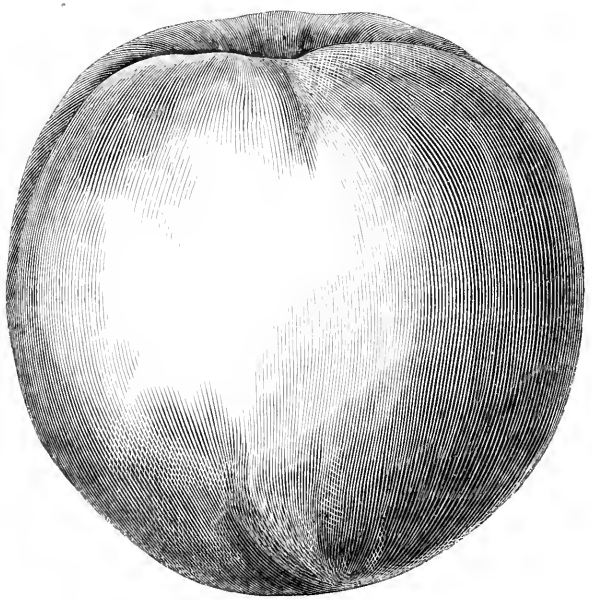
It will be well, where possible, to keep a steady horse and an equally steady boy. With these, horse-power culture can be applied, fruit hauled away, and manure hauled in during the winter months.

In this outline, I can but allude to details which close observation and practice best teach and impress. Perhaps, however, I have said enough to show that the labor is light and pleasant, and the probable profits greater than can be gained in most of the pursuits in which women now engage; whilst as regards health, independence, and self-respect, it is far preferable to the state of dependence and confining labors of many of them.

ALTON, July 3, 1867. *W. C. Flagg.*

FOSTER'S SEEDLING PEACH.

THE annexed engraving gives a correct idea of the average size and form of this new seedling peach, which has been named for its originator, — Capt. J. T. Foster of Medford, Mass. It was raised from the stone of one of two peaches that he purchased in Boston market; and the tree is now about ten years old. It is very hardy, and the fruit always large, and remarkably



handsome. The foliage is said to be very large, dark, glossy, and peculiar, unlike that of any other variety. The fruit is large, slightly flattened, with a slight suture; stem moderately depressed; flesh yellow, very rich and juicy, with pleasant sub-acid flavor; free stone, of medium size; color of fruit a deep orange and red, becoming very dark red on the exposed side. Ripe from middle to last of September. This fruit is so attractive, that we have known it to sell, on one occasion at least, for one dollar each; and, wherever exhibited, it attracts a great deal of attention.

HARDY CLEMATIS.

We will first mention the herbaceous cultivated varieties of the clematis, with erect stems, generally hardy and ornamental.

Clematis integrifolia (L.). — Tufted, large flowers of a beautiful blue.

Clematis erecta (L.). — About three feet high, flowers white, in panicles.

Clematis flore pleno. — Obtained by M. Victor Lemoine. Stems three feet; flowers white, and double like those of the *Ranunculus aconitifolius.*

Clematis hybrida. — Another variety obtained by the same horticulturist. Hybrid between *C. integrifolia* and *C. erecta.* Panicles of flowers of a rich violet with yellow stamens.

Passing to the climbing varieties, we notice, first, *Clematis vitalba* (L.), the traveller's joy, (or virgin's-bower?) with yellowish-white flowers. By means of the petioles, which serve the purpose of tendrils, this plant often climbs to the tops of trees.

C. flammula (L.); *C. fragrans* (L.). — Bunches of white flowers of delightful fragrance.

C. viticella (L.) and *viticella flore pleno.* — Flowers varying from pure blue to reddish blue. The pollen of these varieties, by fertilizing the flowers of *C. lanuginosa,* has produced some surprising results.

C. Hendersoni venosa. — A very beautiful hybrid from the preceding.

Of the other climbing varieties, we notice first those indigenous to Eastern Asia: —

Clematis Florida fl. pl. (*Atragene Indica*). — Large white flowers, very double.

C. Florida Sieboldii (*C. bicolor*). — Nothing can be more beautiful than these vines, seen either climbing some tall forest-tree or shrub in their native freedom, or when the hand of Art has trained their flexible sprays to cover the trellis of some elegant arbor.

To the general fine effect of these climbers is joined, in the *C. Florida Sieboldii,* the elegance of a cut foliage, the brilliancy of large starry flowers with six rays, where the delicate green of the centre contrasts finely with the brilliant violet of the petals. To the eye of the botanist, this last ornament, procured by transforming the anthers and pistils into petals, is only a

sign of sterility which he stigmatizes as monstrous ; while the amateur admires it as a triumph of art. These flowers resemble somewhat the double anemones and ranunculus of our gardens.

Clematis Florida with single, and a variety of the same with double flowers, of a uniform color, have been known in Europe for a long time. The latter, according to Curtis, was introduced into the gardens of England in 1776, before the species with single flowers observed by Thunberg in the gardens of Japan, where it is indigenous. It was in this region, whence so many ornamental plants have been obtained, that Dr. Siebold discovered the two-colored variety which is known by his name. It was first introduced into the Botanical Garden at Ghent in 1829 with *C. cærulea ;* whence they soon spread into other gardens.

C. Florida Standishi. — Flowers blue, tinted with lilac ; petals moderately thick, large, and very well set. Although it has been classed with the species *C. Florida*, in our opinion it has more analogy with the *C. patens ;* but it is superior to it in the consistency of its petals, which are very firm.

C. patens (*C. azurea grandiflora*). — Large flower, clear blue.

C. patens Amelia ; C. patens amethystina plena ; C. patens atropurpurea plena. C. patens candidissima plena. — Flowers of a medium size, white, double, superior to those of *C. monstrosa.*

C. patens Helena ; C. patens Louisa ; C. patens Louisa fl. pl. ; C. patens lanuginosa ; C. patens candida ; C. patens pallida. C. patens nivea, of which M. Lemoine speaks as follows : "The flowers of this hybrid are as large as those of the *C. lanuginosa :* their form is the same ; but their color is pure white. The stamens are of a yellowish-white. It is produced by crossing *C. lanuginosa* with *C. patens ;* with white flowers : it has retained some of the characteristics of both parents, while acquiring a much greater force of vegetation, and becoming much more hardy."

Clematis Jackmani and *C. rubro violacea.* — Messrs. Jackman and Son of Woking, in Surrey, have obtained these two brilliant novelties by fertilizing *Clematis lanuginosa* with the *C. viticella Hendersoni*, and by crossing *Clematis lanuginosa* with *Clematis viticella atrorubens.*

These hybrids have preserved the floral dimensions of one parent, while borrowing largely from the color of the other. At first sight, they are iden-

tical ; but, on close inspection, that tint of reddish-violet shaded with maroon, peculiar to the *Clematis rubro violacea*, is not found in *C. Jackmani.*

Clematis hybrida splendida. — Under this name, a clematis is cultivated, obtained, we believe, by M. Simon Louis of Metz. It is said to have been produced by fertilizing *C. lanuginosa* with a large-flowered variety of *C. viticella.*

All these different species of the clematis are hardy, probably, in the Middle States ; north of Philadelphia, most of them require winter-protection ; but they need some care to bring them to perfection. The wood would perish each winter down to the ground if the plants were exposed to alternate frost and sunshine. They should be placed against a wall, or on the borders of clumps of trees exposed to the rays of the noonday sun. Arranged in such a way that they can twine around the trunks of trees or tall shrubs, they become highly ornamental.

They also produce a very beautiful effect trained to cover pyramidal trellises of lattice-work, placed in the centre of flower-beds. In cold climates, they must be protected by straw in winter. They thrive in garden-soil, provided it is not too wet in winter. — *Adapted from L'Illustration Horticole.*

[The culture of the clematis has been prominently brought before the public by the recent production of very showy hybrids, of which those mentioned above are good examples. Certainly we must seek in vain for a more showy family of plants, whether we regard elegance of growth, or brilliancy of blossom.

The well-known variety *C. azurea grandiflora* is perfectly hardy, and one of the most showy climbers.

Our mode of culture is simply to set the plants in rich garden-soil, to tie the shoots to a pole or trellis, and in the autumn to lay down the plant, and cover it with coarse manure or earth. — Eds.]

NEW TOMATOES.

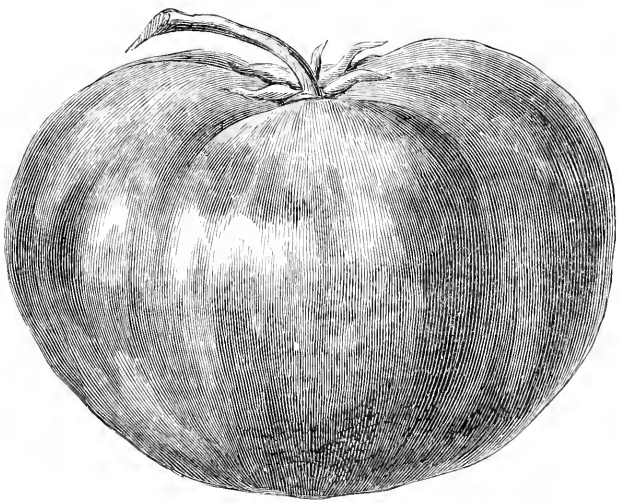
It is well known, that, within the past few years, an unusual interest has been manifested in the introduction, culture, and improvement of the tomato, by the cultivators of this universally-esteemed and wholesome vegetable. Many new sorts have been produced, a large proportion of which will probably never be of much value for any purpose, except to swell the already-overgrown catalogue of the seedsman with worthless kinds, which differ only in name. Still we are pleased to note the increased attention being paid to this popular vegetable, and hope it will continue; for it surely indicates progress, and a determination to persevere till full success is achieved.

In a tomato for general cultivation, several requisites are desirable; viz., earliness, productiveness, size, uniform smoothness, with fine flavor, and good keeping qualities: and just in proportion as these qualities prevail, or are deficient, in any variety, is its value for general cultivation increased or diminished. The variety known as the large early red has been the most popular as well as the most profitable market-variety in this vicinity, and is one of the varieties that combines the greatest number of desirable qualities. Still, we may reasonably hope, among the kinds with which we are now but partially acquainted, to find some that combine all these desirable qualities in a greater degree than are found in any of those now under general cultivation.

Having, during the past season, made a trial of several of the varieties recently introduced, for the purpose of testing their comparative merit, I propose to give your readers who may be interested in the matter the result of my experience. With this view the present article is prepared, and will be continued from time to time, if it meets your wishes, accompanied by a drawing of the fruit of each variety described, as taken from the growing plant, representing the average size.

Maupay's Superior. — A new variety, originating with the Messrs. S. Maupay & Co. of Philadelphia, by crossing the old scarlet with the Fiji-Island variety. The fruit is of a beautiful deep-red color; form round; quite thick through the centre, and *generally* without a rib or wrinkle; although, from some cause which I am unable to explain, the *first* fruit which set on

my plants this season was more or less rough and ill-shaped: the remainder of the crop was perfectly smooth and solid; smoothness of surface being one of its most desirable characteristics. The fruit is rather above medium size; some of the specimens were quite large. It contains very few seeds, and, from the solidity of its flesh, comparatively little water. Planted at the same time, and receiving the same care and attention, as several other varieties, I was somewhat surprised to find it number two in the order of ripening (the more so as its originators laid no claim to earliness for it), and this in a season decidedly unfavorable for the early maturing of this fruit. From this fact I have been led to expect, that, with a



favorable season, it may prove to be as early as any thing we have in cultivation. A further trial will decide. The only objectional characteristics of this variety (if it should prove to be early) are the extreme delicacy of the skin, which I find is very tender, and liable to break or bruise, unless handled with great care; and its tendency to decay very quickly if allowed to mature on the vines, — points which will tell against it as a market variety.

However, taking every thing into consideration, I consider it an acquisition; and have no doubt that it will become a popular sort for the private garden, if it should not possess all the requisites of a market variety.

NEWTON, Oct. 14, 1867. *C. N. B.*

THE WARDIAN CASE.

(Continued.)

THE cultivation of plants in Wardian Cases has not yet been reduced to a practical science. The experience of every experimentalist is, therefore, valuable, and contributes to the illustration of the system. My experience embraces a large range of plants; but the subject will be better inaugurated by giving a list of plants at this present writing, in my Case, all of which seem to be thriving. They are as follows: *Pavetta Borbonica* (centre), *Hoya carnosa variegata*, *Ophiopogon variegata*, *Bertelonia marmorea*, *Bromelia ananassa variegata*, *Ilex aquifolium variegata*, *Cypripedium venustum*, *Cypripedium insigne*, *Graptophyllum pictum*, *Toodia pellucida*, *Oncidium papilio*, *Lycaste Skinneri*, *Maranta regalis*, *Adiantum cuneatum*, *Adiantum macrophyllum*, *Adiantum hispidalum*, *Adiantum reniforme*, *Adiantum formosum*, *Doodia rupestris*, *Pteris glauca virens*, *Pteris arguta*, *Pteris argyrea*, *Pteris Cretica albo-lineata*, *Æschynanthes parasiticus*, *Polypodium aureum*, *Pycnopteris Sieboldii*, *Goodyera pubescens*, *Eranthemum leuconervum*, *Eleagnus Japonicus*, *Enonymus Japonicus aureus*, *Pyrolas* (several native ones).

All the above-named plants have been in the Case since the 1st of November, except *Cypripedium insigne*, *Lycaste Skinneri*, and *Oncidium papilio*. These were recently introduced in bud, and are now in full flower. Some of the plants are quite small, and all are shapely and trim.

Small *Crotons*, *Aphelandras*, *Dracænas*, *Cissus discolor*, *Cissus porphyrophyllus*, *Maranta Warscewiczii*, *Maranta micans*, *Hemonitis palmata*, *Polystichum proliferum*, *Goodyera discolor*, *Pothos argyrea*, *Saxifraga tricolor*, I have grown successfully. *Begonias* and *Caladiums* submit with becoming prosperity to the conditions of the Case; but I have entirely abandoned them, as they grow rather large, and destroy the general symmetry I strive to maintain: they are very gay and showy, however. *Gloxineas* and *Gesnerias* make a fine display of velvety foliage, but have been discarded by me, after repeated experiments, as too rank in growth. *Torrenia Asiatica* grows luxuriantly, but will not bloom. *Sonerilla margaritacea* succeeded only tolerably; and the following, as well as a host of others, did not do well at all:

Echites nutans, Nepenthes distillatoria, Cephalotus follicularis, Gymnogramma chrysophylla, Gymnogramma Peruviana, Correas, Achimenes.

The following I have frequently introduced into the Case while in bud, and they have bloomed beautifully, the flowers remaining a long time in perfection : *Dendrobium nobile, Phajus grandifolius, Lælia anceps, Lælia acuminata, Goodyera discolor, Epidendrum Stamfordianum, Epidendrum cochleatum, Cypripedium villosum, Cypripedium barbatum, Cypripedium barbatum superbum, Cypripedium Hookeræ, Cypripedium concolor, Cypripedium Fairrieanum.* Stems, however, of *Dendrobiums* and *Phajus*, in bud, cut off from the plants and placed in the Case, flower as well as when the plants themselves are introduced. I had one stem of *D. nobile* with forty buds put in about Christmas, and every bud expanded into a lovely flower. The foliage of many of the *Cypripedia* is very beautiful ; but the rarer species are too valuable to risk long in the Case. A fine plant of *C. venustum*, which produces eight or ten flowers yearly in December, I leave in the Case all winter, on account of its attractive foliage ; and no harm seems to result to the plant, as it continues vigorous under three years' treatment of this kind. I have half a dozen large plants of *C. insigne*, which, by judicious management, are made to bloom in succession from November to March. Of course, I have one plant in flower in the Case always.

I must not fail to advertise *Peperomia maculosa*, one of the neatest and most beautiful of ornamental foliaged plants, as suitable for the Case. *Hibiscus Cooperi* is quite gay and lively in foliage. I have it in my Case now on trial.

All cut flowers are preserved unusually long in the Case. *Camellias* I have often kept in unimpaired beauty two and even three weeks ; but they give too artificial an aspect to the Case ; while all the flowers of *Orchids* are more suitable, and harmonize better with the combination of living plants, which should be the chief charm of a Wardian Case. Nothing should be allowed to eclipse or conflict with the living, vegetating sentiment which should prevail. All appearance of trickery should be carefully avoided ; and cut flowers should be introduced with judgment, and only as they may seem to be actually growing in the Case, and in perfect harmony with the surroundings.

There is no rule for the arrangement of a Wardian Case; no talisman but taste. A picturesque, tasteful disposition of plants is necessary to produce an effect of elegance. Any person of cultivation and refinement, who can, with furniture, pictures, and books, give a refined atmosphere to a room, will find no difficulty in making a Wardian Case a perpetual charm. A Wardian Case should *not* be arranged upon the plan of "regulation bouquets," where the flowers are compacted and jammed together, confusing all ideas of individual identity, concealing all natural grace, and producing only color effects, and a sort of costliness of idea, which quantity provokes; but rather a freedom of gayety and freshness and liveliness, where the delicacy and grace and adornment of Nature, unencumbered, may enjoy full play. Freshness is an essential element of beauty, —

> "Oft let me wander o'er the dewy fields
> Where freshness breathes;"

and it constitutes the chief charm of a Wardian Case. The delights of reviving Nature, of renewed life, of vernal freshness, of tender hopes, are constantly before the grateful sense. Can Mr. Church, Mr. James Hart, or Mr. Kensett, paint upon canvas a landscape so perfect? Can Birket Foster draw, in water-colors, a scene so tenderly picturesque? I defy the painter's art to rival my Wardian Case.

The aim of mere naturalists is the ascertainment of species; and botanists entirely devoid of æsthetic feeling collect and gloat over dried specimens of plants in herbariums: but the living vegetation in my Case puts to æsthetic shame all these scientific dabblers in defunct vegetation, these ghouls in vegetable death. They remind me of Sir Uvedale Price, who, in writing upon the picturesque, mentions, as a case of perverted taste, an anatomist, who declared he had received more pleasure from dead than from living women; and the writer proceeds, in his quaint way, to say in reference to it, "Whatever may be the future refinements of painting and anatomy, I believe young and live women will never have reason to be jealous of old or dead rivals."

My Wardian Case is a living picture, a tropical landscape, a quiet but persuasive teacher, that satisfies while it stimulates the imagination. What artist can paint such exquisite light and shadow? To a mind expanded by education, and love of Nature, it furnishes a constant delight and refined

resource. What landscape-gardener can produce a more charming landscape than I have in my little garden? I am as good a landscape-maker as the best of them with my little plot. My landscape will show close observation and æsthetic symmetry. The exquisite loveliness of vegetable life is impressed upon every inch of it. The vivid green of perpetual spring is there. Youth is the season of beauty, and only the month of April can call into being such vegetable youth as my Wardian Case enshrines.

But I cannot leave this theme without using the words of an æsthetic writer who discourses so eloquently upon the influence of pictures in our homes. My Wardian Case is one of my pictures, and æsthetically belongs to the same category. All that he says of pictures will bear with equal force upon my Wardian Case. Listen as follows: —

"A room with pictures in it, and a room without pictures, differ by nearly as much as a room with windows, and a room without windows. Nothing, we think, is more melancholy, particularly to a person who has to pass much time in his room, than blank walls with nothing on them; for pictures are loopholes of escape to the soul, leading it to other spheres. It is such an inexpressible relief to the person engaged in writing, or even reading, on looking up, not to have his line of vision chopped square off by an odious white wall, but to find his soul escaping, as it were, through the frame of an exquisite picture, to other beautiful and perhaps idyllic scenes, where the fancy for a moment may revel, refreshed and delighted. Is it winter in your world? Perhaps it is summer in the picture. What a charming momentary change and contrast! And thus pictures are consolers of loneliness; they are a sweet flattery to the soul; they are a relief to the jaded mind; they are windows to the imprisoned thought; they are books; they are histories and sermons, which we can read without the trouble of turning over the leaves." *George B. Warren, Jun.*

Troy, N.Y., March 1, 1867.

THE ITALIAN DWARF PEACH.

THIS curious variety, although introduced into our collections several years since, is comparatively unknown to our pomologists at the present time; and, whilst its cultivation can never be extensively entered into, our private gardens will receive a valuable addition by its general dissemination, especially when treated as an ornamental plant.

For particular situations it is more desirable than its near relative, *Van Buren's Golden*, as its much dwarfer habit is a *desideratum* to be taken into account when placed in limited grounds. The first season, it presents an exceedingly curious appearance, with its short, thick branches densely clothed with long, green leaves, and, in fact, resembling a globular mass of foliage but nine or ten inches in height.

As the tree increases in size, it forms one of the most unique little ornaments of which we have any knowledge, more especially when loaded with fruit. Its ultimate height may possibly reach four or five feet; although we have never seen a specimen over three feet, and the one in question was several years of age.

The blossoms are large and quite showy, and the fruit is of medium size, with pure white skin as well as flesh; parts readily from the stone; and is very juicy, and of fair quality. Whilst we cannot recommend this variety as possessing a great excellency of flavor, we do consider it very agreeable and refreshing. For pot-culture, perhaps, it is best adapted, as its natural shrubby habit renders it a complete success when grown in this manner. Without the usual practice of pruning or shortening in of the branches, it adapts itself perfectly to the situation; and is always a well-shaped tree from necessity, notwithstanding it is said "necessity knows no law." As to the compression of its roots to produce fruitfulness, we doubt if the practice is at all beneficial as in the case of other free-growing varieties.

In regard to its hardiness, an experience of eight or ten years justifies us in returning an affirmative answer in this respect. The most severe winters in the neighborhood of Philadelphia have heretofore failed to injure it, when growing in the most exposed situations, even whilst young; and, for our Northern friends, its dwarf habit enables it to be readily protected,

during inclement seasons, by either covering with brush or soil, or even removing it to a cool cellar.

The Italian Dwarf Peach creates quite a striking effect when set in groups on the lawn, or even planted in rows along the walks; as the peculiar richness of the foliage forms quite a striking contrast to the beauty of its snow-white fruit. *Josiah Hoopes.*

Everlasting Flowers. — The following plants have what are termed everlasting flowers: *Annuals.* — *Acroclinium roseum*, rose-pink; *Helichrysum bracteatum* and *macranthum*, which, by their intermixture, have produced many varieties with white, yellow, pink, and crimson flowers, as well as many intermediate shades of color; *Rhodanthe Manglesii*, rose-colored and yellow; and the varieties of *Xeranthemum annuum*. The above may all be grown out of doors; but the *Acroclinium* and *Rhodanthe* should be raised in gentle heat. *Helipterum Sandfordii*, orange-yellow; *Waitzia aurea*, or *Morna nitida* as it is also called, yellow; *Waitzia corymbosa*, red; and *Waitzia grandiflora*, — are also handsome everlastings, especially the last, which is new. They require to be sown in a moderate temperature in March; and the seedlings should be potted off, kept near the glass, and planted out in May. *Hardy Perennials.* — *Antennaria dioica*, pink; *margaritacea* and *triplinervis*, white; *Ammobium alatum*, white; *Gnaphalium stæchas* and *arenarium*, yellow. *Tender Annuals.* — *Gomphrenas* (globe amaranth) of various colors. *Greenhouse Plants.* — *Astelma eximium*, crimson; *Helichrysum argenteum*, white; *ericoides*, pink; *sesamoides* and *proliferum*, purple: and many more might be enumerated. The flowers of everlastings should be gathered before they are quite expanded, and kept in a warm, dry room.

THE AMERICAN POMOLOGICAL SOCIETY. — This national society has just closed its eleventh biennial session at St. Louis, Mo., under the most favorable auspices. The attendance was unusually large, the discussions quite spirited, and the exhibition of fruit magnificent; there being of grapes six hundred and eighty dishes, of peaches two hundred and twelve, of pears seven hundred and forty-five, and of apples eight hundred and two, with over a hundred samples of wine.

On Wednesday morning, the society was called to order on motion of N. J. Colman, Esq., editor of "The Rural World;" and the members were requested to withdraw from the splendid hall of exhibition, and to leave the heavily-laden tables, to assemble for business in the grand auditorium below, — a fine room, well adapted for lectures, discussions, and the transaction of business.

H. T. Mudd, President of the Missouri Horticultural Society, delivered a very appropriate address of welcome, greeting the association upon its first appearance on that side of the Father of Waters. He hailed the arrival, among the pioneers of civilization, of the men who were representatives of a more advanced and the highest type of American horticulture.

The venerable-looking Arthur Bryant of Princeton, Ill., where he has long been known as a prominent and successful laborer in the good cause, was called upon to offer the right hand of fellowship on behalf of the numerous delegates in attendance from the great empire of Illinois. This he did most graciously and acceptably.

Then came Dr. C. W. Spaulding, the President of the Mississippi-valley Grape-growers' Society. He backed up his welcome by pointing to the magnificent display of wines exhibited upon this occasion by the association he repre-

sents. He referred to the growing extent of the vine-planting in the United States, and especially in that part covered by the society whose interests he represents. He prophesied that the Mississippi and its tributaries would one day rival the vine-clad borders of the Rhine.

To all these hospitable and hearty greetings, the President, Hon. Marshall P. Wilder, made a beautiful acknowledgment on behalf of the society; after which he proceeded to the business of the day. Announcing the unavoidable absence of the Secretary, on motion, F. R. Elliott of Cleveland was appointed *pro tem.* A Committee on Credentials, and one to arrange business, were appointed by the Chair; when it was announced that the President's Address would be delivered at half-past two o'clock, P.M.; and the society took a recess until that hour.

The President's Address was characterized by the elegance and usefulness of all his productions; for, whether fruits, flowers, or prologues, they are always attractive, beautiful, and useful. He paid a deserved tribute to the horticultural taste and skill of the West; he presented an historical sketch of the rise and progress of the society, over which he has presided almost ever since its organization.

Mr. Wilder referred to the importance of encouraging the production of new varieties, and cited Van Mons's injunction, "To sow, to sow again, to resow, to sow perpetually;" and added this good advice: "Plant the most mature and perfect seeds of the most hardy, vigorous, and valuable varieties; and as a shorter process, insuring more certain and happy results, cross and hybridize your best fruits."

The remarks upon the characteristics of a good tree and those of a good fruit were admirable, and are commended to the attention of all pomologists.

The moral and social influences of horticultural pursuits were pleasantly portrayed, as by one who had fully realized their power. A touching tribute was paid to the departed worthies who had been snatched from among us since the last meeting of the society.

We give below brief extracts from the President's Address: —

"THE GRAPE. — In the whole circle of pomological progress, there is no branch which excites so much interest, or gives such favorable promise, as the culture of the grape. At last, the vine, which has been so much neglected or persecuted from fear of producing an intoxicating beverage, is becoming the great object of attraction. From the Lakes to the Gulf, from the Atlantic to the Pacific, large tracts of land are being devoted to its growth. Companies and villages are springing up, wealth and enterprise are on the alert, in the belief that this department of fruit-culture is to be the most profitable. If the same enterprise continues in our land for the next half-century, the words of the Psalmist will be realized: 'Thou hast brought a vine out of Egypt; thou preparedst room before it, and didst cause it to take deep root; and it filled the land. The hills were covered with the shadow of it, and the boughs thereof were like the goodly cedars. She sent out her boughs unto the sea, and her branches unto the river.'

"Throughout an extent of territory running over twenty-five degrees of latitude, and from ocean to ocean, the native vine grows spontaneously, is as hardy as the forests it inhabits, and ripens as surely as the apple or any other fruit. All localities are not alike favorable for its growth; but it may be assumed as a general law, that, where Nature has planted any of our wild species, there other new and improved sorts may be raised by hybridization, either natural or artificial, which will be equally as well adapted to that territory.

"In regard to the wines of our country, I may be permitted to remark, that from many comparisons made between the better samples of American wine on exhibition at the Paris Exposition with foreign wines of similar character, as well as from the experience of many European wine-tasters, we have formed a higher estimate of our ability to make good wines than we had before entertained; and, from investigations in vine-culture, we are now more confident than ever that America can and will be a great wine-producing country.

"All that is necessary for us to rival the choicest products of other parts of the world, will, with experiments and practice, be attained. We have several excellent varieties of the grape, to which constant additions are being made. These are born on American soil, and suited to it, — a soil and temperature extensive and varied enough for every range of quality and quantity. He, therefore, who shall discover a plat of ground capable of yielding a Johannisberger, a Tokay, or a Chateau Margaut, will be a public benefactor; and somewhere between the Lakes and the Gulf, and the two oceans that circumscribe it, we shall find it.

"General View of the Work of the Society. — In taking a general view of the work of this society, we cannot but be struck with the richness, the embarrassing richness, I may say, of the material presented to us. In making up our catalogue, we have been obliged in every species to omit, for some slight deficiency, varieties possessing so many good qualities as almost to grieve us to pass them by. It has been objected to pomological conventions, that the testimony to the qualities of the different sorts of fruit is so conflicting as greatly to impair their value; but we believe, that, to one accustomed to weighing evidence, the marvel will be, not that there should be discordant testimony, but that in our vast country, with its endless diversity of soil and climate, there should be so many kinds whose uniform excellence is either attested unanimously, or with barely exceptions enough to prove the rule. There may be some here who remember a motion, at the first meeting of the Congress of Fruit-growers, for a committee to report a list of one hundred varieties of pears for general cultivation. The proposal was received with surprise at its audacity, if not with a stronger feeling at its folly; for had we not been told, by novices who thought they had got hold of an idea which more experienced cultivators had failed to discern, that there were not above twenty pears of any merit? Yet the list of twelve pears accepted at that meeting had in 1856, only eight years after, grown to ninety-four, recommended for general cultivation, either on pear or quince, or as promising well.

"The progress we have made is nowhere more forcibly shown than by the fact, that, while thus increasing our list, the standard of excellence has not been

lowered, but raised. Twenty-five years ago, every new fruit of good quality was at once recommended for more or less extensive cultivation: if a good bearer, it was so much the better; if a hardy and vigorous tree, better still; but quality was all that was deemed indispensable: while to-day a fruit must combine, in a good degree, all these, and many other points, or be at once passed by; and many of those then thought most desirable are now on the rejected list. We hear no more of varieties which, though not of sufficient excellence for extensive cultivation, were yet so good, that 'a single tree should be in every large collection.' A sort worthy of no more extensive cultivation than that is not worth growing at all, unless it may be, as in a museum, for its historical value.

"Our society has brought together, from more than thirty states and provinces, the most intelligent, experienced, sagacious, and skilful cultivators, who have taught each other, and made the knowledge of one the property of all. Its example has led to the formation of similar associations in England, France, and Belgium, and of local associations in our own country. It may fearlessly ask to be judged by its published proceedings, which, in their reports of discussions, reports of committees, catalogues, and papers on various pomological subjects, embody, in a condensed form, such a mass of information on this science — the best thoughts of the best cultivators throughout our land — as is possessed by no other nation on earth. Instead of the fifty-four varieties recommended in 1848, our catalogue now contains the names of five hundred and sixty-one fruits; viz., a hundred and seventy-eight apples, a hundred and twenty-two pears, forty-three cherries, fifty-five peaches, six nectarines, eleven apricots, thirty-three plums, three quinces, eighteen native grapes, twenty-two foreign grapes, eighteen currants, thirteen gooseberries, twelve raspberries, two blackberries, and twenty-five strawberries. And the list of a hundred and twenty-six varieties, rejected in 1849, has grown to six hundred and twenty-five; viz., a hundred and twenty-six apples, three hundred and fifty-one pears, five apricots, thirty-two cherries, two grapes, thirty-one plums, three raspberries, and seventy-five strawberries; making a total of *one thousand one hundred and eighty-six varieties of fruit* on which the society has set the stamp of its approval or rejection."

After the conclusion of the address, the Treasurer made his report, which showed a small balance on hand.

Mr. George W. Campbell of Ohio reported, on behalf of the Nominating Committee, the following list: —

For President. — Marshall P. Wilder. *For Vice-Presidents.* — Alabama, L. F. Mellen; Arkansas, J. H. Ingram; California, R. T. Perkins; Canada, Charles Arnold; Colorado, Charles Pauls; Connecticut, D. S. Dewey; Delaware, E. Tatnall; District of Columbia, W. Saunders; Florida, J. W. Weed; Georgia, P. J. Berckmans; Illinois, Arthur Bryant, sen.; Indiana, I. D. G. Nelson; Iowa, D. W. Kauffman; Kansas, Charles B. Lines; Kentucky, Lawrence Young; Louisiana, Dr. M. A Swasey; Maine, S. L. Goodale; Maryland, W. C. Wilson; Massachusetts, C. M. Hovey; Michigan, William Bort; Mississippi, J. M. Stone; Missouri, B. F. Edwards; Minnesota, D. A. Robertson; Montana, Nicholas Waugh; Nebraska, Dr. H. Link; New Hampshire, Frederick Smythe;

New Jersey, William Parry; New Mexico, Col. Ruyther; New York, Charles Downing; North Carolina, W. L. Steele; Ohio, John A. Warder; Oregon, Simeon Francis; Pennsylvania, Robert Buist; Rhode Island, Silas Moore; South Carolina, William Summer; Tennessee, M. S. Feierson; Texas, William Watson; Utah, J. E. Johnson; Vermont, E. C. Worcester; Virginia, Yardley Taylor; West Virginia, Z. Jacobs; Wisconsin, J. C. Plumb. *For Treasurer.* — Thomas P. James. *For Secretary.* — F. R. Elliott.

The reported ticket was then elected entire. The President in a few words gracefully and feelingly made his acknowledgments for the re-election to a position which he had filled for eighteen years; though he had frequently tendered his resignation, believing others equally qualified to discharge the duties. After eloquently expressing his devotion to agricultural pursuits and associations, he remarked that he was upon the down-hill side of life, and would soon be laid to rest; but that he should be happy if it could then be said of him, "Here lies one who assisted in elevating mankind, and added something to the sum of human happiness."

The President said that the constitution required an election by ballot, but that it had been the custom for the society to authorize the appointment of some member to deposit the ballot of the society.

On motion of Mr. Barry, the President was authorized to so appoint; and he designated Mr. Campbell to deposit the ballot.

In compliance with the constitution, the President announced the following for the next biennial term: —

General Fruit Committee. — P. Barry, chairman, New York; J. W. Adams, Maine; —— Copp, New Hampshire; J. F. C. Hyde, Massachusetts; J. H. Bourne, Rhode Island; D. S. Dewey, Connecticut; E. C. Worcester, Vermont; W. B. Smith, New York; J. A. Trimble, New Jersey; A. W. Harrison, Pennsylvania; Edward Tatnall, Delaware; J. S. Downer, Kentucky; G. W. Campbell, Ohio; W. H. Loomis, Indiana; M. L. Dunlap, Illinois; William Muir, Missouri; T. T. Lyon, Michigan; Oliver P. Taylor, Virginia; W. C. Wilson, West Virginia; H. L. Steele, North Carolina; William Schley, South Carolina; L. E. Berckmans, Georgia; J. M. Stone, Mississippi; M. W. Phillips, Tennessee; Mark Miller, Iowa; Daniel Harper, Alabama; H. C. Swerer, Louisiana; J. C. Plumb, Wisconsin; L. F. Landeroque, California; J. Saul, District of Columbia; D. Robinson, Minnesota; William Watson, Texas; J. H. Ingram, Arkansas; Charles Arnold, Canada West; Hugh Allen, Canada East; C. B. Lines, Kansas.

Executive Committee. — M. B. Bateham, Ohio; Prof. Thurber, New York; J. E. Mitchell, Pennsylvania; W. C. Flagg, Illinois; J. F. C. Hyde, Massachusetts.

On Foreign Fruits. — George Ellwanger, New York; C. M. Hovey, Massachusetts; Dr. E. S. Hull, Illinois; William Muir, Missouri; D. S. Dewey, Connecticut; P. J. Berckmans, Georgia.

On Synonymes and Rejected Fruits. — J. S. Cabot, Massachusetts; J. J. Thomas, New York; I. D. G. Nelson, Indiana; J. A. Warder, Ohio; H. E. Hooker, New York; M. L. Dunlap, Illinois; J. A. J. Caswell, Maryland.

On Revision of Catalogue. — President, *ex officio*, P. Barry, New York; J. A. Warder, Ohio; Charles Downing, New York; C. M. Hovey, Massachusetts; J. Knox, Pennsylvania; W. C. Flagg, Illinois; George Husmann, Missouri.

Mr. Thomas Meehan of Pennsylvania, the well-known editor of "The Gardener's Monthly," read a very interesting paper upon the diseases of the pear, attributing the malady called "blight" to the inroads of a fungous growth.

Much discussion followed the reading of this paper, and with the usual result, — of little progress or advance in knowledge upon the best remedies for the disease.

M. L. Dunlap of Illinois read a paper upon packing and marketing fruits, in which he condemned the boxes, and recommended the use of baskets.

Raspberries, strawberries, currants, and other small fruits, were discussed at some length, as will appear in the report of the society, shortly to be published.

Mr. Saunders read a valuable paper upon the mildew and rot in the grape; after which, an essay upon the same subject was presented by A. Fondler of Missouri. Both are possessed of interest, and will be referred to with advantage by those engaged in this branch of fruit-culture.

The reading was followed by a discussion of varieties, that continued for some time. Cognate to this, the President, by request, gave an interesting account of his observations among the vineyards of Europe.

Dr. Trimble of New Jersey entertained the society by an account of some destructive insects, particularly of the curculio and of the codling moth: for the latter he exhibited his hay-rope, well furnished with cocoons and larvæ.

On the last day of the session, the discussion of varieties, of pears, apples, and cherries, was taken up with much vigor; but it was evident that too little time had been allowed to do the subjects justice. Indeed, it is a matter of regret to many of the members, that, when the combined learning and knowledge of the country is convened at these national congresses of fruit-growers, there should not be a more continuous and extended opportunity for the diffusion of the information which they undoubtedly possess. Such occasions might well be made a valuable school to all the fruit-growers in attendance, and, through them, to thousands of others all over the country.

After determining to hold the next meeting at Philadelphia in the fall of 1869, appropriate resolutions were passed, and the society adjourned.

A pleasant incident connected with the convention was a presentation to President Wilder. Dr. Edwards of Missouri, having in his hand an evergreen wreath starred with flowers, approached the President upon the platform, and said, that, in behalf of the ladies of St. Louis, it was his very agreeable duty to confer upon him a well-merited and most appropriate crown.

President Wilder to the Ladies. — President Wilder responded, that, if an avalanche from his native hills had suddenly come down upon him, he could not have been more surprised than by receiving such a testimonial from the ladies of St. Louis. To find his labors thus appreciated by that class whom he adored; by whom he had been attended in sickness, and delighted in health; who especially rejoiced in the floral beauties of Nature, and were most charmed by the beauties with which Pomona graced her bounties; and to receive this appreciation from

the ladies of the West, with whom he was unacquainted, — was unexpected, but gave a deep satisfaction which no words could express. He had ever been a lover of flowers and fruits, and of their cultivators; and ladies were the true cultivators of flowers. He begged the doctor to return to the ladies his profoundest gratitude, — gratitude of which he had a heart full, but not a tongue to express it.

KEEPING GRAPES. — We are often questioned as to the best method of keeping this fruit. While we may not give the *best* way, we will give the way practised by ourselves with good success. Select good bunches of fair ripe fruit; remove every defective berry, and carefully place them in boxes of one layer in depth, and cover over with paper; then cover the box, and keep tight. Place the boxes in a cool place not damp enough to have them mould, and they will keep well until January or February. We have known them kept as late as March or April by being packed in stone jars and kept cool. Some say, bury the jars containing the fruit in the ground, and it will keep well all winter. We have not tried this latter plan: we hope others will give their experience in keeping this fruit.

KEEPING GRAPES. — I will give a method for keeping grapes in winter that has proved highly successful with those who have adopted it. Cut the fruit, when fully ripe, on a dry day; spread it out thinly on shelves or tables, in a cool, dry room, for a few days, two to six, according to the weather, the object being to dry up the stems a little. Cut clean dry rye-straw in a straw-cutter, about an inch long, and cover liberally the bottom of a suitable tightly-jointed box or other vessel; on which place a layer of fruit, not too deeply; then cover with straw liberally, and lay fruit on it again; and so proceed with the packing of straw and fruit alternately. This done, they require only a cool place, with as little moisture as practicable, to insure sound fruit until the approach of spring. A sprinkling of flower of sulphur increases the safety of the grapes; but the absorbing property of dry straw is mainly and ordinarily sufficient. *W. A. R.*

NEWBURG, N.Y., Oct. 8.

BALSAM APPLE. — This plant (*Mormordica balsamina*) is one of our prettiest summer-climbers, equally ornamental in foliage, flower, and fruit. From its rapid growth, it is well calculated for covering low trellises, or is very effective if allowed to ramble at will over bushes. The fruit is very freely produced, and is as beautiful as curious. The seeds should be planted in pots in a frame, and the plants turned into the border when all danger of frost is over.

E. S. R., Jun.

LIBOCEDRUS TETRAGONA. — M. Briot states in "Revue Horticole," that this plant, when grafted on *Saxegothæa*, not only succeeds in spite of the somewhat distant affinity, but its habit becomes changed in consequence. Instead of forming a narrow cylindrical column, it spreads widely, so as to form with its numerous and short branches an irregularly spherical or somewhat depressed mass, similar to *Juniperus Oxycedrus echiniformis.*

THE HYACINTH. — The soil suitable for the hyacinth is a light, friable, sandy loam, from which all stones, sticks, and other coarse material, have been removed. The soil should be coarse enough to pass through an inch sieve ; and should never be very fine, nor yet of a coarse, tenacious nature.

To such a soil, a liberal quantity of well-rotted cow-dung, free from straw and coarse material, should be added ; and a few bushels of clean soot, if for a very large bed.

This latter will act as a manure and improve the flower, and also drive away any noxious grubs and worms. The compost should be well mixed, and the parts thoroughly incorporated. If, when prepared, it is so close as to cling together when pressed, a few bushels of clean fresh sand may be advantageously added.

This compost is all that is required for the growth of the hyacinth, both in pots or in the garden.

Selection of Bulbs. — The bulbs should be clean, roundish, hard, and heavy. Those bulbs presenting a surface of scales should not be chosen, as they seldom give good bloom ; but those having the surface covered with a thin, clean skin, should be selected.

Size is no criterion ; for some varieties always produce large bulbs, and others are usually small. Round, medium-sized, plump bulbs, the base or root-stool flat, hard, free from mould or decay, and not sunk, and the top formed of small, closely-fitted scales, with perhaps a stout, strong shoot just pushing, will give the best flower : those having a hollow apex should be avoided.

Large, light, scaly bulbs seldom produce close, compact spikes of bloom, though often throwing a fine mass of foliage, and giving several loose spikes of bloom. Double-crowned bulbs, though usually producing two spikes of bloom, are not desirable, as the flowers are generally inferior in size.

Bulbs should be selected as soon as imported : the exposure to the air, and the handling they undergo in a florist's shop, do not tend to improve them. If the bulbs are not to be planted immediately, they should be kept in a cool, dry place, laid singly, or wrapped in thin paper, and as nearly as possible in a state of perfect rest. If kept too moist, the roots are excited to growth ; and if too hot, the tops sprout. If by chance the roots have started, the bulbs should at once be planted. The single varieties produce the finest spikes and more flowers ; the double, the finest single blooms. Double varieties are not fitted for growing in water or for very early forcing ; and generally, for growing in the house, the single varieties are to be preferred.

Planting in Beds. — Hyacinths are most effective in the garden ; and, the beds having been prepared of a proper compost, the bulbs may be planted in October.

Varieties should not be mixed, as they vary greatly in height, general habit, and time of blooming ; so that a mixture is sure to produce a bad effect. Therefore, whether they be planted in lines or clumps, let each line or clump be of one variety, and, of course, of one color.

The bulbs should be planted three or four inches deep, according to the size ; the larger being planted deeper, and about six inches apart, in lines or double

lines; a foot being allowed between each line, and six inches between each double line. A very pretty way is to fill the bed with triangles of three bulbs of the same color, taking care to let the colors of the different triangles contrast well, and not to plant two triangles of the same color together; the two bulbs at the base of each triangle being nine inches from that at the apex, and the same distance from each other, and a foot being allowed between each triangle.

Hyacinths should always be planted in dry weather; and if set in common garden-soil, in which they sometimes do well, a little clean sand should be placed round each bulb to prevent rot. The bed should be covered with leaves or litter as soon as the frost sets in, and remain covered till the bulbs push in spring.

A writer in "The Cottage Gardener" gives the following directions for the preparation of a common bulb-bed, which will serve for those who have not time for more thorough preparation: —

"When the beds [of the garden] are cleared of their summer occupants, it is time to prepare them for planting bulbs, to bloom in April, May, and the beginning of June. Nothing is better than deep digging, or trenching, placing at the bottom of each bed six inches of fresh or recently-fallen tree-leaves, which should be covered with a foot of soil; and they will serve to raise the beds considerably, and allow water to drain away freely. In the course of a year, the leaves will be pretty well decomposed; and, on digging in the succeeding autumn, they will be brought to the surface, and thus the soil will be enriched by a not over-stimulating manure. Fresh leaves being put in every autumn, the beds annually receive a dressing of vegetable matter, which saves dung, and, in dry summers especially, the roots [of bedding plants] lay hold of the decomposing leaves when the plants are becoming exhausted by blooming. The beds should slope from the centre to the sides; and the borders, from the back to the front."

Planting in Water. — As we have said, the single varieties are preferable for forcing in water, sand, or moss. The heaviest bulbs, with no offsets, or marks of imperfection or decay at the base, should be chosen. They should be placed in the glasses about the first of November; the glasses being filled with rain or river water, and the base of the bulb just touching the water. They should then be placed in a dark place where the temperature does not exceed fifty degrees, and remain about a month, or until the roots are three or four inches in length. They may then be brought out to the light, and gradually inured to full sunshine. As the water evaporates, it must be supplied, and must be changed as often as it becomes discolored or impure; or it may be kept sweet by the addition of a small bit of charcoal. The plants should be kept at an even temperature, and the foliage washed occasionally if it becomes dusty; and the glass should be frequently turned, that the plants may not become one-sided.

A few drops of hartshorn added to the water are beneficial to the bloom; and we have given liquid manure, say ten drops, twice a week, with good results. After blooming, the bulbs should be placed in earth to mature their foliage. Hyacinths grown in water will not bloom the next year, but will the third season if grown in soil.

In Moss or Sand. — Hyacinths grow well in moss or sand, and latterly have been most successfully grown in England in cocoanut refuse. The vessel, or pot, should have about half an inch of pounded charcoal placed at the bottom: on this the moss or sand should be placed, and the bulbs planted up to the apex. Place the whole in a dark place, as directed for bulbs in water, previously giving a good watering; and, when brought to the light, plant little sprigs of *Lycopodium denticulatum* between the bulbs, or cover the surface with green moss from the woods. The plants will need to be kept moist, and the leaves must be sponged to keep them clean. Hyacinths may also be grown in turnips or carrots, hollowed out, and produce a pretty effect.

In Pots. — As a general rule, a hyacinth should not be grown in a pot less than twice the diameter of the bulb; and, where more than one bulb is grown in a pot, the distance between each bulb should be equal to the diameter of the largest.

For single bulbs, pots six inches in diameter are sufficient; but, when they can be procured (and any potter can easily make them), we prefer a bulb-pot four inches wide, and from eight to ten deep, which gives better room for the development of the roots. Three hyacinths in a pot look very well, and the same objections to combination of color do not exist in house as in garden planting. A very pretty effect is produced by a red, white, and blue hyacinth in the same pot.

The pots being prepared by placing a crock on the hole in the bottom of each, and the bulbs being ready, the offsets and all loose scales having been removed, we proceed to pot the bulbs; the time being from the first of September to the middle of November, according to the time at which we wish them to bloom. Often, however, it is best to make several plantings, at periods of from two to four weeks, to secure a succession of bloom. And, first, place about half an inch or more of dried cow-dung, such as may be picked up in the pastures, crumbled fine, and free from wire-worms or grubs, at the bottom of the pot; then fill in with the prepared compost, placing the bulb so that its apex is just above the surface of the soil, and the soil about half an inch from the top of the pot at the side, and sloping *from* the bulb. Give a good watering from the fine rose of a watering-pot, and set the pots in a sheltered place, on a bed of coal-ashes, if out doors or in a cellar. The ashes will prevent earth-worms from entering the pots. The object now is to promote the growth of roots before the shoot develops, which is effected by "plunging" the pots, or by putting them in a dark frame. By the former method, the pots are placed close together, and covered with from four to eight inches of coal-ashes, tan, or any material of similar nature; and thus they are to remain until the roots touch the sides of the pot, when they, or as many as are needed to bring in, are taken out, and gradually inured to the light.

This same object is as well gained, however, by placing the pots in a cool cellar, or in a cold frame darkened.

Hyacinths thus plunged in coal-ashes can be safely kept all winter, and be taken out and forced into bloom in early spring, as they are not injured by frost. They need, however, to be protected from soaking rains.

Where hyacinths are required for bloom in early winter, they require to be forced. For this purpose, about the first of October, they are taken from the frame, and placed in a gentle hot-bed made of horse-dung, and remain there till the pots are full of roots, and the tops begin to start, which will be in about a fortnight: they are then taken to the greenhouse, and gradually forced into bloom by gradually increasing the temperature, giving them plenty of air, keeping them near the glass, and keeping the soil moist, but not wet. They should have all the sun that can be given. The temperature at its extreme should range from 55° to 70°; and care must be taken that the plants experience no sudden check.

By bringing in successive lots of hyacinths, a succession of bloom may be had from Christmas to May Day. If the grower has no greenhouse, he may grow the bulbs in a parlor; keeping them in the cellar until he wishes to bring them forward, or in a cold frame as above directed.

As a general rule, hyacinths potted in September will bloom in December; those potted in October and November, in January, February, and March: but these seasons may be greatly varied by forcing and retarding.

When coming into bloom, hyacinths should be watered with weak liquid manure, unless potted with cow-dung as before directed; in which case, they will not need it.

We copy from an English work the following rules of hyacinth-growing, and which apply well to all Dutch bulbs. The essentials to success in growing hyacinths are, —

"*First*, Placing the bulbs in a cool situation until the pots are filled with roots.

"*Second*, Keeping them near the glass; for, the more light, the greater is the elaboration of the food and the more stiff is the foliage, the more compactly are the bulbs arranged, the stouter the stalk that supports them, and the brighter the color of the flowers.

"*Third*, The size of the flowers, and the shortness, or rather stiffness, of the spike, depend upon their having plenty of air on all favorable occasions.

"*Fourth*, That they have no more heat than is necessary to maintain the plant in a healthy growing state; for, the more naturally a plant is excited, the more satisfactory are the results.

"*Fifth*, A free, open soil, with plenty of vegetable matter.

"*Sixth*, Perfect drainage, and being kept free from worms.

"*Seventh*, A moist soil at all times, neither too wet nor too dry; but double the quantity of moisture may be afforded when the truss is nearly developed, every alternate watering being with weak liquid manure, at the temperature of the house or room.

"*Eighth*, When in bloom, their beauty will last much longer if they are kept in an almost invariable temperature of 40° to 45° instead of a variable one; but they must be fully in flower, or the colors will not be so bright nor the flowers so fine without a sufficiency of light and heat.

"*Ninth*, The hyacinth will bloom much more satisfactorily in a house from which frost is only excluded than in one where fire-heat is employed."

In selecting hyacinths for early blooming, some regard must be paid to the variety, as some are always early, some always late bloomers; and it is as useless to attempt to obtain a Christmas bloom from a late-blooming variety as to obtain a satisfactory March bloom from a bulb which naturally blooms early.

After blooming, water should be gradually withheld from the plants until the foliage turns yellow; when watering should be wholly discontinued, and the bulb allowed to rest.

Miniature hyacinths, now so popular, are only matured small roots of named hyacinths, which bloom finely for their size, and are well adapted for parlor-culture. *E. S. R., Jun.*

NOTES ON THE GRAPE. — The success of grape-culture in a large portion of the United States is no longer problematical; and the large amount of capital invested and of intelligent industry engaged in this branch of horticulture render it not only a subject of local interest, but of national importance.

In many sections of the country, vineyards of greater or less extent have been planted, and, where conducted with a reasonable degree of care and intelligence, have been gratifying and remunerative to their owners. Exceptions have not occurred, we believe, more frequently than in any other branch of horticulture or agriculture. Planters should bear in mind that it takes no more ground, nor costs any more trouble, to cultivate good varieties, than poor, worthless, foxy trash; and should be careful in their selections, and plant only those of high quality, that have proved themselves hardy, productive, and healthy, as fruit from such vines will always command an extra price, and find ready sale. A few dollars' extra cost in the purchasing of vines of good quality will be found money well invested, and better than planting vines of inferior grades, and quality at half-price.

A vineyard properly planted and cared for will last a lifetime. Therefore make a good and judicious selection of varieties, as on this depend your profits. Were I to select six varieties for this locality (Nyack, on the Hudson), I should name first the Israella, as being the earliest good grape; then the Iona, Delaware, Rogers's Hybrid No. 19, Allen's Hybrid; and then the Diana, — the last being the best late grape in this section. We shall, by such a selection, lengthen the season of this most delicious fruit. Any good corn-ground, which is well drained, is rich enough for vines: lands sloping to the south or south-east are best, although level land is not to be despised.

Do not use too much manure before setting out the vines, nor go to a great expense in trenching and working the soil to the depth of three feet or more. Stimulating the vines with strong manures causes a rampant growth of the wood, which hardly ever ripens, and is very liable to be winter-killed. The fruit does not set well, ripens very uneven, and is very liable to rot and mildew, especially if there is much rain in July and August.

The rows should run north and south, that the sun may shine on the one side in the morning, and on the other side in the afternoon. *Tunis De Pew.*

NYACK, ROCKLAND COUNTY, N.Y.

STRAWBERRIES. — To those interested in the cultivation of this first and most delicious of our summer fruits, the following notes will possess very great interest. The writer is an enthusiastic horticulturist, and a successful cultivator of fruits and flowers, who has now hung up the sword, and resumed the pruning-knife, after years of absence on the tented field. He comes back to the peaceful walks of the garden with no less love for their attractions than that which actuated him before he responded to the calls of his bleeding country. The opportunities for observation of this fruit are ample at Pittsburg, Penn., the residence of the writer. His own plantations, and collection of varieties, are extensive and numerous; and, among his neighbors who cultivate this fruit, he has had frequent access to the celebrated grounds of Mr. Knox, whose reputation as a successful horticulturist has become famous through his very pleasant annual re-unions in June and October, where pomologists from all parts of the country assemble to study the strawberry and the grape.

Some account of the fruit-farm of Mr. Knox was intended for a previous number of the Journal; but it has unavoidably been omitted. The general facts of his mode of treatment, and of his successful results, have been long familiar to the horticultural public; but the exhibition of strawberries upon his grounds last June was the most remarkable ever beheld in this country. The Jucunda, or "700" as it had been called, was the most astonishing display of noble fruit, in its extent, size, and beauty, as well as productiveness, we have ever witnessed. — EDS.

Dr. JOHN A. WARDER, — I will give you my pencillings through the beds of strawberries in this vicinity, not omitting the dominions of the strawberry king, — Knox.

Burr's New Pine. — This variety ripened its first fruit with us on the 5th of June. Berries rather below medium size, conical, and regular in form; seeds slightly depressed; color pale red; flesh soft, and tinged with pink; sweet, aromatic, and highly perfumed. Esteemed for desserts, but too tender for long journeys. The habit of the plant is hardy and productive.

Golden-seeded. — Ripening after the Burr's Pine. A delicious, sweet, dark-crimson berry, studded over conspicuously with large yellow seeds. Above medium in size, obtuse-conical, often irregular; flesh tender; habit vigorous, and moderately productive. One of Mr. Knox's most profitable early sorts.

Crimson Cone. — An old favorite. Esteemed for its earliness and wonderful productiveness; with the remarkable quality of retaining its spicy flavor, however ripe. Too small for the market, and a troublesome runner in the garden; but I shall always grow a few rows for my own table.

Col. Ellsworth. — A large, irregular, conical berry; deep scarlet; flesh dry, sweet, and very pleasant. Plant a moderate grower, rather dwarf; very prolific on some soils. Desirable for its flavor and earliness.

New-Jersey Scarlet. — A favorite on light, sandy soils: however, it succeeds well with me on a strong clay. It is a very sweet, high-flavored, early variety. Fruit of medium size, conical, with a long neck; light-crimson and tender flesh. Plant strong, hardy, and productive. Particularly desirable in the amateur's collection.

Scott's Seedling. — Sent to me under this name, yet closely resembling the Lady-finger. Fruit above medium, long and regular; flavor almost free from acidity; plant robust, and very productive. Owing to the length of the stems, the fruit never falls on the earth. Keeps in bearing a long time.

Wilson. — Extensively grown here as elsewhere. One of the most popular, perhaps the most prolific, hardy sorts which can be cultivated profitably on any kind of rich soil. It commenced ripening on the 7th of June, commanding the highest price until the appearance of the Golden-seeded and Triomphe de Gand. The berry of the Wilson is often quite large, regularly conical, bright crimson, and, when not over-ripe, very beautiful. The flesh is firm, deeply tinged with red, with a positive acid flavor. The fruit is only seen in perfection on young, thrifty plantations: it enjoys high culture. Except for culinary purposes, the Wilson is too sour. The fruit rapidly decreases in size, and stops maturing in dry weather.

Agriculturist. — This variety, favored by the season, excited considerable interest with the growers. It succeeded unusually well, producing some of the largest fruit offered in the market. It was claimed by many of the cultivators that it would prove to be a profitable competitor of Knox's "700." An examination of several large plantations in the commencement of the season certainly seemed to sustain this opinion. Unfortunately, the size of the fruit rapidly diminished when the weather became warm: much of the fruit failed to mature. The flesh was very tender, soon losing flavor, and keeping imperfectly. The berry possesses little beauty, owing to its irregularities and dull-red color. I am reluctantly compelled to withhold my affections for the Agriculturist, especially for profitable culture.

Triomphe de Gand. — Although one of the oldest of the foreign varieties widely disseminated, it is still one of the best. Size, beauty, and exquisite flavor, command for it the highest price, — usually double that received for the Wilson. It requires good culture, as do all the imported kinds; yet it amply repays this extra care, which, after all, is no greater than that bestowed on a crop of cabbages or tomatoes. The plants should have plenty of sunlight and air, be kept free from runners, and thoroughly mulched as soon as the warm weather commences parching the soil.

Brooklyn Scarlet. — The habit of this plant is hardy, and moderately productive. The fruit is large, nearly round, and irregular; color bright scarlet; flesh white, tender; quality first-rate. Good for desserts, but entirely too soft for profitable culture. This defect is much to be regretted; for it is among the best of forty new sorts I have tested this summer.

Russell's Prolific. — Easily distinguished by its coarse habit, and light-green and crumpled leaves. The fruit is large, and irregular in form, slightly conical, with a small neck; color a deep crimson; flesh rather tender, sweet, and highly perfumed. Does best on a light loam. In comparison with many other sorts, this variety is not worthy of a place.

Fillmore. — Mr. Knox classes the Fillmore as one of his two best. It is unquestionably a deserving variety. The fruit is very large, nearly round, regular in form, dark crimson, and very handsome; flesh richly tinged with a salmon-

red; firm, sweet, spicy, and keeps well. The fruit-stalks are upright and strong, preserving the fruit from coming in contact with the soil. The Fillmore combines more of the good qualities of a perfect strawberry than any other sort I have yet tested. I am surprised that this berry is not more largely cultivated.

Byberry. — A large, attractive, and very productive sort. Would possess some value for the market were it not so tender in the flesh, at the same time adhering too firmly to the stem.

Ida. — Fruit large, nearly round, bright scarlet; flesh firm, slightly acid; flavor aromatic and good; plant vigorous and productive. May prove quite valuable.

French's Seedling. — Found growing wild in New Jersey, where it might have remained without injury to the strawberry-interest. It is a large, conical berry, bright scarlet; flesh very soft, slightly acid; only moderately productive. Inferior to many other sorts even for the dessert.

Durand's Seedling. — My specimens, being from plants set out last autumn, afford no reliable evidence as to greatest size and yield. Fruit above medium, oblong, conical, irregular; flesh white and firm; flavor delicious; plant vigorous, and apparently productive. May be classed as promising.

Lennig's White. — Only valuable as a curiosity. It is, however, the best of the white varieties; although, this season, the fruit was a pale pink. Moderately productive, and of good flavor; melting flesh.

Great Eastern. — The habit of this variety is remarkably distinct, growing in large clumps, producing but few runners. The fruit is produced in great abundance on long fruit-stalks which lie on the ground. It is among the latest sorts, and would become speedily popular if the flavor was even moderately good.

Georgia Mammoth. — Another late sort largely grown by Mr. Knox for the market. Fruit medium, bright crimson, dark; flesh firm and acid. Not very productive, but very slow in maturing.

Rippawam. — On sandy soil, this sort exhibited but one point of excellence; viz., ripening all the fruit at the same time: these are produced in large clusters. The flavor was tolerable. It must do much better another season to sustain its Stamford reputation.

Laurella. — Said to be an imported variety. Fruit small, and very early; plant a moderate grower. Possibly it will do better on stronger soil.

La Constante. — The fruit on plants set out this spring was unusually large, high-colored, and delicious. If productive, will be valuable. Very productive on clay land about Cincinnati.

Green Prolific. — Grows vigorously; yields a large crop of medium-sized sour berries; ripens at the same time as the Wilson, to which it is far inferior. I have described this variety for the same reason that others have been named, — only to class them as worthless. Without this comparative test, the tyro will be guided by the commendation of the originator, who, in many instances, seems to have been too much enamoured of his productions to see their faults. It is impossible for any difference in soil or culture to bestow superior merit upon many of the new sorts I have seen this season.

Metcalf's Seedling. — The fruit on my plants was so small and inferior, that I am scarcely willing to give it place for another season.

Kitley's Goliah. — A large, beautiful variety. Valuable on account of its lateness and size. It should be found in every amateur collection.

Nimrod. — An immense egg-shaped fruit. Flesh firm, tinged with pink; color a pale scarlet; moderately productive, and ripens later than the Kitley or Jucunda. Mr. Knox is growing these two sorts largely for the market.

Jucunda, or Knox's 700. — This variety reigned supreme over my entire collection, as I am told it has done in the New-York and Philadelphia markets. For productiveness, certain maturing, size, beauty, and fine keeping-qualities, all combined, the Jucunda far surpasses all others on the list. I am even more partial to its flavor than to that of the Agriculturist. I fully believe that the grandest display of strawberries ever seen on this continent was a plantation of five acres of the Jucunda on the Knox Farm (June 25). On most of the plants, there were ten to twelve ripe berries; together sufficient to fill a quart measure. When the Wilson was selling in our market for fifteen cents per quart, the Jucunda sold freely for fifty and sixty cents; specimens as high as one dollar per quart. I have seen a gentleman pay twelve dollars for twelve quarts, while other sorts could be purchased for three dollars per bushel. Mr. Knox informs me that he has realized sixty cents per quart after shipping the fruit four hundred miles. In the extensive propagation and cultivation of this variety, Mr. Knox has exhibited good judgment, horticultural skill, and a commendable spirit of progress. Even our immediate strawberry cultivators shared in the doubts expressed in regard to the great merits of this sort. The result is, that Mr. Knox controls the market whenever and wherever he chooses to send his *invincibles*. The sales of strawberries from his farm were immense this season, and doubtless very profitable. Many suppose that his success is owing to expensive culture and high manuring. Such is not the case. The plants, while young, receive timely and careful tillage. The vines are cultivated in rows two feet and a half apart, and ten to fifteen inches between the plants. He covers lightly with straw in the winter, and mulches heavily in summer; in which method these are evidently pre-eminent advantages.

Having extended my article much farther than your patience will justify, I am obliged to omit some minor points we spoke of.

Yours very truly,

PITTSBURG. *Jas. S. Negley.*

THE LARGE-FLOWERED CAMPANULA. — This is the queen of the campanulas. The flowers are of the size of a large hen's egg cut through the middle. In one variety, they are of a deep-purplish blue; in another they are white. The bud, just before opening, looks like a little balloon. The plant does not much exceed two feet in height, with neat, compact, dark-green foliage. The root is large and fleshy, like a carrot. It is perfectly hardy in any moderately dry soil and warm exposure; and it is one of the best of perennials. It is known as the Wahlenbergia or Platycodon; but we prefer to return to the broader and simpler name. *F. P.*

A TRIP AMONG THE VINEYARDS. — To say that the recent Convention of Grape-growers at North East, Penn., with its supplemental excursion, was a *success*, would not be *half* true, because *not half the truth.* It was a *perfect* success. There we met the jocund Knox, who says, "*Bully* for Concord!" the gentlemanly Campbell, who thinks "better of the Iona this season than last;" the venerable Dr. Grant, who speaks little unless spoken to; the thoughtful, experienced Saunders, who superintends the Government Experimental Gardens at Washington, D.C., — all from diverse directions, yet drawn together by one common interest. Add to these Griffith and Mottier, who, residing at North East, treated the members as if their own guests; Leonard, the Treasurer; Dunham, the President; and last, but not least, the self-sacrificing, energetic executive Bateham, the Secretary, — and you have the representative spirits of the three hundred others who made the complemental number present.

While the reception-room over the cellar of the South-shore Wine Company was being converted into a dining-saloon by the generous ladies of the village, some of us strolled among the adjacent vineyards. These were mostly planted with Catawbas, now from five to twenty years of age, and, we regret to add, considerably affected with rot. This disease, you are aware, attacks individual berries, which drop off or are easily removed, leaving the remainder perfectly sound; thus diminishing the compactness of the bunches, and detracting from the aggregate weight of the crop. The consequent loss we were unable to estimate, but should not think it above one-sixth. Although the foliage had suffered some from the drought, it appeared, generally, quite healthy.

But the sight which especially delighted us was Mr. William Griffith's vineyard of ten thousand Ionas and three thousand Israellas, two years of age. Surely, thought we, this must be *one* of the "*very few localities*," referred to by your *Hermann correspondent*, "where the Iona *may* succeed;" for never were vines more *healthy and vigorous* than these.

After returning, and regaling the inner man with meats and drinks administered by fair hands, we adjourned to the open air, where was held the afternoon session. This, and the evening meeting in the village Hall, were devoted to reports from various quarters, of which we give a brief synopsis.

Mr. Saunders of Washington, D.C., said, that, of the hundred and twenty varieties growing there, all, except a few, mildew. Among the exceptions, he mentioned Concord and Ives. He expressed great hopes that the *Iona* would prove a *good wine-grape.* Mr. Hoag of Lockport, N.Y., said that his grapes were doing well, but especially his *Iona* and *Israella* vines, "which *are bearing fine crops this year.*" Mr. Bronson of Geneva, N.Y., "Catawbas and Isabellas not rotting; *Ionas looking very well indeed*, — bunches *sufficiently compact; Israellas quite compact.*" Mr. Champlin of Hammondsport, N.Y., "Catawbas good; Isabellas in excellent condition; *Ionas* doing well, and giving *good satisfaction.* About fifty thousand have been planted on and near the lake. *Those set two years ago are well fruited*, beginning to *color by the 17th of August.*" Mr. Campbell of Delaware, O., reported Delawares doing well, and *Ionas much better this season than last.* Mr. Bement of Toledo, O., said that

the *Catawba* was a failure there, *rotting badly:* the Delaware and Concord were doing well. Mr. Lewis of Sandusky, O., said there was considerable rot among Catawbas on the islands, the peninsula, and around Sandusky; *Catawbas* indicating only *half a crop.* Dr. Somers of Vermilion, O., reported two hundred acres in vineyard in his township. "Catawba showing a little rot; worse on gravelly than on clay soil. *Iona and Israella seem healthy; and bearing vines show no rot or mildew.* In some localities, there is a slight rot among Concords." Mr. Phillips of Berlin Heights, O., "Catawbas have rotted considerably. Delaware vines are full, with some mildew on the fruit. *Twenty-five bearing Ionas are fruiting so abundantly* three years after planting as to require the removal of many bunches. They *colored about the 15th of August.* Both Iona and Israella are doing well this season."

Dr. Griswold of Elyria reported some Catawba vineyards almost free from rot, and others considerably affected with it. He spoke of *Ionas as giving good promise.* Capt. Spaulding of East Rockport said that he thought ten per cent would cover the rot in his Catawbas. His "*Iona fruit*" was "*fine, and without rot.*" Mr. Knox of Pittsburg, Penn., reported very little rot with him; a trifle among Concords. Mr. Crane of *Lockport* said that the *Iona did not succeed well with him,* "the foliage not showing a healthy appearance." As *his was the only* report *un*favorable to the Iona, and entirely at antipodes with that of Mr. Hoag, *also of Lockport,* we think ourselves warranted in attributing Mr. Crane's failure to want of care in the selection of soil, in location, or in culture.

At the close of the convention, Mr. Bateham expressed himself fully convinced that the *Catawba* had *fulfilled its mission,* and must sooner or later be supplanted by some other variety. As a candidate for the vacant office, *we propose the Iona.* Even last year, — a period notoriously unfavorable for all varieties, — it was, with us, *perfectly healthy, and quite productive;* while Delawares in proximate rows "defoliated" so completely, that the fruit failed even to color. We did not, however, condemn the Delaware for its *ill conduct a single year, as some do the Iona*; and it now rewards our clemency with beautiful clusters of ripening fruit. But our Ionas are coloring quite with the Delawares: and the vines, although *unprotected* last winter, are *healthy and prolific;* one but three years of age setting over thirty bunches. As keepers, the two varieties bear no comparison; the Iona remaining perfect long after the Delaware has decayed, preferring to dry to raisins sooner than undergo decomposition.

The convention over, so ample and thoughtful had been the arrangements of our Secretary for the excursion to the islands, that no *vis a tergo* was necessary to induce a goodly number to embrace the opportunity. On Wednesday morning, about forty of us bade adieu to the pleasant village of North East, with its munificent hospitality, and, stopping at Cleveland to dine, by five o'clock, P.M., found ourselves at Sandusky. Here we embarked upon a commodious steamer bound for Put-in Bay, — a beautiful island, which deserves a more euphonious name. Touching at Kelley's Island, we were informed by an experienced *vigneron* that half a crop of Catawbas was his maximum expectation. At Put-in Bay we visited Harms's, Sibley's, and Reidling's vineyards; and were gratified at finding much less rot, — sometimes scarcely any. We saw here some very fine

Delawares, Ionas, Concord, and Ives. On the morrow we sailed for Catawba Island, whose hospitable inhabitants met us with carriages to convey us through their vineyards and over the peninsula, while our vessel passed round the cape to meet us on the opposite side. In these localities was less rot than we had anticipated; the crop of Catawbas in Mr. Dwelle's vineyards promising better than any we had before seen. A thousand dollars per acre is paid for land on the peninsula, which, eight years ago, was purchased for thirty dollars. The soil of the islands is clayey loam interspersed with stones.

Returning on Friday to Cleveland, by the kindness of Dr. Beckwith, who there awaited our arrival, a few of us visited the vineyards of the Dover's Bay Grape and Wine Company, located upon a bluff about twelve miles from the city, and under the superintendence of Mr. Mottier, jun. The drive was a delightful one, passing the residences of the ex-governor, of S. B. Marshall, Dr. Kirtland, and Capt. Spaulding. The company's sixty acres of vineyard were remarkably thrifty and healthy, the fruit *wholly free from rot*, and the grounds *elegantly clean*. Some one should give Mr. Mottier a medal.

On Saturday we reached home, feeling richly rewarded for our week's absence among the vineyards. *Andrew Merrell.*

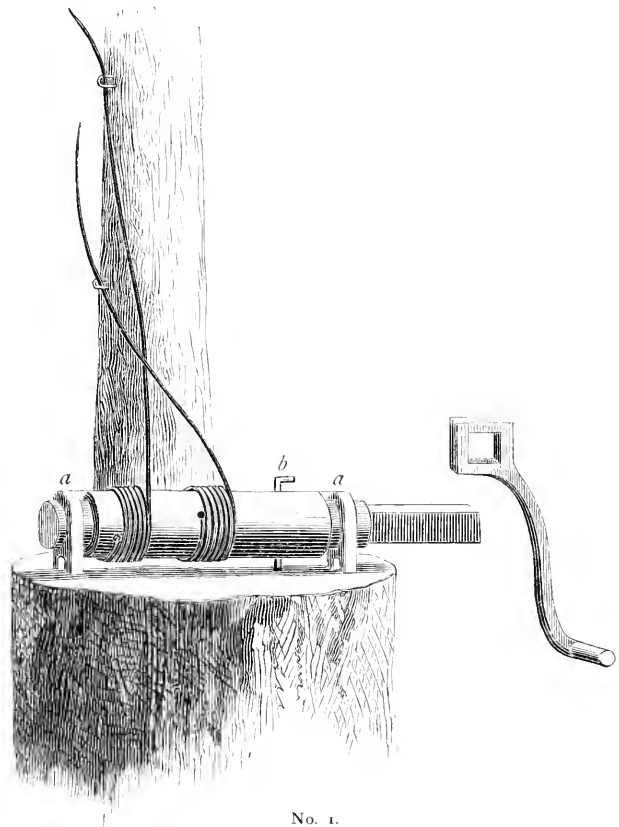
GENEVA, N.Y., Sept. 4, 1867.

PURE NATIVE WINES: WHAT AND WHERE ARE THEY? — Under this heading, I find an article in your September number, in which the author proves, in a manner satisfactory to himself, that mixed wines are pure wines, and that, in the article of wine, the wine-maker is more reliable than the hand of the Creator.

Now, with your permission, I will give my definition of pure native wines. These I understand to be the simple expressed juice of the grape, without admixture of any kind; literally, the fruit of the vine expressed, and in casks ready for market. It is true that it differs in flavor, in acidity, in strength, and in quality, with many circumstances. The kind of grapes, the degree of ripeness, the time allowed to mellow after gathering, the nature of the climate, the character of the season, the quality of the soil, — all these circumstances materially affect the quality of the wine as it flows from the press; yet the *wine-grower* should maintain the peculiar chemical composition of the juice as adjusted by Nature. This is pure wine in the hands of every *wine-grower* and native-wine dealer "worthy of the name throughout the country." Now, I am free to admit that those who have been accustomed to the mixed wines of the wine-maker will not be pleased with the pure wines of the wine-grower; yet they are more healthful and grateful to the natural tastes of man, and without any seductive influence. It is the duty of every wine-grower to protest against any alteration in the natural composition of the juice of the grape. Let it be placed in the hands of the consumer in its purity. *I. M. M'Cullough.*

CINCINNATI, Sept. 18, 1867.

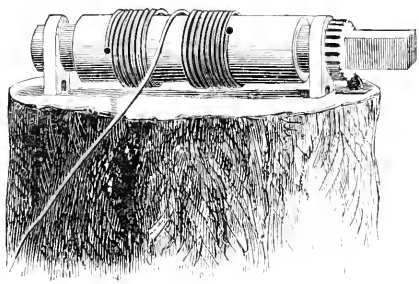
Stretching and fastening Grape Wire-Trellis. — In putting up grape wire-trellis, the stretching and fastening it is often a very annoying labor. If strained too tight, it sometimes draws the post out of the ground; and, if left loose, the sway and sag of the wires brings them too near the ground when the vines are loaded with fruit. Again: while wires may be put up tight in winter, the expansion in summer will loosen, or rather sway them, at, perhaps, the very time when they should be the most taut; and if put up tight in the summer,



No. 1.

when all is expanded, the cold of winter will tighten and strain them often to breaking, or drawing over of the posts. To remedy all these difficulties, George Leick, Esq., of Cleveland, O., an extensive grape-grower, and a manufacturer of native wine to the amount of about forty thousand gallons annually, has recently had cast some iron cylinders perforated with holes for two wires, and one for a staple-pin to hold the cylinder in place. See our illustration No. 1. The main posts being set for the grapes, a short post is set deeply in the ground

back of the end grape-post of the line, say three or four feet: on top of this short post, the cylinder is secured by staples at each end, *a a*; the wires are drawn in to their places; and, one end of the cylinder being supplied with a square bar, a crank can be applied, and the wires tightened or loosened at pleasure, and, when in position, secured by driving the pin *b*, which is of wrought iron, into the posts. The effect in the working of this arrangement is to draw down and secure rather than loosen the end trellis-posts. For the upper wire, Mr. Leick uses a half-inch iron rod, bent at one end to receive and fasten the wire; and on the other end a long screw-thread is cut; and, when run through the post, a nut is put on, and the whole tightened by a wrench.



No. 2.

Our illustration No. 2 shows a cog-wheel to be cast on the cylinder, by which means the pin *b*, in No. 1, may be dispensed with, and the loosening or tightening of the wires may be more rapidly performed as the cog-wheel holds the cylinder in place by means of a latch or catch screwed to the post. This last is our own suggestion, for which we do not propose to take out a patent.

Barachel.

The August Number. — Thoughts and Suggestions as I read it. — "*Among the Berries.*" — This account of the manner and cheapness in which small boxes for berries are made and supplied, will, I trust, do a great amount of good, especially throughout the Western States, where, as yet, most of the fruit is gathered and handled in the rudest manner. Every handling of delicate fruit like strawberries, *et cætera*, injures both appearance and flavor; for each little bruise at once commences to decay, and thus affects the richness and delicacy of the fruit. That story of the Burlington Raspberry is a strong one, and well told. What a sized berry it must be to measure "more than double that of the Antwerp"!

In speaking of blackberries, the writer says not a word of the Holcomb or Dorchester varieties, which, I believe, stand pretty high in the estimation of a large number of growers. The Dorchester, with me, is the best of all the varieties as a family berry. It ripens its fruit gradually, and, when well cared for, produces plentifully; while every berry may be eaten without using sugar: or, in other words, one can go among the canes, pick and eat the *black* berries, and find each

one sweet; while no man ever could pick a half-dozen of the New Rochelle (or commonly called Lawton) in succession, and find all sweet. The Kittatinny is more prolific than the Dorchester, and, I think, the most so of any variety; and its fruit is second only to the Dorchester: for while it has, perhaps, more sprightliness, it lacks a little of the saccharine, and does not please as well, time after time, in eating, as the Dorchester. As market-berries, I think Wilson, Kittatinny, and New Rochelle, are all desirable: the first because of its earliness, not for the quality of its fruit, for that always has a hard core; the second because of its productiveness, and the quality such, that, where customers are at all discriminating, more price per quart can be obtained. Its canes are also the most hardy of any variety. The New Rochelle is a great producer, and continues a long time; and its fruit so large and showy, that it will sell even if the sour side shows.

"*Grape-Culture.*" — A subject of immense importance all over the country, but especially at the West. The selection of varieties to meet the soil and climate in which they are to be grown is an item of great importance, and one which has been too much overlooked. While I believe some variety of grape can be grown so as to be palatable in almost every section and soil, I do not believe any and every field capable of growing corn will produce grapes rich in saccharine, and with no greater per cent of acid than is requisite for health in eating, or for keeping and character when made into wine, without the addition of some foreign material, as sugar, *et cætera*. Hardiness of vine is an all-important item for vineyard culture; for, however it may prove profitable to lay down and cover the vines in winter, the mere fact that it will have to be done with any vine checks the spread of that vine at once. It is no small item to go through a vineyard of sixty or a hundred acres in the fall, prune and lay down for winter, and then again in spring go through and uncover.

All these items are good in themselves, perhaps; but we must wait a while, I think, before any extensive vine-grower will practise winter laying-down and covering. With the writer, I agree that the *best* plants to be had should always be planted; and, when they are bought, the planter should make two or more selections of them, placing all the strongest and best by themselves, and so on with each grade; for there is nothing more annoying and unsatisfactory in grape-culture than to have the rows with every now and then a failure or an imperfect plant. All who have such failures should at once fill up; taking away the poor vine, and, replacing with strong two-year-olds, give plentifully of rotten manure for the first season. It is no use trying to nurse up the poor plant.

"*American Grape-Growing.*" — The grounds taken by Mr. Husmann, in opposition to any prize being awarded to one grape as superior over our whole country, are undoubtedly correct; for while the vine, like the apple-tree, can be grown almost everywhere, yet all observing pomologists know that the quality of fruit of any one variety varies in only a difference of a hundred feet or so in location. To me this shows that soil is a point more to be observed than climate; although, with the grape, soil without climate cannot and does not develop saccharine. I have seen the Newtown Pippin scab and knot and half ripen on one tree, while another only two hundred feet distant gave large and fair

smooth fruit of the highest flavor. I have seen the Hartford Prolific Grape on clay land ripen up with fine bunches, and hold on well to the stem, while four hundred feet distant the same grape on sandy ground ripened its fruit with more or less of green ones, or irregular, as is often the case with Isabella in uncongenial soils ; and, when it came to be gathered, more or less of the berries would drop. This development of the qualities of fruits in varied soils is as yet but little studied; and with the grape, were it not that wine-making is one of the points of profit from planting, I fear it would receive less notice than it now does. It appears to me that he who sends out a new grape for the crazy, gullible public to buy, ought, at least, to make a statement of the soil as well as location in which it has proved a competitor or superior in value with some other variety that is known to succeed in similar soil; nor should a new grape ever be sent out until it has been tested by growing side by side with varieties already known and in cultivation.

With the grape, a great deal has been said about the weight of must by the saccharometer, and some varieties have received a favorable tone therefrom; when, had the acidometer been used at the same time, and the result stated, the tone would have gone down several degrees. I was surprised recently to learn, that, in one of the great wine districts of the West, they knew little or nothing of the acidometer.

"*A Plea for the Kitchen-Garden.*" — It is too true that the kitchen-garden receives too small an amount of thought, labor, and care from the great majority of our farming people ; but we must hope to introduce "The Journal of Horticulture" into every family, and then see what a change will come "over their dreams." We must remember, however, that our people, our Yankee people especially, are not the peasantry of the old country; and the man who, in the old country, could live and labor in their way on a truly vegetable diet, no sooner gets here, and learns to move with the rapidity and energy of Americans, than he finds he needs the "lard oil in his boiler:" in other words, a greater amount of vital force is expended here under our rapid system of moving, and our clear atmosphere, in one day, than would suffice for three days in that country where slow movements, vegetable food, bread, and sour wine, are the habits and support of the people. I would favor the more general growth of a greater variety of vegetables, as every such thing tends to expand the mind of man; but it is this very rapid exhaustion of our vital energy, stimulated, if you will, by "pork and potatoes," that has helped to build us up so rapidly into an immense nation. *Barachel.*

How shall I prune my Dwarf Pears? — This is the sum of a long letter from one of our readers, in which, however, he tells us that "some of his neighbors do not prune their dwarf trees at all, and yet are getting good crops; while others have pruned away all the lower branches up to some two feet in height: and, according as he reads, neither practice is correct."

The items of pruning, concerning dwarf pears as well as other dwarf trees, have been, perhaps, given from time to time by various authors in a little too much of the professional order; and consequently a good many planters have

lessened the number of trees which they desired to plant, on account of the prospective labor requisite to keep them in good order.

The care and culture in pruning an acre of dwarf pears we consider little more than that of an acre of standards: and, whoever is deterred from planting by reason of an impression otherwise, we advise to go right on planting; and, if we cannot write for him from time to time so that he can perform the care of his dwarfs easily, we will visit him, and show it practically.

Our inquirer does not tell us any thing about the age or present condition of his trees: so we are left to talk, as it were, in the dark; and therefore begin by saying, that, in the general practice in this country, nearly all dwarf trees are rather to be termed bushes than pyramids, as is most usually the form recommended abroad; and the pruning is at first, or say for two or three years, a pretty severe one, requiring some little philosophy, or belief in the tree again renewing itself. In growing dwarf trees, all depends upon the first few years of pruning, by which they acquire a bushy, broad base at heights varying from six inches to two feet from the ground; and the grower must not be afraid of his knife, but cut away the strong leaders and branches, each time cutting to a bud, and carefully examining on which side the bud left for the next shoot is, as the tendency of the shoot from that bud will be at an angle of about forty-five degrees, either inward or outward, and so filling up the centre or opening it as it grows. When we commence cutting our young trees, we do so with a knowledge, that, for every inch we cut away, the following autumn will show from six to twelve inches of growth; and then, when we cut for the next year, we do so with a remembrance of the previous year's growth; and so we leave only three to five buds of the season's growth on our leading stems, while our side or lower and more slender shoots we often leave one-half or two-thirds of their growth. We practise this cutting back yearly until about four years; when, if our tree has a good form, as it should, bushy and round, and the last season has given two to three feet growth of young wood, we leave it for a season; during which, by reason of non-cutting, it makes only a moderate growth of eight to sixteen inches, and forms fruit-spurs on all the shoots of last year, which, added to the spurs formed one by one on the lower limbs, give a tree vigorous, healthy, and, the following summer, loaded with a crop of fine fruit. This growth of eight to sixteen inches we cut in this season, or the fall before the fruiting one, to from three to five buds; and thus we get new vigor and wood yearly onward, while we go on reaping our crops of fruit.

It is not requisite to annually prune a tree, once it has acquired a good form; but, unless it is done, the annual growth is gradually lost, and the tree disposed to produce more fruit than it can well ripen: and it is here again that strong philosophy is wanted to enable the owner to cut away and thin out the surplus fruit, or otherwise, in a few years, find himself minus a tree by reason of its over-exhaustion. The statement of our reader, that some of his neighbors "do not prune at all, and yet obtain good crops," is one of the points to which we call his observation; and, unless the trees take root upon the pear or graft, our word for it, a few years only will the owner realize crops of fruits, but he will have a chance to plant the ground anew. In many cases, the pear on the quince takes

root on the pear, when it no longer becomes strictly a dwarf, but having acquired maturity in its buds, and its pear-roots being laterals, it continues to fruit and grow moderately, and is, in reality, the best tree possible, requiring onward no more pruning, except to take out lateral branches. *F. R. E.*

FRENCH AND AFRICAN MARIGOLDS. — These well-known inhabitants of the flower-garden are unsurpassed for autumn bloom, as they stand the frost better than any other annual. The varieties of the French are innumerable, and the rich colors it displays very attractive. The African is more showy; and the light-yellow and dark-orange varieties contrast well, and are effective in masses. Seed should be saved from the best flowers, and only requires to be sown in a frame in April, from which the plants should be removed to the border in June.

Another marigold, *Tagetes signata pumila* is the best yellow bedder we have, giving a mass of bright-yellow bloom, and being of a dwarf, spreading habit. It requires the same treatment as the other species. *E. S. R., Jun.*

A PLEA FOR THE SUMACH (*Rhus typhina*). — If a large shrub, hardy, and of easy culture, beautiful in form and foliage, and of great picturesqueness and permanency of flower and fruit, has just claims for a place in ornamented grounds, then has this large native shrub been singularly overlooked and neglected. In no essential quality of an ornamental nature is it lacking. At first sight, it commends itself to the beholder as a pleasure-giving object; and the more it is studied, the more it pleases. Let us look at it a little while, and endeavor to reach a true appreciation of its merits.

We shall find it in the natural order *Anacardiaceæ*. It has properties useful in the arts: but of these we have nothing to say at present; we are to show its capabilities and claims as a tree of ornament. We begin with cleanliness: in this it is faultless. Vermin never infest it, nor is it infected by disease. Unlike some of its congeners, it is perfectly innocuous. Its style of beauty, unique and weird, though quite different, is fully equal to that of its co-species, the *Cotinus*, an exotic everywhere admired. Naturally it branches low, and forms a spreading head somewhat umbrella-like, often fastigiate, but can easily be pruned and trained to any shape that suits one's fancy. About fifteen or twenty feet is the limit of its height. The diameter of the head is equal in extent, or greater; the bark is light gray, the new growth densely velvety-hairy, and the color silvery-drab; the leaves are numerously pinnate, dark green above, light beneath; the flowers, a whitish-green or yellow, in a dense panicle; the fruit, a cluster of drupes, forming a compact cone of rich crimson hue; these cones are its crowning ornament. Unlike the colored clusters of other ornamental plants, soon to be stripped and devoured by winged gourmands, these bright, decorative forms remain unmolested, and delight us through the year. Added to these, when the frosty time approaches, are the pictured leaves, green, yellow, and purple-crimson. Besides, the tree is hardy, and enduring in all vicissitudes of climate; easily transplanted; grows vigorously in any common soil; and soon attains the desired conditions for ornament. Its one fault is, that it propa-

gates itself with rather too much facility, having the habit of throwing up shoots from the roots: this, however, is easily controlled, and is, therefore, a small defect, after all.

In the Valley of the Housatonic, and elsewhere, I noticed last season a few of these trees grown with care in the grounds of some well-kept homesteads; and the effect was always pleasing. In a field on the old Hopkins Farm, in Stockbridge, Mass., I was attracted to a cluster of large growths, one of which was remarkable for its size and apparent age, the patriarch of the group; and yet it was singularly beautiful in the outline and amplitude of its spreading top, and picturesque to a high degree in the show of its crimson cones, standing out all over it, from the green of its graceful spray. I trust the "woodman will spare that tree" yet many years, and that others will enjoy the pleasure which I felt in its shade one bright August noon.

More recently, I have been interested in looking at some very handsomely-grown specimens of these trees in neighboring grounds near home; and I confess to a new admiration of their exceeding beauty. At this season, late midsummer, we have nothing more attractively showy. The position of some of these, however, may have something to do with their effectiveness; being in limited grounds, and near a group of half-grown evergreens.

If my humble plea awakens similar interest in others, I shall have attained my object; for we are verily at fault in neglecting our native plants. It is time they were regarded with more favor. Let us have a commendable home pride in these matters. We hanker too much after foreign novelties and fashions. It were wiser to use more of our own materials, which are easier to command, and of better adaptations.

Shall we take, then, the *Staghorn* (*Sumach*) into our home-grounds?

ELGIN, ILL., Aug. 5, 1867. *Burgess Truesdell*

Ives's Seedling Wine. — The Ives Seedling Grape has, during the past year, received high praise as a grape for the production of a light red wine. I had examined its product from time to time, as I could obtain it; but, in every case, I found that it had in some way been doctored, either by adding sugar, or by mixing other wines. This summer I wrote Mr. Anderson, of the Longworth Wine House, my wish to see it pure, and received from him samples, which, on analysis, I feel are, as represented, pure wine, and of a character that brings it second only to the Norton's Virginia, far ahead of Concord, with not as much acid as Clinton; in fact, the best red wine, except the Norton, that we have yet produced. The wine sent me was one from selected grapes, and the other from the general average of the vineyard.

The first gave nine and five-tenths of alcohol, with five and eight-tenths of acid: the second gave eight and four-tenths of alcohol, with six and one-tenth of acid. Both were pleasant wines; but, once a taste was had of the former, the latter lost caste. There is no doubt of many of our grapes making a far better wine than has yet been done, if once the maker can feel that the wine from his selected grapes will command a price compensating for the labor and care requisite to its production. I hope, however, that some makers will try the selection of grapes, and, making superior wine, give out a notice of their course; and, when the wine is ripe, see if we don't buy it at good remunerative prices. *Barachel.*

August Pioneer Grape. — This is a hardy vine of the old fox-grape family, with moderate-sized bunches of loose berries, round and nearly black, that color up early, and may be eaten, by those who have good digestion, about the middle to the last of August.

L. I. T., Worcester, Mass. — We do not believe in applying manure to rhododendrons and azaleas. If the bed is properly made, the plants will not need it; and, if the soil is not suitable, no manure will give them vigor. The best plan is to give a top-dressing of oak-leaves (or those of any deciduous tree) in the autumn; and, in early spring, fork these in, if it can be done without disturbing the roots; or, better still, throw a light sprinkling of loam over them to prevent them from blowing away. The leaves will soon decompose, and be all the manure the plants will need.

We are aware we differ in opinion from one of our most successful cultivators, who applies well-rotted stable-manure to his rhododendrons; but we have yet to see its superiority to the simple dressing of oak-leaves. In a bed properly prepared with loam, leaf-mould, and sand, rhododendrons and azaleas thrive for many years without any renewal of soil: and, unless one is willing to prepare a proper bed, it is better not to attempt to grow these plants; for they never give satisfaction if grown in common garden-soil.

IDEM. — You need not cover your rhododendrons to protect them from the cold: it is the winter's sun that injures them. The "mildew and discoloration" may have been caused by your covering the plants too thickly. The best way to protect rhododendrons is to stick cedar or other evergreen boughs among them late in November, planting the butts in the ground: they will freeze in, and shade the plants from the sun. This should be done each winter until the plants are well established; then they will need no protection.

I. B. H., Taylorsville. — We have several letters asking for rules of bulb-culture. The October number will probably give you the information you need. If that is not sufficient, send to the office of "The Journal of Horticulture" for Rand's "Book of Bulbs," which contains very minute cultural directions. The publishers will send you a list of agricultural books on application.

W. D. D., Andover, Mass. — Keep your dahlias in a frost-proof cellar, in dry sand or charcoal-dust. Do not water them, or allow the temperature to rise much higher than forty-five degrees. *Salvia patens* will keep in the same way. There is no such volume published. Experience as to hardiness must be the best teacher.

I. L. G., Boston. — You can grow *Wisteria* in the city without protection: however, it is well to mat it up a little in the winter.

A. V. G., Archbald, Penn. — What numbers of Rogers's hybrids can you recommend from your own experience as the earliest and best in quality? — We have found 3, 4, 9, 19, 41, and 43 to be among the earliest and best of all the numbers. Mr. Rogers considers the 15 the best; but we do not agree with him. If we were to select a single variety from the black ones, we should take No. 41.

Mr. Knox of Pittsburg writes us that he regards Nos. 3, 4, and 19 as the most valuable.

PEACHES. — The crops of peaches in many sections have been all that could be desired. One grower in Ohio reports having over twelve thousand bushels. The varieties he esteems most valuable as market-sorts are Oldmixon free, Smock, and Crawford's Late. Crawford's Early does well, but inclines to overbear, and thus make the fruit small: while the labor of thinning, this grower represents as one difficult to hire performed; hence he prefers Crawford's Late to Crawford's Early, because it sets its fruit evenly and regularly over the whole tree, and not so numerous but that all reach a good size.

RIPENING OF VARIETIES OF GRAPES. — We have watched carefully our own vines, and those of many of our friends, relative to the time of coloring up, comparatively, of varieties. We find single berries on the Delaware to first show color; but the whole bunch does not indicate maturity. Miles and Hartford Prolific show color at about the same time; and, with us, the Hartford ripens rapidly, and was fit for market two or three days before the Miles. Concord and Rogers's 4 showed color almost at the same time; but the Rogers's 4 colored more rapidly, and was fit to gather within two days of the Hartford, while its bunches and berries were superior to Concord. Clinton colors early, but not over the entire bunch; and it is so harsh until dead-ripe, that it is of no value for market. *F. R. E.*

ABOUT TOMATOES. — Some time since, Mr. F. R. Elliott wrote us, that, in growing and examining tomatoes this season, he had knowledge of some twenty varieties; and that, among them all, one under the name of *Alger*, which originated some fifteen years since, but has been little disseminated, was much the best. He says it is as early as the *Keyes;* larger; and, while it commences to ripen early, it also continues right along throughout the season without intermission. The foliage is broad and strong, something like that of the *Keyes*, but without the sickly curling-up which that variety as well as the Early York has. Again: it shades its fruit well, and does not burn, as does the Keyes. *Powell's Early* he counts as a very fine, large, and handsome fruit: but with him, after it set and ripened a few, nearly two weeks intervened before any more were grown; and the season did not show it a great producer.

Stockton is a great grower, and a good producer of medium-sized, smooth fruit; but it is late. *Howe* and *Apple* and *Vinewood* all appear about the same, — smooth, even, regular, fair-sized fruit, moderately early, and moderate croppers. *Roseborough*, like *Lester's Perfected*, has purplish-pink fruit; but it is not as smooth or valuable as Lester's Perfected.

Chihuahua is a large, strong grower, late in ripening, but then giving a good crop of large, smooth fruit.

Pear-shaped, for drying or pickling purposes, he counts the best among them, but not profitable where quantity is the item of value.

EARTH UP TO TREES AND VINES. — Before the ground becomes very wet, the plough should be run through the small-fruit orchard and vineyard, and the soil turned up to the plants.

D. I. M., Burlington, Vt. — The Ferrarias are a family of curious Cape bulbs, very rarely seen in cultivation. The flowers are very beautiful, though generally dull-colored. We doubt your being able to find them in this country; but they can be imported from Holland or the Cape. They are not hardy, but thrive with cool pot-culture if planted in sandy loam.

The plant found in some catalogues under the name of *Ferraria tigridia* is not a *Ferraria*, but the well-known tiger-flower, *Tigridia pavonia.*

THE ROSTIEZER PEAR. — This pear, acknowledged to be one of the best early sorts for eating, has been always asserted to be a straggling grower, difficult to keep in form. Mr. Elliott of Cleveland writes us, that he has found no difficulty in putting and keeping the tree in shape; and, while some of his friends have trees of it branching every way, he has it as one of his best-formed trees. He says, however, that, in so doing, he has lost a year or two in early fruiting: but now his trees are in good shape; and, while they have given a little fruit this year, the promise is good for another season. We hope to have a drawing of one of his trees to show our readers in a future number.

DWARF PEAR-PRUNING. — We have for some years practised pruning in our dwarf pear-trees about the last of October, or as soon as the foliage has dropped. It is asserted by some, that, during winter, there is danger of injury to the terminal bud where such cuts are made; but we have never found any such result. We have, however, lost many a growth from the last bud, when we have cut in a tree in spring; and generally because of the bud being full at the time, and the fresh cut opening an exhaustive receiver, as it were, in the air, thus drying out and destroying it. The cut made in the fall, as early as possible, but after active vigor has left the bud, leaves time for the wood to dry and harden preparatory to the spring pushing. Another reason for fall-pruning is, that there is generally more time at command, and the work will be performed with greater care and judgment. *F. R. E.*

GATHERING FRUIT. — All should remember that only a slight bruise, by reason of dropping a fruit into the basket or barrel, impairs its keeping quality, and, as it ripens, more or less injures the flavor of the whole fruit: this latter item is particularly true in the delicate fine-flavored fruits. Caution, therefore, all your assistants, and thus pack away the fruit in condition to keep, and come to the table with all the richness and flavor unimpaired. *F. R. E.*

S. W., Newton, Mass. — In how many years may I expect to get fruit from seedling pear-trees? — There is a great difference in trees: some will give fruit in ten years, while others will not give a single specimen in twice that time. One reason why they are so long coming into bearing is, that they usually make rank growth, and fail to form fruit-buds. Root-pruning or summer pinching-in of the trees will remedy this, and induce fruitfulness. One must have patience to plant pear-seed. But our advice is to plant, year after year, the best seeds of the best pears, and good results will be obtained.

W. R., Edgefield, Tenn. — What tolerably good pears grow to the largest size and most rapidly? I wish to use them in forming marginal groups. — We find among the strongest growers the Vicar of Winkfield, Sheldon, Clapp's Favorite, Buffum, Louise Bonne de Jersey, Ellis, and Doyenne Boussock. There are many others that may be ranked as good growers. For your purpose, upright-growing trees will be preferable.

H. H. C., Connecticut. — My Concord grapes rotted badly this season, so that I lost half my crop. Can you tell me the cause? — The season has been very unfavorable for this fruit; too much rain, which had a tendency to cause rot and mildew, especially on lands highly manured, or those that have been over-cropped in years previous, or that were in unfavorable locations. Manure less, and thin the crop next year, and try that.

DENNISTON'S SUPERB PLUM. — A friend writes us that he saw in Prof. J. P. Kirtland's grounds this season a tree of this variety of plum which was literally loaded with fruit, and that, too, without having any curculio application made to it. The same thing occurred last year, while trees of other varieties around it had their fruit all destroyed.

We record the fact without any comments of our own, but shall be glad if any of our readers can give a like account of this or any other variety.

NORTHERN SPY APPLE. — The remarks of your correspondent "Henry, Detroit," with regard to the Northern Spy Apple, may mislead some who are not acquainted with its peculiarities. I consider this variety very desirable. One reason why it has not been sought for more is, that it requires at least ten years before it will bear; but, after it comes into bearing, it will bear fruit when all others fail. It blossoms later than any other kind in our grounds. The fruit is borne on fruit-spurs interspersed all through the tree, and not at the extremities of the limbs like most other varieties. The quality of the fruit is *equal* to any other variety, if not superior; and its keeping qualities excellent. It may not answer as well for dwarf trees as some other varieties, as it is an upright and strong grower. *A. C. H.*

Mrs. C. H. T., Rochester, N.H. — Your letter of July 14 was mislaid. We now answer your question, though too late for this year. The soil in which you planted your scarlet geraniums was probably too rich and moist, and they grew all to leaves. Your cutting them in only increased the evil, and made a more flourishing growth. All plants have this year in New England, on account of the wet season, tended to run to leaves. Give poorer soil, and a dryer place, and you will get plenty of bloom.

R. R. H., Jun., Newport, R.I. — Your plan will do. Plant the acorn on its side, not endwise. A good way is to preserve the acorns over winter in sand *just damp*, in a very cool cellar, and plant them in the spring; then there is less chance of failure.

A. B. M., Boston. — The bulbs sold at auction are generally the refuse of Holland dealers ; yet we have bought very good bulbs, which gave us great satisfaction, at auction.

If you want only a lot for show in the garden, and care nothing for fine varieties, such as you have bought may give you good bloom. In planting, do not mix colors or varieties ; for a mass of one color is most effective, and different varieties bloom at different times.

In reply to your last question, it is best to plant bulbs early in October, that they may make a good growth of roots ; but they may be planted until the ground freezes, and we have even known them to do well when planted in holes made with a crowbar after the ground was frozen hard.

A valued contributor from Elgin, Ill., writes as follows : —

" In one of my plant-hunting rambles the past summer, I had the good luck to find a *new species* of *Petalostemon.* It is very pretty in leaf and flower, and shows to advantage among its graceful congeners. I sent dried specimens and seeds to Prof. Gray. He writes, ' It will go in the new issue, next winter, of my new edition of " The Manual," under the name of *P. foliosus.*'

" In the August number of the Journal, several good things are mentioned which do well for edging or border for a flower-bed. Let me mention another (periwinkle, *Viaca minor*), which for many years has given me more satisfaction than any thing else that I have tried. Set small sprigs with rootlets along the line of the border, three or four inches apart, early in the spring : before the end of the season, we have a handsome ribbon of green (evergreen), which, with its annual profusion of blue bloom, will please us well year after year indefinitely. Sometimes it is effective as an edging for walks. We do not weary of it ; and it is easily managed, only requiring one or two annual clippings : this will effectually control it."

We have received from an always-welcome correspondent in Madison, Wis., an interesting account of the Wisconsin Agricultural Fair, which we would gladly publish did our space admit. We extract the following interesting note : —

" Several new seedling grapes attracted attention. Of these the most worthy was the Janesville, shown by C. and I. H. Greenman of Milton, of which I enclose a photograph. This grape is perfectly hardy, a great bearer, and ripens early in August, — fully two weeks earlier than any other variety. Last year, the bunches exhibited at the State Fair were quite shrivelled, having been allowed to hang on until the exhibition."

No department seems to have been neglected ; and the admirable address delivered by Prof. Chadbourne, lately of the Massachusetts Agricultural College, but now of Wisconsin University, was a fitting conclusion of this interesting and successful exhibition.

I. B., Belfast, Me. — The pear you send is Beurré d'Amanlis ; a great bearer ; fruit large, but not first-rate.

DECEMBER.

A LAMENT FOR THE SEASON.

THERE is no royal road to horticulture. If the seasons were uniformly propitious ; if rain fell exactly when we desired it, and in no greater quantity than were necessary for our crops ; if sunshine followed at our bidding, and cheered and brightened and invigorated all living and growing things exactly as man would engineer the business of weather-making, — what a paradise in perspective the horticulturist would have ! There would be no disastrous seasons to complain of, no late frosts to blast the early bloom of our pet strawberries, no early ones to annihilate the grapes, no waterspouts to rot either of them on the vines, no drought to shrivel them up into unmerchantable nubbins, no mutual condolences among those who labor in the fields, but every acre would become an earthly cornucopia, without one presumptive weed intruding on the scene. If every one were successful with his crops, it would seem reasonable that all would become rapidly rich. But the probability is, that universal abundance of fruit would result in a universal glut, under which prices would sink so low, that no one would be adequately rewarded for his labor. It has uniformly been so with wheat and cotton and tobacco, — the three great staples which govern

and regulate the exchanges of the world. It is well known that half a cotton-crop will produce more money to the grower than a full one. If there were but a single apple-orchard in this country, who can imagine the extortions that would be practised on consumers, or the profit that the owner would realize? How many thousands of us would be compelled to forego the seductive witchery of pie or dumpling! The first strawberries which show their half-blushing ripeness in the market command fabulous prices simply by reason of their scarcity, not because of their superiority in melting flavor to the great overflow which may succeed them.

Hence it would never do for all of us to be successful, at least contemporaneously. We should be in each other's way. Providence, in establishing the order of the seasons, has ordained vibrations against which no one can effectually protect himself. Absolute uniform success in all things is probably impossible: it is the *average* of a number of seasons which can be alone depended on. Skill, experience, and watchfulness will go far toward neutralizing the vicissitudes of a season disastrous to all who disregard them; while such as invoke them will usually have their reward. Hence the fruit-grower, in common with the farmer, must not calculate on uniform success. His hopes may be blasted even after the most painstaking effort to secure it.

Take this very season of 1867 as an illustration of these vibrations and vicissitudes. All over this portion of New Jersey, and in much of Delaware and Pennsylvania, neither we nor our fathers have any knowledge of so enormous a rain fall, beginning in June, and continuing to the last week in August. Our grandfathers have left no record of any thing resembling it. It was not an occasional heavy shower that fell, but a pouring, deluging torrent, which continued for successive days and nights, more like waterspouts than we had ever seen. Thousands of bushels of strawberries perished on the ground because there was no dry day in which to pick them. Great fields of fruit and vegetables were submerged for days. I had acres of strawberry-vines killed outright, losing both crops and plants; and valuable raspberries were destroyed, root and branch. Stone bridges which had stood the freshets of a hundred and sixty years were swept away. On one occasion, ten inches of rain fell in twelve hours, — equal to the average of nearly three months. Few crops, except the grasses, could flourish under the deluge which prevailed during the first twenty-three

days of August. Meadow-land could not be mowed, and the working of upland was simply impossible. As the weather was also hot and sultry, the weeds shot up by millions, and flourished with disheartening vigor. I have had many savage campaigns against them, generally victorious ones; but in this it was physically impossible to overcome them. Everybody, in complaining of the water, wound up with anathemas on the weeds. The nicest cultivators confessed themselves overcome; and now, away into September, we are still fighting them with unabated energy, laboring to get them out of the ground before maturing their seeds.

It was very noticeable how this excessive rain-fall affected the flavor of all the fruits. The raspberry was least injured of any. The strawberry had no sweetness whatever; for there was no sun to create it. The blackberry was scarcely better, having the same diluted meagreness of flavor. Then, coming down to the commoner productions of this region, the melons were comparatively tasteless. These require dry weather and a hot sun. But, having none of either, the few watermelons that ripened were weak and insipid; while those magnificent muskmelons, the Jenny Lind and pine-apple, were scarcely worth eating. Moreover, the quantity produced was not half a crop. If all of us in this region did not actually lose money, there are many who did not realize one dollar of profit. It has been a huge disappointment to hundreds, especially to those who have just made a beginning, and who depended on their present season's fruit-crop. But such are the casualties of horticultural pursuits, — there being no royal road to success, unless each could be his own weather-maker; and, even then, it is probable there would be a perpetual mutiny in every neighborhood.

Now, I do not propose to make up a table of the weather; but the reader may not remember, that, for the last half-century, we have had an excessively wet season regularly every ten years. Such seasons, judging by the record, appear to come periodically, like the great money-panics of which we hear so many foreboding prophecies. One of these latter visitations should have come upon us the present year. The croakers of the money-market assured us there was no escape from it, as this was again the tenth year; but, so far, we appear to have compromised by accepting a simple depression in place of an explosion. For once, therefore, the

croakers are at fault. But the depression among horticulturists, though not amounting to panic, has been a very severe one.

Yet every general calamity has its compensations. The woods and swamps of Burlington County, and of the counties adjoining, have yielded up their usual abundance of wild berries to the poor pickers who live in the rough shanties of those desolate regions. There the whortleberry and the blackberry grow in wild luxuriance, inconceivable to those who have never threaded their way through the tangled network of vines and bushes where they are to be found. Years ago, and no doubt even yet, vast quantities of these fruits perished where they grew, or became the food of birds, because there was no avenue through which they could be taken to market. But recent railroads have opened up thousands of solitary acres to the New-York and Philadelphia markets. On the line of these roads, hundreds of small farms have been laid out, settlers have come in from abroad, stores have been established; and the storekeeper, having daily intercourse with the great cities, finds an outlet for whatever quantity of these wild fruits the industrious pickers may be able to collect. They neither plough nor harrow the ground; nor do they, in many localities, even know who owns it. They toil not, nor do they spin; for Nature is their spontaneous cultivator, and ripens for them the profuse harvest with gratuitous regularity. All they gather is clear gain. The storekeeper takes it all, no matter how great the quantity. He has measured the capacity of that huge congregation of human stomachs which make up the cities of New York and Philadelphia, and knows that the glutting of such gastronomic machines is simply an impossibility. So long as there is fruit, so long do they consume.

This present year, the whortleberry-crop has exceeded all its predecessors. Our adjoining county of Ocean has sent nearly twenty thousand bushels to market; thus distributing nearly seventy thousand dollars among the very poorest class of dwellers in the pines. It is like a shower of gold descending among them, making poor women and poor children comparatively rich. This trade, moreover, is annually increasing as facilities for reaching market are multiplied. Next will come the cranberry-crop. To this also the poor whites and blacks of our pine-forests are equally legitimate heirs. The cranberry-swamps may have owners, but many are wholly neglectful of them; and the fruit would perish on the vines, were it

not appropriated by these industrious harvesters. It is true, the time will come when this great belt of pine and swamp will be cleared and properly cultivated. Its boundaries are annually becoming smaller by the influx of immigrants, to whom great operators are holding out inducements, at merely nominal prices, for land. The influence of two such markets as New York and Philadelphia will inevitably transform it into cultivated farms, elevating the poor whites into regular tillers of the soil, or driving them off to other locations.

Of the cranberry-lands, however, a juster estimate is being formed by owners. Many thousand acres in this county and its neighborhood are being put into perfect culture, and are yielding rich returns. Companies have been formed with large capitals, who are operating on extensive tracts, planting, ditching, and erecting dams and sluices by which the vines may be flooded at pleasure. These enterprises have sent up the price of cranberry-swamps to a high figure; and they must ultimately displace the great army of landless squatters, who, from time immemorial, have gathered large crops without being at all respectful of the owners' rights.

But, if the season has been disastrous to our horticulturists, how has it been with other classes of business-men? Generally, we have held our own, — if not making much, certainly not losing much. We missed getting what we expected, without losing what we had. We are sure that seed-time and harvest cannot fail, because there stands the divine promise. But go into Wall Street, and ask the operator in Erie what promise there is that he shall see it up to par. How of those who have invested in Colorado gold-mines? how of oil and copper stocks? Not only have the expected profits from these ventures failed of realization, but the capital itself has disappeared. Ours yet remains intact; for it is safe in our land, no matter whether it be a great plantation or a humble ten-acre garden. The failure of a single crop may disappoint us; but it cannot produce ruin. Horticulture is no speculation. Doubtless it has its ups and downs, its disappointments as well as its abundant rewards; and he who embarks in it must not expect immunity from disasters such as have befallen us the present season: yet he may be assured that he invests in no such evaporative sinking-fund as gold or oil stocks. *Edmund Morris.*

Burlington, N J., September, 1867.

WARDIAN CASES.

On reading Mr. Warren's article on Wardian Cases, published in the October number of your Magazine, I was struck with some of the instructions given, which, the writer says, are gathered from his own experience.

I should like to say a few words on the same subject, at the same time doing so with a practical knowledge of it, having kept a fern Case for a number of years, although on a different principle from Mr. Warren's

as regards *ventilation*. My Case is constructed of wood (which I think preferable to metal) and glass; measures three feet and a half in length, and two feet in breadth; and is rather higher than broad, say two feet and a half. I have no drainage, either by holes in the bottom of my zinc pan or broken potsherds in the earth, and no heat from artificial means.

I have no ventilation for my Case; and there *is none*, except that caused by imperfect joints, which are very few. Mr. Warren says nothing about artificial heat, but advocates *drainage* and *ventilation:* the latter he provides for by an apparatus constructed of zinc, and perforated with numerous small holes. He says he finds by experience that ferns grow well in his Case with this ventilation. I find, on the contrary (having tried both ways), that all kinds of ferns and lycopodiums grow better in mine with the Case made as *air-tight* as possible. I never water my Case from October (when I plant it) to June, except on first setting out the plants; and then not *much* is needed: but I depend on the moisture caused by *condensation* to support the life of the plants. The first fern Cases made, and brought before the public, were at the great World's Fair in England, in 1851; they being an English discovery. They were simple glass shades, of almost any size, made *air-tight* by fitting into a groove made to receive the rim or base of the shade. I have grown almost every variety of greenhouse fern and lycopodium obtainable in *this country*, and find the growth of ferns more rapid and more perfect without ventilation than with it; it being no uncommon thing for an adiantum, or pteris, to send up fronds measuring three and a half to four inches in height in from five to six days. By making a Case as tight as possible, you keep the earth *moist*, do away with watering, keep up a more regular temperature (which is a great point towards steady growth), obviate the necessity of drainage, and, by this means, secure a number of advantages over a ventilated Case.

When I first started, I followed directions which said to open the Case every day to counteract an over-supply of moisture: this gave very fair results. But my great success has been in following my own ideas, and keeping things shut up. I have an easterly exposure for my Case, and allow the sun to shine on it three or four hours in the morning. Mr. Warren says to raise the top if the moisture becomes excessive: this he has to do if he uses ventilation. But, with an air-tight Case, no fears need be enter-

tained of an *over-supply* of moisture, as there can be *none* while the air in the Case does not come in contact with that outside. I never put my plants in pots, but directly into the earth, thus giving them room enough for the growth of their roots, and get large specimens thereby. I always give my friends instructions to keep their Cases shut up tight; and they say that it succeeds better than opening does. This is a subject that can be talked upon for a long time; but, in making these remarks, I do so for the instruction of those who read your Magazine, and are interested in the subject. Having experimented considerably in this matter, and had good success, I cannot but think that those who have, or are about to have, fern Cases, will find it more successful and certainly less expensive to do without ventilation. *F. L. L., Jun.*

Boston, Mass.

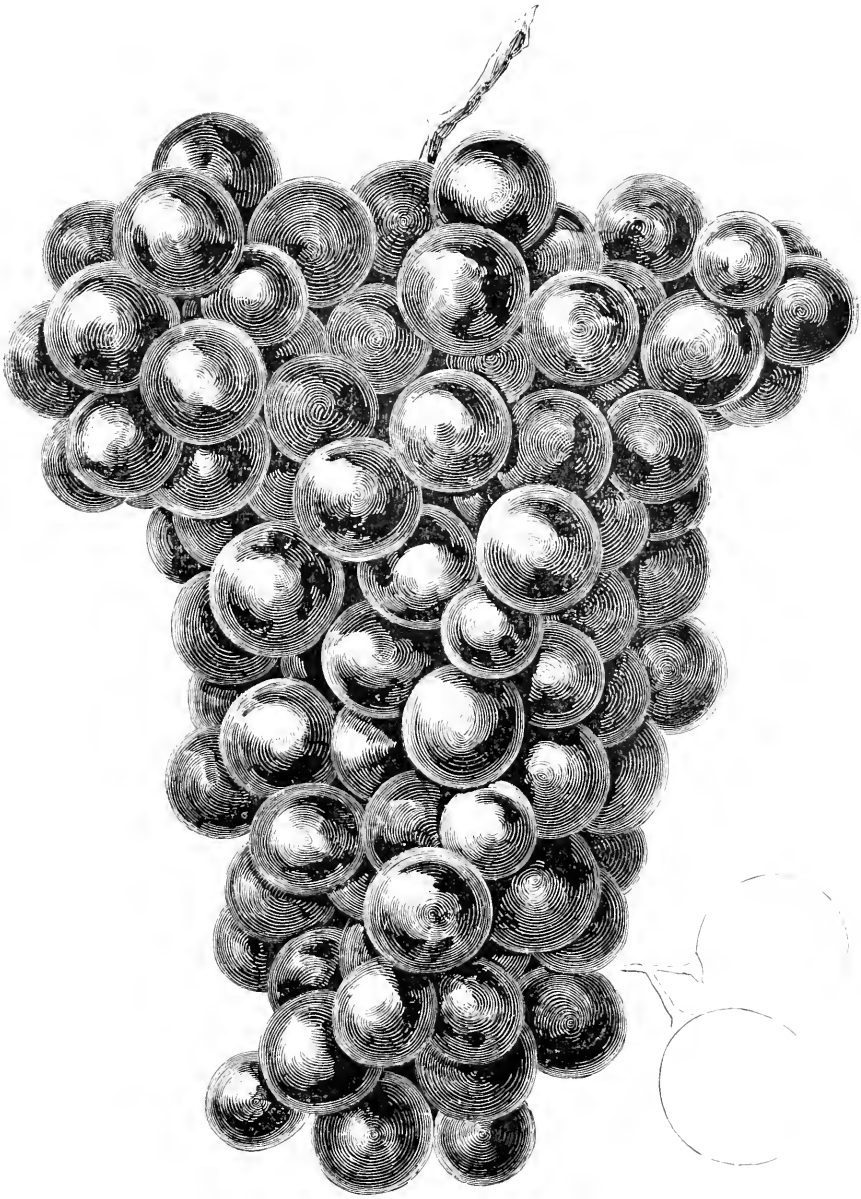
[Our own experience is in favor of slight ventilation. With ferns and lycopodia, very little, if any, is required; but, to keep flowering-plants in good condition, ventilation is essential. Mr. Warren uses his Case almost entirely as a parlor conservatory; and, for such, his treatment is most successful. — Eds.]

DIANA HAMBURG GRAPE.

This new variety, which we have figured on a reduced scale, was originated by Mr. Jacob Moore of Rochester, N.Y.; and is said to be a cross between the Diana and Black Hamburg. The bunch from which our drawing was made weighed seventeen ounces, and was nearly or quite ripe, though the past season has been an extremely unfavorable one for all outdoor grapes. The bunches are generally large, sufficiently compact, well shouldered; the berries are good size, slightly oval, of a rich fiery-red color when fully ripe; flavor very sweet and rich; flesh tender, equal to many of the finer foreign sorts.

The vine is said to be a slow grower, with short-jointed, firm wood; leaves of medium size, crimped, and sometimes rolled in. Not so early as the Concord, but ripens before its parent, the Diana. We have not fruited it,

and can only judge of it from its general appearance as it has been sent



to us. It seems well worthy of a trial.

SUCCESSION OF SMALL FRUITS.

MUCH has been written on the value and use of fruit as food; but still it is evident that only a small proportion of our people practically understand the subject. How few we find, even among families possessing what are called good gardens, who enjoy any thing like a *constant supply* of fruits for the table throughout the entire season of warm weather! The consequence is, in most cases, the children are indulged quite freely in the use of strawberries, cherries, or whatever fruit may chance to be abundant for a time, and then deprived of it entirely, for weeks, perhaps, in hot weather, and supplied abundantly again when another kind comes into season; but, of course, the health of a family is more likely to be injured than benefited by such use of fruit.

Having been engaged in fruit-growing, more or less, for the past ten years, with a goodly number of thrifty "olive-plants" in my domestic nursery, I can testify, from happy experience, to the healthfulness and economic advantage of the constant use of fruit as a part of the daily food for the family during the summer and autumn months; and, for the benefit of the inexperienced who have not the advantage of orchards, I will give a few hints on the means of securing a succession of what are called *small fruits*, in distinction from those grown on trees.

Strawberries, of course, come first in order. With a little care in selecting varieties, and skill in their cultivation, a supply of this most wholesome and desirable fruit may be had, in ordinary seasons, for full four weeks, or the entire month of June, in Ohio. Among the early varieties of strawberries, there is not much difference between several of the well-known sorts. The Metcalf Seedling is one of the best I have tried. The handsomest and best for medium and late is the Jucunda, or "700" of Mr. Knox; though I have seen on his grounds fine berries a few days later, called Kitley's Goliath.

Raspberries occupy the month of July. They begin to ripen before strawberries are quite done, and continue till currants and blackberries come in. This fruit is quite popular with most families, and is better for preserving than strawberries; but we do not consider it as valuable or wholesome as

strawberries or currants. A row or two of the Kirtland or the Philadelphia (perhaps the Clarke will prove better), and as many of the Doolittle and the Miami Black-caps, are all that I should deem important; though the season can be prolonged into autumn by the use of the Ohio Everbearing, or a seedling of it raised by Mr. H. B. Lum of Sandusky, O.

The *Currant* is a favorite with my family: and I am convinced that only few persons know any thing of the excellence of this fruit when *well grown* and fully ripe; for such is very seldom seen in our markets, or in the gardens of our acquaintances. The opinion has long prevailed that currants will grow anywhere without care or culture, and that the varieties are all just about alike; and this false notion has brought the fruit into such poor condition and repute, that there is very little demand for it in the markets, or taste for it among the people, when any other fruit can be had. But let any man read and put in practice the directions of Mr. Fuller in his excellent work on "Small Fruits," and then, with the Versaillaise and White-Grape varieties, he will produce such currants as will astonish and delight his wife and children, and command a high price in the market if he has any surplus. On a deep, rich, and rather moist soil (but not wet), the currant will hold its fruit in fine condition for several weeks after ripening, and with marked improvement in flavor, forming a most agreeable and refreshing dish for the table during the heated term of July and early August. The objection made by economical housekeepers, that currants require too much sugar for table use, is a mistaken one; for it is known that sugar itself is a wholesome and nutritious article of diet, especially for children, and, when used with other food, contains more nutriment, and costs less per pound, than butcher's meat.

Blackberries are now generally grown in all gardens of considerable size, besides being abundant in the fields and woods in most parts of our country: hence this fruit is an important staple in our succession. With good cultivation on deep and moist soil, the crop may be prolonged to the first of September, or till the earliest grapes are ripe. But, as this is the time when melons and tomatoes are in season, it is not a great evil if there happens to be a slight break in the succession, especially as most people can draw on their neighbors, if not on their own trees, for a few peaches or apples at this season. The Wilson Blackberry is an important acquisition for its earliness, and the Kittatinny is the best for the main crop.

Grapes are the latest and the best of all the garden fruits, the crowning gift of a bountiful Providence to those who follow the occupation selected by the all-wise Creator as best suited to man. No other fruit affords so much wholesome nutriment, and is so generally relished by old and young, as good, well-ripened grapes ; and where such varieties as the Delaware, Iona, and Diana, can be successfully grown, this fruit ought to be furnished in abundance for the table during the entire three months of autumn. The Diana can be kept in good condition till Christmas if desired.

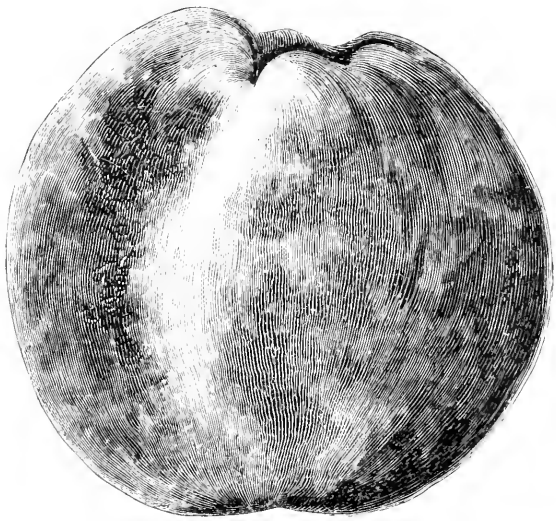
M. B. Batcham.

Leaf-Mould. — The leaves should be laid in a heap, not very thickly ; and, being left a few months, they will have decomposed sufficiently to be used for mixing with soil as compost for plants. If turned over occasionally, they will decompose more rapidly, and still more speedily if a little loam is mixed with them at each turning. Leaves at the end of twelve months are usually sufficiently decomposed for potting-purposes ; but they are not thoroughly so until the second year. For bedding-plants, the compost should consist of two-thirds loam and one-third leaf-mould. Leaf-mould is too open, and becomes too close and saturated, owing to the frequent waterings, to be employed alone.

Marigolds. — There are no more useful flowers for autumn-blooming. The early frosts affect them but little ; and they are bright and gay long after the dahlias, heliotropes, and salvias are black and withered. The French are better than the African, and seem to stand more frost ; the English is more hardy, but less showy ; and the new dwarf (*Tagetes signata pumila*) is best of all. Though their strong smell is disagreeable to many, yet it is only perceived when the plant is rubbed ; and the flowers last for many weeks in water, preserving their colors perfectly, and may thus be kept in the house long after the frost has destroyed them in the garden.

VAN ZANDT'S SUPERB.

We give an engraving of this excellent peach, which, though not new, is not much known or appreciated in parts of the country where this fruit succeeds well. It is one of the very best of dessert peaches; while it is very bright colored and handsome, not surpassed by any other of the white-fleshed varieties. It is an American sort; having been raised at Flushing,



L.I., by Mr. Van Zandt. The fruit is of medium size, roundish, with a rather slight suture (sometimes one-half of the peach is larger than the other); the skin is whitish, but beautifully marked and dotted with red, the sunny side being very brilliant; flesh melting and firm, sweet and delicious; freestone; time of ripening, early in September.

Covering for Strawberries. — Many of the best cultivators use coarse straw horse-manure; but care must be used not to smother the plants. We have used coarse meadow-hay to excellent advantage.

OLD AND NEW HOMES.

CHAPTER III.

New Work. — Strawberries. — Raspberries. — Peaches. — Blackberries. — Cultivation. — The Weeds. — New Theories. — Raising Truck. — Indoor Improvements. — Our Advantages, Social and Literary.

VERY soon there came on busy days for all of us, as well for the women in doors as for the men without. The farm-work must be first attended to, as the season was already far advanced, and much of the summer's profit would depend on the labors of the next few weeks. The early pease were up in some of our fields; and the outgoing occupant had left us hot-beds already made up, and planted with those tropical favorites, the egg-plant and tomato, while in others the sweet-potato was sprouting finely. Then, as I afterwards discovered, our farm was well stocked with fruit; and there was a large field of strawberries to be looked after. It seemed to me a great thing indeed; for there must have been ten acres of it, — more strawberries in a single field than I had seen in all New England. But it was only a fraction of what we subsequently learned our neighbors were doing, as some of them were cultivating as many as forty acres of the same fruit. There was also a large field of raspberries, — the common "Purple Cane;" and an acre of that recently-discovered favorite, the "Philadelphia." From all these, the late tenant had forgotten to remove the last year's canes; and here was a new job of work such as a careful fruit-grower will invariably despatch as quickly as he can after the crop has been gathered.

Then there was a great peach-orchard of I never knew how many trees. Sound and thrifty they all looked; for the buds were already swollen, and showed plainly the bright red-and-white of the unfolding blossoms. But that solitary enemy of the peach-tree, the *borer*, had been permitted all winter to depredate upon their roots, and must now be taken out. The gum oozed away from the butts of one-half the trees, showing that no time was to be lost in exterminating the enemy. It was a great task to go over all the trees of a large orchard, and perform this indispensable operation; but my father had left his Northern grain and grass farm to practise fruit-growing, and felt inclined to neglect no precaution necessary to success. This

done, there was still another call upon him. A field of blackberries was to be cleared of the last year's canes. But, if all this labor was to be done, it carried with it the evidence that the farm was abundantly stocked with productive fruit, the harvest-time for which would soon come round.

The owner from whom he had purchased, while setting forth the value of these established fruits, had frankly warned him that they all required labor, attention, and care, without which no profitable results could be expected. I remember hearing him say, that though the soil of New Jersey was probably the best in the world for horticultural pursuits, yet we must not suppose the whole work done when the plant or tree had been set out: on the contrary, there was manure to be applied here to fruit, just as everywhere else to grain; then labor, watchfulness, and skill; and that these, under Providence, were the conditions of success. It was to secure such a farm as this, so well supplied with fruit, that my father had consented to take the shabby house to which he had brought us.

Both the raspberries and blackberries, following the universal practice here, had been cut down to about four feet from the ground. This gave such strength to the canes, that they required no staking. Neither had any plant or vine been laid down, and covered from the winter, so different is the climate here from that of Connecticut; yet every one came out untouched by frost. My brother then ran between the rows with the plough and cultivator; and, when he had finished his job, I began myself to feel a slight touch of horticultural fervor, so perfectly clean and beautiful did that raspberry-field look to the eye.

"Now, sister," said he to me (for I was standing by when he had finished), "if we could only bargain that the weeds wouldn't grow, what an easy summer we should have!"

But I could not say much in reply; for I knew very little about the weeds, or how to grow or not to grow them.

I am sure it must be a great labor to take care of ten acres of strawberries, even for those who thoroughly understand the business. But here was my father, who had never raised any, with a great undertaking on his hands, and with very little knowledge of his duties. He therefore called on two or three of the neighbors to know what he had better do. The answer was, to do *nothing* until after the crop had been gathered, as that was the

universal practice about here, where strawberries were raised in large quantities. But there was the great field looking very foul with dead grass and weeds, so thick as nearly to smother the plants. They told him that the grass and weeds were good things, — they acted as a mulch, keeping the plants warm in winter, and the fruit clean at picking-time. We all thought it strange advice; but they assured us it was the universal practice with strawberry-men in New Jersey. So, thinking these folks who had grown strawberries must know more than we who had never grown any, we did as they recommended, and let the beds alone. Still it went very much against my brother's judgment. He had been reading extensively about raising strawberries, and thought the rows ought to be cleaned up; but my father was disposed to take the advice of our more experienced neighbors, and see what the season would bring forth. At all events, we got rid of the long and tiresome job which cleaning up the field would have made for us.

But, if we saved ourselves this particular piece of work, there was enough else to attend to, especially as this was our first year at an entirely new branch of farming. The remainder of the land was planted with pease, potatoes, beans, squashes, sweet-corn, cucumbers, with egg-plants, tomatoes, and sweet-potatoes from the hot-beds. These vegetables are known here under the general name of "truck." It was a busy life; for all these things needed constant attention, particularly to overcome the weeds, of which I heard a perpetual complaint. There were some varieties of these pests, quite new to us; but then we missed a few of the old Connecticut nuisances, which we had never been able to conquer. But, if the weeds grew thus provokingly, so the regular crops flourished quite as encouragingly. Had I taken any personal share in these operations, I could write more in detail; but, being only a chance observer, I am obliged to confine myself to what I saw and heard.

While all was working well on the farm, and my father and brother, with a hired man, and pair of horses, were busily employed in the preliminary steps toward making a garden of the land which a few weeks before had looked so unpromising to our unaccustomed eyes, we (my mother and myself) had also been busy within doors. The old house, badly planned and inconvenient though it was, had been changed considerably by our judicious management; and, with the aid of a carpenter, sundry additions had been

made which seemed indispensable to one's comfort. We had very many other improvements in prospect of a more extensive character, which were only postponed until the end of the season, when we could estimate our profits, and proceed accordingly. A coat of whitewash had, however, changed the appearance of the house considerably; and the paling fence before the entrance was likewise radiant with the same beautifier. Then, in order to gain time, there was a double row of young grape-vines, as a border, lining the path from the road to the house, which would hereafter form an arbor of lovely shade over the trellis that should be prepared in good time. Inside the house, we had put up nice curtains to the windows; and our carpets looked certainly as handsomely on these floors as they ever did at the former homestead; whilst the familiar furniture made it seem sometimes difficult to realize that we had ever travelled so far from our native place. The novelty of our new location was fast disappearing. We were becoming real Jersey-men, more particularly as we found that numerous New-England families were settled near us. The mails brought us our old papers, and the friends we had left behind had not entirely forgotten us. Our neighbors were kind and sociable; and, as we endeavored to adapt ourselves to our new circumstances, we soon became accustomed to the change. Thus, with a disposition to be pleased, we had really but a limited number of disagreements to reconcile.

Propagating Cerastium tomentosum. — The best method is to put in cuttings of the last year's growth at the end of April, or early in May, two or three together where wanted, inserting them so that they may be two-thirds covered by the soil. They should be put in in little tufts, or two or three branches together, about six inches apart from plant to plant or from tuft to tuft. They make a splendid edging by July. Cuttings strike freely if inserted in sand, and placed in a cold frame or shady border, and more quickly if placed in a mild hot-bed. The plant is easy of propagation by division.

THE APPLE-WORM AND THE APPLE-MAGGOT.

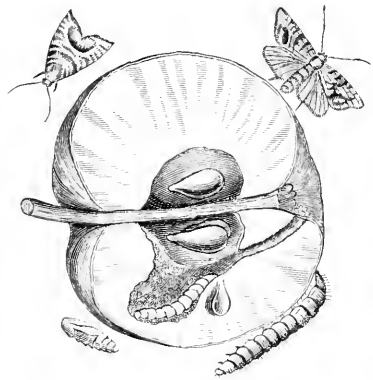
Carpocapsa pomonella (Linnæus); *Trypeta pomonella* (new species).

THESE are two very destructive larvæ, which burrow into the flesh of the apple, so as to render it not only unsightly, but absolutely distasteful. The first of these, the apple-worm, was originally, like almost all our worst insect foes, imported from Europe; though it has gradually spread westward, till it now infests nearly the whole northern half of the Valley of the Mississippi. The second larva, the apple-maggot, is a native-American species, and breeds naturally in our wild haws and crabs, but, within the last few years, has been noticed to attack the cultivated apple in Massachusetts, in Connecticut, in New York, and probably in Vermont also. What is very remarkable, although the very same species exists, to my personal knowledge, in Illinois (for I bred it myself there many years ago from haws, or thorn-apples as they are sometimes called), yet it has not, as yet, been ascertained to attack cultivated fruit anywhere in the West. It would seem as if, in this as in many other cases, it is only a local race of the species that has acquired the habit of attacking tame and imported instead of wild and indigenous species of plants; and that this race transmits to its descendants, by the law of inheritance, the peculiar habits which it has itself incidentally acquired. Thus the habit of pointing game in the field, which is clearly an acquired and not a natural habit, is often transmitted by inheritance to young pointer puppies, without any artificial breaking or training whatever. On no other supposition than the above does it seem possible to account for the fact that the very same species of insects exists both in the East and in the West, and yet attacks the cultivated apple only in a certain limited region, even in the East; for, according to Dr. Trimble, "this new and formidable enemy of the apple is found in the Hudson-river country, but has not yet reached New Jersey." *

If these views be correct, we may anticipate that the apple-maggot will gradually spread westward, till, in some twenty or thirty years' time, it becomes as great a pest in the Valley of the Mississippi as it now is in New England and New York.

* New-York Semi-weekly Tribune, July 19, 1867.

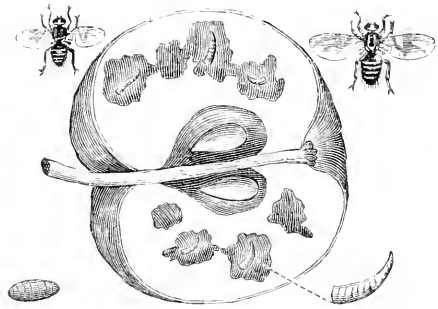
The annexed figure exhibits an apple which has been excavated and preyed on by the common apple-worm, or larva, of the codling-moth (*Carpocapsa pomonella*).



On the right hand below is seen one of these larvæ full grown, and placed in such a position as to show to the eye at once that it has sixteen legs; namely, six true or jointed legs in front, and ten sham legs or "prolegs" behind. On the left hand below is the pupa, or chrysalis, of the same insect; and above will be seen the perfect-winged moth, the right-hand specimen with its wings expanded for flight, the left-hand one with its wings closed.

Now look at the following drawings of the apple-maggot in all its stages, where the larva, pupa, and perfect-winged state of this insect are represented in corresponding positions, — all, except the left-hand specimen above, being considerably magnified, — and it will be seen at a glance that the apple-worm is an entirely different insect from the apple-maggot. The first is a sixteen-legged worm, or "caterpillar" as entomologists would call it: the second is a legless maggot. The first produces a four-winged moth, or "miller," belonging to the order *Lepidoptera*, which includes the butterflies, the hawk-moths or humming-bird moths, and the vast host of the true moths: the second produces a two-winged fly belonging to the order *Diptera*, which comprises all kinds of mosquitoes, gnats, gallinippers or daddy-longlegs, house-flies, horse-flies, bot-flies, &c. Even the pupæ of these two insects are entirely distinct: for that of the first shows the wings of the future moth, soldered indeed to the side of the body, but still plainly visible;

while that of the second is what is technically termed a "coarctate" pupa,—that is to say, instead of the larva moulting its skin to assume the pupa state, the larval skin is retained whole and unbroken, although greatly contracted in length by the pupa, so that the true pupa can only be seen by



dissecting away the shrunken skin of the larva. The little elongate-oval, mahogany-brown bodies that we often see in cheeses infested by the common cheese-fly (*Piophila casei*), afford a familiar example of this peculiar kind of pupa; and any one may easily satisfy himself that they are really the pupæ of the cheese-fly by enclosing a few of them for a few days in a vial till the perfect fly comes out from them.

But not only is the apple-worm structurally distinct from the apple-maggot, but the habits of the two insects differ very remarkably. The former comes out from the pupa in the perfect or winged state quite early in the summer, or about as soon as the young apples are the size of hazel-nuts: the latter does not come out till the middle and latter end of July. Hence apple-worms are commonly met with in June, but apple-maggots never till August and September. Again: in one and the same year, there are two successive broods of the apple-worm moth; the first coming out in June from pupæ which have lived in that state through the winter, and the second coming out about the latter part of July from larvæ generated in June by the first brood. On the contrary, in one and the same year, there is but one brood of apple-maggots, which is generated by the flies that come out in July, and never transforms into the fly-state the same season. Furthermore, the apple-worm spins a slight silken cocoon above ground; while the apple-maggot spins no cocoon at all, and burrows under ground to pass into

the pupa state, remaining under the surface of the earth, without eating any thing, all through the winter and until the middle of the following summer. Even the modes in which the two larvæ operate upon the infested fruit differ somewhat: for the apple-worm burrows chiefly in the core of the apple, though it often attacks the external flesh as well; while the apple-maggot, so far as I can find out, never attacks the core, and burrows exclusively in the external flesh, forming there brown, discolored, irregular excavations about the size of a pea, and often running one into another.

In the winter of 1866–7, I received specimens of the apple-maggot, some in the larva and some in the pupa state,—first, from the editor of "The Circular" of the Oneida Community, published at Wallingford, Conn.; second, from Mr. Isaac Hicks of Long Island, N.Y.; and, third, from Mr. W. C. Fish of East Falmouth, Mass. They were all placed in moist sand; and they all, in July, 1867, produced the same fly which has been figured above. The following account of the operations of the larva is copied from "The Circular" of Nov. 12, 1866:—

"Two months ago, we were congratulating ourselves on a fair crop of winter-apples. To all appearance, they were freer from worms than we had known them in this section for years. But, alas! our hopes are again blasted. Although the *apple-worm* (the larva of the codling-moth, *Carpocapsa pomonella*) is not so numerous as in some seasons, the *apple-maggot* seems to be as prolific as ever. Two weeks ago, we overhauled two hundred and fifty bushels of apples that we had gathered and placed in store for winter use; and of that number we threw out fifty bushels, most of which had been rendered worthless, except for cider or hogs, by one or the other of the above-named insects; and still the work of destruction goes on. The apple-worm, by this time, has ceased his work, or nearly so; but the depredations of the apple-maggot continue up to the present time, converting the pulp of the apple into a mere honeycomb, and rendering another overhauling soon indispensable."

In December, 1866, Mr. Fish wrote to me as follows of the apple-maggot:—

"This insect is very numerous in this section of the country, being much more abundant in the thin-skinned summer and fall apples than in the later varieties. It seems to increase every year. Within a few rods of the house

in which I am writing stand five or six trees of the old-fashioned variety called high-top or summer-sweets. On these trees the crop of apples is annually rendered worthless by this insect, which tunnels the fruit in all directions. Apples which, when taken from the tree, appeared sound, would, in the course of a few weeks, as soon as they became mellow, be found to be alive with these pests, sometimes to the number of six or more in each apple, although not commonly as many as that. I have found, that, in most cases, the fruit had been previously perforated by the larva of the apple-worm moth (*Carpocapsa pomonella*) before becoming inhabited by this insect."

It is probably of this same apple-maggot that Mr. Calvin Ward of Vermont speaks, as "boring his apples in all directions, and doing more injury to him than all other insects combined; having, in 1865, injured his apples to the extent of one-half their value, but in 1866 not having been so bad as in the preceding year."* Having, however, failed to receive any specimens from this gentleman, I cannot be certain of the fact; but that the true, genuine apple-maggot infests Massachusetts, Connecticut, and New York, I have the best possible evidence in the reception of the insect itself from those three States.

This apple-maggot fly must be carefully distinguished from another two-winged fly, which has been described by Dr. Fitch as the apple-midge (*Molobrus mali*), and the larva of which, according to that author, operates upon the pulp of apples much in the same manner as our insect. Instead of being in any wise related to each other, these two species actually belong to different subdivisions of the great order of two-winged flies (*Diptera*); the apple-midge appertaining to the group which has a pupa of the ordinary structure, and the apple-maggot to that which has the so-called "coarctate" pupa.

I know of no available means to check the depredations of this little pest but catching and destroying the winged flies that lay the eggs from which there afterwards hatch out the minute maggots that eventually burrow into the pulp of the apple. Luckily for the fruit-grower, the fly itself is marked in so very conspicuous and peculiar a manner, that it can be readily recognized by any one who has seen the figures given above; and,

* See the "Answer" to Mr. Ward in "The Practical Entomologist," vol. ii. pp. 20, 21. Mr. Ward's larva may possibly be that of Dr. Fitch's apple-midge, which will be subsequently referred to in the text.

as already stated, it may be expected to make its first appearance about the middle of July. About this time, therefore, it would be well to keep a careful lookout for it.

It only remains, as this appears to be a species hitherto unknown to science, to give a brief description of it in a footnote, so that, for the future, it may be scientifically recognizable. Of the genus *Trypeta*, there are forty-two described species found in North America;* and from all of these it differs essentially, though it comes pretty near to the *Trypeta cingulata* of Low. I may add, that Baron Osten Sachen, to whom I have forwarded a specimen, agrees with me in referring the species to the genus *Trypeta*.†

Benjamin D. Walsh.

* See Low's Dipt., N. A., pp. 64–102.

† TRYPETA POMONELLA, new species. — *Head* rust-red; eyes and all the bristles black; front edge of the face and hind orbit of the eye more or less tinged with white. *Thorax* shining black: a humeral fillet, and all but the extreme base of the scutel, white; on each side of the thorax, above, a gray fillet, opaque, with short, dense, gray pubescence. *Abdomen* black, pubescent; top edge of the four basal segments white above, — beneath, except the tip and a more or less distinct medial fillet, dull rust-red; oviduct short. *Legs* pale rust-red; four hind thighs, except the knees, black; tips of the four hind tarsi, and sometimes the front thighs, tinged with dusky. *Wings* whitish-glassy, banded with dusky, somewhat in the form of the letters IF, — the I placed next the base of the wing, and its lower end uniting rather indistinctly with the lower end of the F; the base and extreme tip of the wing being always glassy. Length of body, from fifteen to twenty hundredths of an inch; expanse of wings, from thirty to forty-three hundredths of an inch. Six males bred from apple July 15 to 23; two males and one female bred from haws July 23 to 28.

THE LARVA is of a greenish-white color, from fifteen to twenty hundredths of an inch long, and about four and a half times as long as wide, cylindrical behind, with the tail-end squarely docked, tapering in front from the middle of the body to the head. Head pointed, but narrowly emarginate in front; its inferior surface with two slender bluntish coal-black hooks, projecting in front when the mouth is protruded, at the base of which there is a smaller pair connected with the base of the others like the antlers on a stag's horn. At the base of the first segment, behind the head, a dorso-lateral, transverse, pale-brown, flattish, rough tubercle. Last segment below with two pale-brown, horny, rough tubercles, each composed of three minute thorns longitudinally arranged, and above with two whitish retractile ones, each pair of tubercles transversely arranged.

THE PUPA scarcely differs from the larva except in being of a pale yellowish-brown color, and contracted in length so as to approximate to an oval form, and be only two and a half instead of four and a half times as long as wide.

PASSION-FLOWERS.

THERE are few plants of our greenhouses more generally attractive than the passion-flowers. They are mostly natives of Tropical America, though a few are found in Asia. Closely allied, and differing only very slightly, botanically, are the Tacsonias, a small genus, comprising only a few South-American species, which are popularly called passion-flowers, possessing the same general formation, but of even more ornamental character. As an English writer has stated, the name was fancifully applied from the resemblance afforded by the parts of the plant to the instruments of our Lord's passion and its attendant circumstances: thus the three nails, two for the hands, one for the feet, are represented by the stigmas; the five anthers indicate the five wounds; the rays of glory, or, as some say, the crown of thorns, are represented by the rays of the corona; the ten parts of the perianth represent the apostles, two of them absent, — Peter who denied, and Judas who betrayed, our Lord; and the wicked hands of his persecutors are seen in the digitate leaves of the plant and the scourges in the tendrils.

There are many species cultivated, not only for the beauty of the flowers, but in some cases for the fruit, which, in many species, is edible.

Most of the family are of a climbing nature, and cling by tendrils; but there are a few of erect habit, without tendrils.

There are more than fifty species, and some hybrid varieties, all of which are ornamental, although differing much in size, color, and profusion of bloom. The foliage is generally ornamental, of clear green; whence the plants are in demand for training up to rafters of the greenhouse, — a situation in which they grow rampantly, often making so dense a shade as to require the free use of the knife.

The blooming season is usually summer and autumn; though most of the species may be had in bloom at any season by the application of heat.

Propagation is readily effected by cuttings of the young wood during summer, which root easily under a bell-glass in sand. The proper soil is peat and loam, and the plants thrive best when planted out in the border of the house. In pots they do not generally succeed, as they are of too rank a growth, and do not bear confinement of the roots.

We have occasionally seen some of the species grown as parlor-plants;

but they are too large, and seldom thrive. All the species require good drainage, and are impatient of standing water.

Passiflora cærulea and its varieties are moderately hardy, and will bloom in summer in the garden, requiring to be laid down and covered with earth during the winter.

The flesh-colored passion-flower (*P. incarnata*) is of semi-herbaceous habit, and sometimes survives the winter if well protected. Most of the remaining species, including all the Tacsonias, are greenhouse or stove plants, alike ornamental for neatness of habit, and profusion of bloom; though some, if bedded out in a warm, sheltered situation, flower freely in the garden during the summer.

Passiflora filamentosa, lutea, pallida, maliformis, edulis, ligularis, ornata, and many others, have edible fruits.

Of these, *P. edulis*, a West-Indian species, fruits very freely in a stove, though the flowers are white, and of no great beauty.

P. maliformis is the sweet-calabash of the West Indies. *P. laurifolia* is the well-known water-lemon, and is of easy culture. *P. quadrangularis* is the Granadilla, which is of not unfrequent occurrence in our greenhouses: the stem is angular, of strong growth, producing a profusion of green, red, and purple flowers, which are followed by fruit about the size of a hen's egg, purple, and filled with juicy pulp and seeds. The flavor is sickish-sweet and peculiar; and fondness for Granadillas is an acquired taste.

The subject of our illustration is properly a Tacsonia, and is a new species recently discovered on the Isthmus of Panama, and sent to the well-known florist, Isaac Buchanan of New York, for whom it is worthily named *Tacsonia Buchanani*. Plants were communicated to Verschaffelt, by whom it was figured in "L'Illustration Horticole," plate 519, from which our figure is taken, as, owing to the plant not being in flower at the present time, we were unable to obtain specimens for illustration.

Mr. Buchanan writes us that the natural color of the flower is far brighter than in Verschaffelt's illustration, "being a very bright scarlet, more so than in any verbena." In habit it is a strong grower, and blooms freely when very young, the young shoots being masses of bloom. Altogether it is a great acquisition.

There is another fine passion-flower which deserves general culture, — *P. Empress Eugénie*, a hybrid between *P. cærulea* and *P. alata* or *edulis*, as it seems to possess some of the characteristics of all these species. It is a

plant of fine habit, freely producing large white and rosy-purple flowers, the stamens being beautifully shaded with blue and purple. The blossoms are less fugitive than those of many species, remaining in perfection several days. We recommend this species for every greenhouse.

The following passion-flowers are the best and most showy for hot-house culture: *Passiflora alata cærulea*, *kermisiana*, *princeps*, *Lernicheziana*, *Loudoni*, *Buonapartea*, *Baraquiniana*, and *quadrangularis*; *Tacsonias lævis*, *manicata*, *Buchanani*, *sanguinea*, and *mollissima*.

GLEN RIDGE, November, 1867. *E. S. R., Jun.*

A FEW WORDS ABOUT GRAPES.

THE season just closing has been, in New England and in many other localities, very unfavorable for the grape-crop. The spring was cold and backward, a dash of winter being perceptible in the air until nearly June. The vines pushed their buds about May 25, — some ten days later than usual; but, as the growth was then very rapid, the time of blossoming was retarded only a day or two. Up to the middle of July, the promise of a large crop was excellent, and the growth perfectly healthy and unusually vigorous. The third quarter of July, which is, on the average, the warmest of the year, was, this season, the coldest week of the summer. A severe north-east storm commenced on the 19th, and lasted several days, depositing over four inches of rain, at a temperature of about fifty-eight degrees, on the heated soil. The effects of this cold rain were apparent in the almost immediate appearance of disease in vines growing in light soils and in exposed situations. Vines on the leeward side of buildings, the roots of which the rain, driven obliquely by the wind, did not reach, were unaffected; also *those growing in clay soils*. The question thus arises, whether, in localities where cold rains are not unusual in midsummer, a heavy soil is not better for the vine than light sands or porous gravel. The causes of rot are quite obvious. It no doubt proceeds from a chill communicated to the roots at a season when growth is rapid. A sandy soil is the quicker; it becomes earlier fit for working, and absorbs heat more readily than a clay:

but, on the other hand, it takes up water with great avidity, and becomes chilled sooner than the latter. To make the matter worse, these cold rains are often preceded and followed by excessive heats: so that when the temporary check to rapid vegetation has passed, and atmospheric conditions are again favorable for its renewal, the roots of the plant do not respond; for the soil recovers its temperature far more slowly than the atmosphere. This non-correspondence, this want of equilibrium between root and foliage in the vine, is, no doubt, the prime cause of rot in its fruit. This being the case, it follows that a clay (which allows much rain to flow off unabsorbed, and parts with its heat with difficulty) will, *cæteris paribus*, agree better with the vine, in a wet, stormy summer, than a more porous soil; for a soil can become chilled in midsummer in no other way than by the absorption of large quantities of cold rain.

Let us now proceed further in our record of the weather. The July storm being followed by sultry heats, mildew was quite prevalent prior to Aug. 1. Seven inches of rain fell in July. On Aug. 2, a severe northeast gale, with three and a half inches of rain. The prevailing weather in August was warm and cloudy, with great excess of rain: over nine inches fell. The results of this unfavorable weather have been almost utter devastation by rot in some varieties, and the appearance of mildew in nearly all; though some have suffered far worse than others. On the 1st of September, the crop seemed likely to prove a total failure; but, since that time, the weather has been very fine and dry, and many varieties have ripened. Up to this date (Oct. 10), there has been no frost to injure tender plants. The following are a few notes regarding the health and status of some varieties in my collection: —

Rogers 15. — Mildewed badly; lost four-fifths of crop by rot on sandy soils; on clays, fared much better; fruit that escaped now ripe.

R. 19. — Mildewed considerably; no rot; fruit nearly ripe on vines having sufficient foliage.

R. 4. — Mildewed less than preceding. Of four vines in a row, two rotted, and two entirely escaped. Fruit partially ripe, and very large and handsome. This grape needs a warm, dry summer to perfect it.

R. 33. — Wholly destroyed by rot and mildew.

R. 43. — No rot, and very little mildew; fruit nearly ripe and fine.

R. 3. — Mildewed somewhat, but fruit ripened thoroughly.

R. 30. — Healthy; strong growth; fruit nearly ripe, and fine flavored.

R. 1. — No mildew or rot; fruit sweet and partly ripe; altogether too late for this latitude; will do where Catawba ripens; fine for fruit and wine.

R. Salem. — No mildew; strong growth; well ripened; not fruited.

Concord. — Mildewed badly, and lost half a crop by rot; nearly ripe.

Hartford Prolific. — Some mildew; ripened a heavy crop of large, handsome bunches. A safe grape: pity the quality is no better.

Adirondack. — Considerable mildew, but ripened a fair crop Sept. 25; fruit sweet and good, but without much character.

Allen's Hybrid. — Mildewed, fruit and foliage; a total failure.

Delaware. — Much mildew, and a little rot; fruit not yet ripe.

Martha. — Strong growth, and very little mildew; not fruited.

Iona. — Healthy; strong growth; not fruited.

Moore's Diana Hamburg. — Good growth; lost every leaf by mildew.

Creveling. — Some mildew, but fruit about ripe; no rot.

Clinton. — As always, entirely healthy. From this variety, or its congeners, a choice and healthy class should arise by proper amelioration or hybridization. The success of the Rogers with the Mammoth Globe is a fine example of the power of foreign pollen over the toughest specimens of the Labrusca. In the Clinton, and grapes of its class, we have no bad flavor to contend with; only excess of acid. I have three of Arnold's Clinton Hybrids in my collection, — Nos. 2, 5, and 16, all small vines. No. 2 has been perfectly healthy, and made a strong growth: it very closely resembles Clinton in foliage. Nos. 5 and 16, on the contrary, show a very foreign leaf, and have suffered somewhat from mildew.

Thus ends the unpleasant record. Lessons like the present, though productive of much disappointment to the expectant horticulturist, afford us a ready means of distinguishing a few valuable kinds among the general mass. The time of ripening appears to depend more on the health of the foliage than on the variety: indeed, as regards some grapes, it has not yet been determined whether they are early or late. Moreover, the prevailing

clearness or cloudiness of the sky greatly influences the time of ripening. The rich juices of the grape are not dependent on heat alone for their elaboration ; light plays an equal if not more important part : so that in a cool, dry summer, when clear skies are the rule, grapes will be much sweeter and ripen earlier than in a cloudy, damp season, although the latter may be above the average temperature.

Apropos of grapes : a Hartford Prolific vine in my possession has produced this season eight clusters from a single bud. The shoot proceeding from this bud, in May, forked at the first leaf, about two inches from the main branch ; and each division produced four well-formed clusters of average size : they were all allowed to remain, and have ripened perfectly. I mention this fact in the hope that some among the readers of this Journal may have seen or heard the like : if so, I beg they will publish the description. As far as my knowledge goes, the case is very unusual, if not quite unique. It is not probable, that, on an undivided shoot, six clusters could be exceeded. *D. M. Balch.*

Oct. 10, 1867.

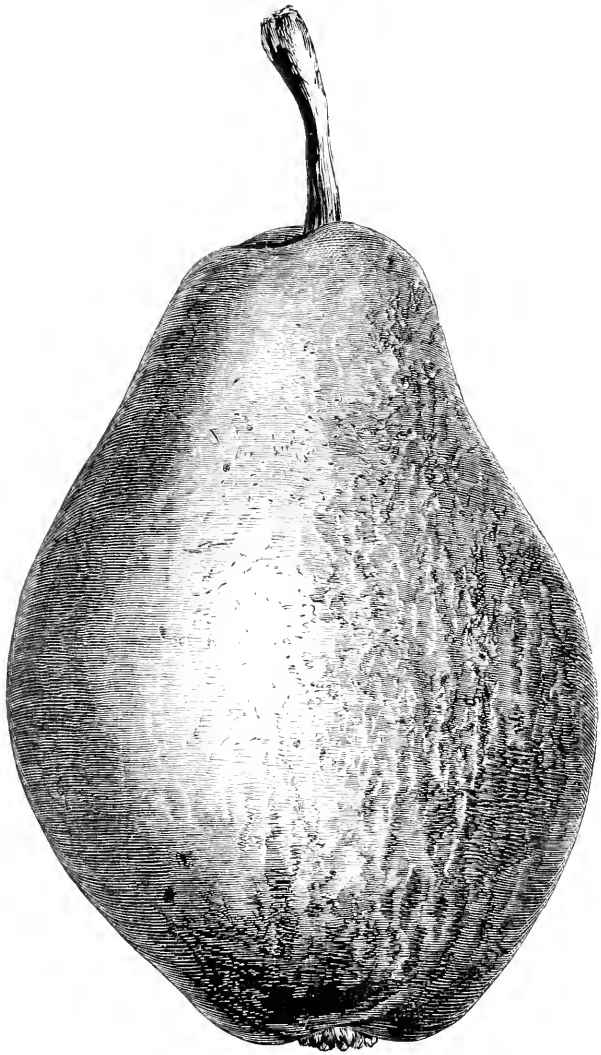
Fringed Gentian. — This loveliest of autumn flowers is invaluable for parlor decoration. If the plant be gathered just as the first flowers expand, and put in water in a light, airy place, every bud will expand into a lovely blue flower. The only care is to keep the glass filled with fresh water. As one plant not unfrequently has from twenty to fifty buds in different stages of development, it lasts in perfection a long time, — often a month or more.

Magnolias. — The following kinds may be considered hardy enough to stand a New-England winter : *Glauca*, *acuminata*, *tripetala* or *umbellata*, *auriculata* or *Fraseri*, *cordata*, *macrophylla* (precariously hardy), *conspicua*, *Soulargiana*, and the many hybrids between these two, — *Thompsoniana*, *purpurea* (after the plants are well established), *glauca longifolia*, and the varieties of *purpurea* subject to the same limitation as the species.

M. Lenne has not yet been fully tested, but is probably hardy.

CLAPP'S FAVORITE.

Size large, three and a half to four inches in height by two and a half



to three inches in diameter; form obovate-pyriform, narrowing towards

the stem ; surface a little uneven, and in this respect, and its formation at the crown, resembles the Bartlett ; stem rather short and stout, generally inserted without cavity ; calyx not large, closed, set in a shallow, small plaited basin ; color yellowish-green, with dull-red cheek, becoming clear yellow with crimson cheek at maturity ; flesh greenish-white, fine-grained, melting, very juicy and buttery ; flavor pleasant, sprightly, refreshing, with a delicate perfume, free from musk ; maturity, last of August, but should be gathered about the 20th of the month, and house-ripened ; quality very good ; one of the handsomest pears in cultivation. The tree is hardy, healthy, vigorous, and productive, persistent both in fruit and foliage, and possesses all the characteristics of a first-rate variety.

The Clapp's Favorite was raised from seed by the late Thaddeus Clapp of Dorchester, Mass. ; and from the resemblance of the wood and foliage to the Flemish Beauty, and of the fruit to the Bartlett, it is probably a cross of these varieties. As an early, large fruit, it is one of the best acquisitions of our day. *Marshall P. Wilder.*

Definition of Zonal and Nosegay Pelargoniums. — The name Zonal was given a few years ago to that particular section of pelargoniums to distinguish it from others. They were all called "scarlet geraniums;" which did not truly express what was meant, as there are so many shades of color in the flowers of that class ; and it would be absolutely incorrect so to call Madame Vaucher, which has a pure white flower. Almost the whole of this family have a zone on the leaf, though sometimes faintly developed : hence the old-fashioned name of "horseshoe" geranium. The word "Zonal" at once conveys to the mind the particular section of pelargoniums of which we may be speaking. A nosegay pelargonium is a Zonal in every sense of the word ; the leaves are generally marked with a zone : and then a nosegay differs only from other Zonals in the form of its flowers, the petals of which are narrow and long, and the three front petals wide apart from the two at back : the trusses are much larger than the usual size, and are more enduring under rain or hot weather. Nosegay stella and the variety called Punch, or Tom Thumb, are respectively good examples of a nosegay and the large-flowering Zonals.

FAILURE OF THE APPLE-CROP IN NEW ENGLAND.

In some parts of the country, the crop of apples has been almost a failure for several years past. This crop, that was formerly regarded as one of the most certain, has now become quite unreliable. Formerly the markets were glutted with this fruit, many farmers sending them in by hundreds, and, in some instances, by thousands, of barrels; so that the price of even the best ruled quite low: a dollar and a half was considered as an outside price for the best Baldwins, Greenings, and Russets; while, for the past three or four years, the same quality of fruit would command five or six dollars per barrel. Then every wild apple-tree in the woods, pasture, orchard, or roadside, produced its fruit in abundance, from which good cider was made, to be sold for two dollars a barrel or less; while, in many instances, the fruit was not considered worth gathering: now these wild trees are as barren, or nearly so, as the grafted trees; and hence few apples are found to be made into cider, and this article commands a large price. No fruit is so universally esteemed, and so useful for a variety of purposes, as the apple; and its loss is severely felt. The question as to the cause of this failure has been often asked, but seldom or never satisfactorily answered. Nor do we expect to succeed in doing what so many have failed to do; but we propose to examine the reasons that have been given by others, and advance some that we believe will be quite as satisfactory to the public. This failure of the apple-crop has not been universal, but has been confined mostly to the New-England States; New York, and States farther West, furnishing apples enough to supply in part the deficiency. Local causes have operated to some extent, such as canker-worms, caterpillars, and other vermin that have been quite destructive; but this does not alone account for the almost universal failure of the crop. When the foliage has been entirely destroyed for several years in succession, that of itself might be a sufficient explanation of the failure; but when we know that trees or whole orchards even in the same neighborhood, that were partially or wholly protected from the ravages of insects, gave no better results, we must look farther for the cause.

It is true that the trees have sometimes blossomed; and the question

has naturally arisen, Why have they not produced fruit? Of course, there could be no apples when there were no blossoms: but it does not inevitably follow, that, because the trees bloom, there will be a crop of fruit; and the fact is, though there was a full blossom in many orchards last spring, there was little or no fruit.

It has been asserted that the thunder-storms that have occurred when the trees were in blossom have prevented the fruit from setting, and thus the crop was lost. We do not believe in this theory at all, except so far as this, — that if the trees were in full blossom, and a heavy shower, or, what would be worse, a long storm, should come on, and wash out the pollen before the germ had been impregnated, then, of course, the bloom would prove abortive; but it would not be because of the electricity in the air, as some believe.

Thunder-storms are no new invention; for we well remember that many years ago, when apples were as plenty as blackberries in August, we had a greater number of thunder-storms than we have had of late years. Why were not the blossoms destroyed *then* by electricity?

It has been said of late by some unknown writer in a commercial paper, commenting on the failure of the apple-crop in New England, that one if not the chief cause was, that the lands of this part of the country had become exhausted, and were no longer able to produce this fruit. This is entirely without foundation; for many orchards that have been planted on new land just reclaimed from the forest, or virgin soil that has never produced any other crop than that which Nature planted, have shown the same results with the apple. Even the trees that have sprung up spontaneously in choice locations, where the soil has grown richer year by year from the accumulations of leaves and other material, have also failed: while, in some instances, the reverse has been true; a fair crop having been obtained from trees standing in the midst of an old orchard, where, if anywhere, the soil would be exhausted. Again: if this is the true cause, why should it not affect pear and other fruit trees growing in the same soil, and receiving the same treatment?

But it is not true that it does; for each year, while the apple has failed, the pear has been a partial success, and given crops of fruit. Now, all will admit that it requires a good soil to raise good pears, — even better than to raise good apples.

Again: if the soil is too much exhausted to produce one fruit, is it reasonable to suppose that it will produce another that requires a similar soil? Then, if the soil is too much exhausted, why may it not be restored by the liberal application of such manures as are adapted to strengthen the tree, and promote its fruitfulness? Can it not be done, so that even what are called, by the writer before named, worn-out soils, will produce good crops of other fruits? The fact is, that, on some of these very soils so denominated, manure is yearly applied to the value of four, and, in some instances, even six hundred dollars to the acre; and the land produces enormous crops of the small fruits or vegetables, and yet the few apple-trees that may be growing in the same fields have continued barren. With these facts before us, we must look farther for the true cause of failure. It is a well-known fact that the forests have been stripped off, leaving the country quite open, giving the cold, rough winds a wider sweep; so that the orchards of New England do not have the natural protection they once had from the rigor of the winters. Some years ago, we remember, that, during a season following a hard winter, there was a short crop of pears; and yet in an orchard that we visited, that was well protected by buildings, and a high fence, on the west, north, and east sides, there was a good crop of excellent fair fruit. There was no doubt in our mind at the time that this was one of the good results of protection. What was true here is more or less true all over the country.

But there is another and stronger reason that we have to assign for the failure of the apple-crop during the past three or four years. It will be well remembered that we had two extremely dry seasons in succession, — severe droughts, — so that many of the forest-trees died; while every tree and plant suffered for moisture. During these excessive droughts, the apple-trees generally suffered severely, and had all they could do to sustain themselves, without making much wood even; and, the next year, were in no condition to carry a crop, if they blossomed at all. It was noticed that the bloom seemed feeble, and not at all like former times, and dropped off and perished. To sustain this theory, we will give a fact that came under observation during the second dry season. In a sheltered nook of a large orchard stood some Hubbardston Nonesuch apple-trees, that enjoyed the best of protection during the whole year. These trees were

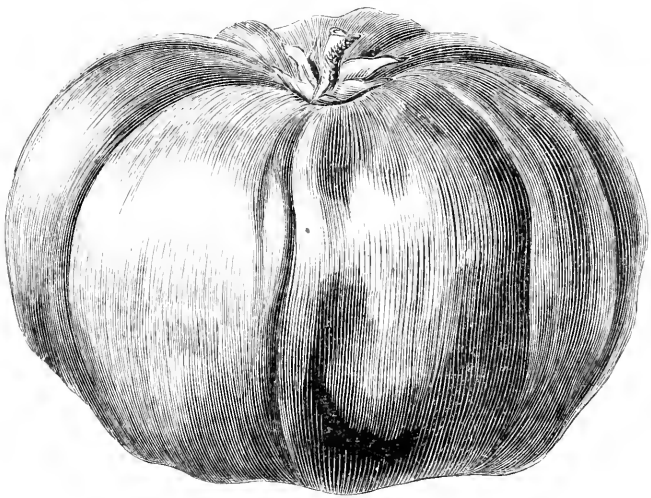
watered several times during the drought of the first dry season, and were kept in a lively and thrifty condition; and the result was, that the next season, while all the trees on the same farm, not so sheltered or so treated, failed to bear fruit, these few trees produced fine crops of most excellent fruit. There seemed to be no cause for this difference beyond what we have assigned. The two years of drought, in our opinion, generally unfitted the apple-trees to produce a crop, because they were so weakened; and time was needed to bring them back to their original or former condition. Two wet years have succeeded the two dry ones; and, during the one just closing, there have been some apples raised, while the trees have been preparing themselves for a crop next year, which, we venture to predict, will be excellent, and nearly or quite equal to former times, except in such localities as are infested with canker-worms. It cannot be denied, that there are more enemies to the apple than formerly, and that, as a general thing, the fruit is not so fair and good. Two enemies, referred to in another article in the Journal for this month, have become very destructive, not only in New England, but in other parts of the country, and threaten to greatly interfere with the successful growing of this important crop. We hope some means may be adopted to head off these and other vermin that prey upon the apple-tree and fruit.

One objection will be brought against the theory that we have advanced, — that, if the drought affected the apple-trees to such an extent, why did it not have the same effect upon the pear-trees? To this we say, It did, when they were equally exposed; and we can point to many trees in our own grounds that have not yet recovered from the effects of the dry weather, and have yielded no fruit since. Then, again, pear-trees are usually planted in better locations and in better soil, and where they have better protection and care. Then, again, the pear does not need so much moisture as the apple tree, and will fail and die on a wet soil where some kinds of apple-trees live and flourish. We are, then, on the whole, constrained to believe that the chief cause of the failure of the apple-crop in New England is the excessive droughts of three and four years ago. We hope this may lead others to give us their views on this subject, so important to orchardists.

THE FOARD TOMATO.

THIS is a new variety introduced the past season, but by whom originated I am unable to say. It was sent out by Mr. Robert Buist, jun., of Philadelphia, as a new tomato, at twenty-five cents a package of twenty-five seeds.

Planted at the same time, and receiving the same care and attention, as the Maupay, it proved to be ten days later than this variety, which in fruit



it closely resembles; although in the foliage and general habit of growth it is quite distinct, and easily distinguished, particularly during the early stages of its growth.

I do not consider it equal to the Maupay, being later, and not so productive. Fruit large; color deep red; flesh solid and well flavored; form, on the average, *below* the Maupay for smoothness and beauty. *C. N. B.*

PIE-PLANT.

RHUBARB, or PIE-PLANT as more commonly called, is one of the most luxuriant of the garden vegetables; starting before the frost is fairly out of the ground in the spring, and yielding an amount which will surprise those who have made no estimates. It is one of the many vegetables which the nineteenth century has added for our comfort, coming to us from Turkey, and working its way to general favor slowly, on account of the prejudice against its medicinal name; the root of the rheum, or rhubarb, being originally known only as part of the *materia medica* of the apothecary. So great was the prejudice against the name of rhubarb, that market-gardeners have generally discarded it, and substituted the more tempting one of pie-plant. The prejudice is entirely groundless, as the experience of half a century has shown it to be one of the most healthful of vegetables; the acid being particularly beneficial to those of bilious tendency, acting much like acid fruits. When Mr. Joseph Myatts first introduced it to the English market, in 1810, he found it difficult to dispose of the product of a few roots: now many acres in the vicinity of every large city are devoted to its cultivation, and the demand is rapidly on the increase. Coming early in May, it fills the vacuum between the fruits of one season and those of another, and is used not only for making pies and tarts, but is an excellent substitute for apple-sauce.

Pie-plant may be propagated both from the seed and the roots. The former is comparatively a slow mode, and is unreliable as to the variety of the product. A division of the roots is no damage to the plant, and is the only sure way of propagating the same variety. Whether cultivated from the seed or the root, a deep, rich, moist soil is essential to its perfect development. The ground should be trenched to the depth of two or three feet, and filled with mould from the forest, chip-manure, or some similar substance, which will keep it light, and retentive of moisture. There is no danger in cultivating too deeply or richly, for the size and tenderness of the leaf-stalks depend much on the rapidity of growth; and the successive croppings which the plant undergoes must make heavy drafts on the soil. The after-culture consists merely in keeping the ground free from weeds,

and in covering the plants every autumn with horse-manure to the depth of three or four inches, which should be forked in as early in the spring as the frost will allow. This will give the plant an early and vigorous start. The distance between the hills should vary with the variety; the smaller kinds requiring at least three feet between the hills, and the mammoth varieties five feet, in which to expand. The seed-stalks must be cut off as soon as they make their appearance, as the production of seed exhausts the soil far more than the growth of the leaf; and, when the seed is allowed to mature, the plant ceases to grow, seemingly conscious that it has accomplished the end of its existence.

As to the varieties, there is no end; and they vary not only in size, but in color, acidity, tenderness, and flavor. Of course, there is only one best; but, as to which is the best, doctors of gardening disagree. With the market-gardener, size and productiveness are the two great requisites; and for him Myatt's Victoria is probably the best, as the leaf-stalks are two to three inches in diameter, and often measure two and a half feet in length, and weigh, divested of the leaf, two pounds. It, however, has a thick skin, is quite acid, and not particularly high flavored. Myatt's Linnæus is very early, not acid, high flavored, and continues crisp and tender till autumn. In these days of apple scarcity, the last quality is a great recommendation; and, for family use, the Linnæus is probably the best variety, though only of medium size. For wine-making, the Cahoon, a large variety, is generally cultivated; though all the varieties, if sufficient sugar is added to the juice, will make a fermented liquor, whether worthy of the name of wine we leave to the connoisseurs to determine. That it is better than most of the manufactured stuff that goes under the name of *wine*, we have no doubt. For cooking, it answers a good purpose. The juice may be pressed out in a common hand cider-mill; or, if such a mill is not to be had, the stalks may be stewed, and the juice pressed through a cloth-strainer. Four pounds of sugar to a gallon of juice is the usual allowance; and the better the sugar, the better the wine. It is a mistake to suppose that unrefined sugar can make a palatable wine with the juice of any fruit. With the vinous fermentation alone, it gives a raw, molasses taste. If the liquid passes through the acetous fermentation, the case is different; and very good vinegar may be made from the juice of the pie-plant, and cheap molasses.

Eight gallons of pie-plant juice, with four of molasses, diluted with twenty of water, will make a barrel of vinegar, with three or four weeks' fermentation in the hot sun of August. To give a good color to the vinegar, add a quart of the juice of red currants or red beets. After apples are ripe enough for pies, there is little demand for pie-plant; and the remaining stalks can be converted to a profitable use in thus making pie-plant vinegar.

Alexander Hyde.

THE FRAMINGHAM GRAPE.

We have fruited this variety for three years past; and we are forced to the conclusion, that the opinion we expressed when we first saw it is correct, — that it is a reproduction of the Hartford Prolific. It very closely resembles it in foliage, wood, bunch, berry, and general habit; so that we defy any person to pick it out in a vineyard of Hartford Prolifics. We do not say it is identical, or that it was not a new seedling, and that the person who introduced it did not act in good faith; but we do say that it so closely resembles the variety we have referred to, that it was entirely useless to introduce it. It has the same bad habit of dropping its fruit that its supposed parent has, and is no better in quality. This year, it failed to ripen well; but it usually matures. It will be wholly forgotten in a few years when we get varieties as early as this, and equal in quality to Iona and Rebecca.

COVERING GRAPES. — There is a difference of opinion as to the expediency of covering the so-called hardy grapes in winter. Many prefer to lay them down on the ground, and cover with soil, as they do their raspberries or blackberries; while others stoutly contend that it is not only no advantage, but a positive harm, to the vines. This depends somewhat upon the winter: if it should prove a favorable one, it would have been better to let them stand up; but if a severe one, when there would be danger of killing the vines, of course the safest way would be to cover. We have practised both ways, sometimes covering all, again a part, and, once in a few years, covering very few; and we incline to the opinion, from our experience, that the safest way, where the winters are severe, is to cover. It is not necessary that it should be done with soil; but evergreen boughs, old rubbish from the barn, hay, straw, any thing that will protect them from the alternations of heat and cold, will answer the purpose. If they are buried in soil, the work should not be done immediately after they have been trimmed; but they should remain exposed some days, that the cuts made in pruning may dry, to prevent their bleeding when lifted the next spring.

CHICKWEED. — This weed is found in great abundance in land that has long been under the plough, and especially in orchards. It grows very quickly, and soon covers the ground. It is a great nuisance, especially in strawberry-beds. The best way, when it has got possession, is to sow the land down to grass for a year or two. If in an orchard, this recommendation may not apply; for it is not a good plan to put it in grass. A good way is to plough late in autumn, and cover it up; then some advantage will be derived from it, as it will decay, and enrich the soil.

Wisconsin Horticultural Exhibitions. — The Annual Exhibition of Wisconsin Fruit-growers has just passed. It was nobly planned, and successfully carried out. The premiums offered were liberal, consisting of silver-ware and books, instead of money, as is customary, — valuable intrinsically, and valuable to keep as happy reminders to those who have successfully competed for the prizes.

The Madison American Horticultural Society opened the week by a show of fruit and flowers in the Assembly Chamber on Tuesday evening.* This is a well-established society, with charter, and funds on hand. In fact, it is upon a firm basis, which enables it to offer valuable premiums. And the society's exhibitions are always of an interesting character. Its officers are W. T. Leitch, president; and Joseph Hobbins, secretary.

Wednesday morning, every thing was removed to the State Fair Grounds, under the auspices of the State Horticultural Society. Here we found a large tent nearly filled, and Floral Hall (a building thirty-two by a hundred feet) full of fruits and flowers. The collections of grapes were conspicuous. S. Marshall showed twenty sorts; G. V. Nott eighteen sorts, including the Iona and Israella, the first ever exhibited in the West. They promise well, and, thus far, are sustaining the claims set forth in their favor. When first sent out, the vines seemed to kill out badly, but for the two past years have sustained their reputation. As yet, however, they are too little known to decide just what their rank will be on the list of grapes we grow.

At the horticultural meeting on Wednesday evening, a warm discussion was held upon the merits and relative rank of some of the fruits. Wisconsin is a "peculiar" State; and while we all like the best of fruit, and would prefer to see such at the head of our list for general cultivation, we are obliged to seek, first hardiness and productiveness, then quality. Though the majority were of this opinion, and so voted to continue the Concord Grape as the first on our list of hardy, productive good grapes, others preferred the Delaware, which is far superior in quality, which received only the second place. The last is a valuable grape for this State, — abundant bearer, reasonably hardy, and gaining favor as a grower. I predict, that, in less than three years, it will stand at the head of American grapes in Wisconsin.

Of strawberries, the Wilson was continued as *the best* for general cultivation. The Agriculturist crowded hard for the honors, but was thought to be "too little known" to be safely placed at the head this year. The growers all reported in its favor; and it was unanimously placed second on the list for general cultivation, as being sweeter, and a better table-fruit, than the Wilson.

The Doolittle Raspberry was recommended without protection, and Fastolf with. Here, again, quality of fruit has to give way for quality of plant. And so will it continue till public taste is sufficiently educated to desire, yea, demand, first quality; and then the better fruits will be protected in winter. Till then, nursery-men must bide their time, and oftentimes be content to eat "sour grapes."

* This society does not compete for the fifty-dollar premium offered by the State Society.

Apples were in great profusion ; some exhibiters showing nearly a hundred varieties, large, smooth, and fine.

The floral department was well represented ; the German Horticultural Society of this city taking the lead, showing many choice plants, and taking the first premium of fifty dollars for the best show by county or local societies.

Kenosha County receives the second premium ; their contribution being made up almost entirely of apples. As a whole, the exhibition was a grand success ; and many a heart rejoiced over the silver fruit-dish, cake-basket, cup, and spoons they have won at this autumn exhibition of the Wisconsin Fruit-growers' Association. *O. S. Willey.*

MADISON, WIS., Sept. 30, 1867

To the Editor of "The Journal of Horticulture."

Sir, — Circumstances have, until now, prevented an endeavor to comply with your request ; to which, if my assent were partially given, it was also partially withheld, that I would let you hear from me while absent on my present journey. And now, when this attempt at compliance is made, it is done with great misgivings as to my ability to do so to your acceptance or to my own satisfaction. It is not easy to write letters while on a journey. When travelling, there is no time for it ; and, when occasionally stationary, not much more leisure.

In your case, this difficulty is enhanced by the fact, that a letter, to be of any interest to you, must be upon a special subject, or class of subjects, — must relate to horticulture or agriculture ; while to make a letter upon such subjects that would be of any value demands more time in making inquiries and examinations than I have ability or inclination to bestow. Unless a visit to Europe is made with a fixed purpose or definite object, a stranger cannot give much time to any one subject : the attention necessarily becomes divided among the numerous objects of interest that are everywhere and constantly presenting themselves. Go where he may, there are everywhere museums of art, antiquities, and curiosities ; galleries of paintings and sculpture ; old cities of quaint and curious architecture ; old castles and palaces, memorable as having been the abodes of those whose names are as household words in every land, or the scenes of striking and important events ; old battle-fields, where contests have been decided and victories won that have exercised an influence upon the course of the world's history for generations, if not for ages : and, with all these to interest or instruct, he can give but little time to gardens or gardening. You cannot, of course, expect from me any thing very new. My future, as has been my past course, is over an oft-trodden path. The most that I can hope for is, perhaps, to give you an account of some things that accident may bring more particularly under my notice ; to present them to you under an aspect somewhat different from that to which you may be accustomed.

Having arrived in England in the middle of May, and remained there during the residue of that and the whole of the succeeding month of June, I was enabled to see some portions, at least, of that country under its, perhaps, most favorable aspects. When I reached Liverpool, the season, as indicated by the vegetation, was much in advance of what it was in Massachusetts when I left.

No doubt, the time occupied by the passage from one country to the other will account, in part, for the difference. Setting this, however, aside, I presume there can be no doubt that vegetation, in the early spring, is, under the milder climate of England, much in advance of what it is at the same time in our part of the United States, — an advance, however, that, as the season progresses, is lost by England, even if it is not changed into one in favor of the United States, in consequence of the much more rapid rate at which vegetation progresses in the latter than the former country. This, at least, was my conclusion, arrived at from my observation in Southern Europe on a previous occasion, and applies, I am inclined to think, equally to England. On the 7th of June, I saw strawberries, grown in the open air, for the first time in Covent-garden Market. They had, however, been for sale a few days earlier; and when I left London, on the 6th of July, the market continued to be well supplied with them. In the earlier part of May, the weather in England was very warm, succeeded by dull, cold weather, and, on the 22d, by showers of snow and hail, to which again followed great heat. I am inclined to think that these were exceptional occurrences, or, at least, that so great alternations in the temperature, or perhaps, I should rather say, that such extremes of heat or cold, are, at this season, unusual. Apart from the mountainous parts of the country, and, of course, with some diversity, there is a great similarity in English scenery; that is, the salient or prominent characteristics of the landscape exhibit a great similarity. There is everywhere the same soft, rounded swells in the land, hardly to be called hills; the same smooth levels, divided, by enclosures of hedges in which often flowering shrubs are growing, into rather small fields, with sometimes a small river or stream winding through them, and groves and coppices of wood scattered about; occasionally a village-church, with its tower covered with ivy; and often some gentleman's seat on high ground in the distance, with a background of oaks, and approached by an avenue of elms or beech, with farmhouses and steadings in the foreground. To one content with a landscape without any approach to sublimity or grandeur, or being even picturesque, but that, on the contrary, may be considered as tame and domestic, England is constantly presenting views that are of great beauty; at least, so it seemed to me, perhaps, in part, from the contrast offered to those with which I am most familiar in our own country.

The cultivation of the soil in England seemed to me of a superior order, and its tilth to be thorough, and carefully performed; while the implements used for the purpose, to an American eye, look heavy, clumsy, and not well suited to the purpose. Yet long experience must have thoroughly tested and proved their adaptation to the end aimed at. Certainly such appears to be the result: for a newly-ploughed field, with its perfectly straight furrows, and the ground evenly and smoothly turned over, looks as if the labor must have been performed by hand with the spade; and, when harrowed, appears like a nicely-raked bed in a gentleman's garden.

To a passing stranger, the soil generally seems naturally fertile, or, when not so naturally, to have been made so by judicious improvement, by under-draining, or by other processes. There is, of course, a diversity of soil, and, in some places, such as is unsuited to agricultural uses. Yet to meet with such where

improvement has not been attempted, or that is incapable of receiving it, is a somewhat rare occurrence. Here, however, I ought to state, that my means of observation are limited, and, in the main, confined to such views as could be obtained from the windows of a quickly-passing carriage. In such parts of the island, as, from the nature of the soil, greater vigor of the climate, or other cause, the agricultural capability of the soil is less easy of development, the end arrived at in the more favored portions is attained by a still more highly improved system of husbandry: so that, go where one will, there appears everywhere fertility, and luxuriance of vegetation; and England may be described as one great garden.

Now, it seems to me that the beauty of the landscape in England depends very much upon this superior quality of its cultivation, and this natural or acquired fertility of its soil, with the luxuriance of vegetation that is a consequence of both, and to which also its moist and mild climate perhaps essentially contributes, by keeping both hills and valleys constantly clothed with a green, of whose vividness we in America have no counterpart, unless it be for a short time in the opening of the year. I cannot conceive of beauty as combined with barrenness and desolation. A barren, sandy desert is an abomination; and though a naked, lofty mountain may be grand, and a wild, rocky country picturesque, yet, without fertility and cultivation, such, to me, are without beauty. In Swiss or Alpine scenery, with lofty mountains thousands of feet high, often sheer perpendicular rocks, on whose tops the snow never melts, yet whose lower slopes are clothed with trees, and at whose bases lie fertile and highly-cultivated valleys, it is, as it seems to me, the luxuriance of vegetation and the cultivation that give to the scene its beauty, and that, with the grandeur of the mountains, produce a landscape of combined beauty and sublimity, that, without this fertility and cultivation, would lose its principal charm, but that with these, though without the mountains, would still have many attractions.

It is hardly safe or proper to draw any definite or fixed conclusion from a partial experience, and with limited means of observation; but it seemed to me, that, for certain agricultural purposes (I refer especially to making hay), comparatively little use is made of agricultural machines in England. How it may be with those for other purposes, I have no means of knowing. During a somewhat extended journey in the west and south of England in the height of the haying season, and while the farmers were everywhere busy in cutting and securing it, I saw but very few mowing-machines, — not more than half a dozen, — and still fewer hay-makers; while the scythe and hand-rake were in general use. In a country so ready and prompt to avail itself of the introduction of all discoveries and improvements as England is, this somewhat surprised me; and I can only account for it by supposing, that, comparatively, the hay-harvest is of less consequence, and the breadth of land devoted to grass of not much extent, so that the outlay for machines to cut it cannot be afforded; or else that the greater cheapness, than with us, of manual labor, makes the use of this more economical. What further I may have to say in reference to these or kindred subjects must be deferred to a subsequent opportunity, should such present itself.

Joseph S. Cabot.

PARIS, FRANCE, Oct. 15, 1867.

Mr. JOHN S. COLLINS of Burlington County, N.J., writes us in relation to the Wilson Early Blackberry, and corrective of some points in Mr. Morris's article in a previous number of the Journal. He excepts to the statement that the Wilson blossoms in advance of the Lawton; as with him, only ten miles away from Mr. Morris, the case is very different, having frequently noticed that they do not blossom any earlier. In fact, he generally finds the Lawton to be first in bloom. He says, "I generally see the Lawton blossoms first, sometimes causing me to think they (the Wilson) were going to be behind time that season; but the blossoms came out nearly together, as does the fruit grow, the smallest berries being quite well grown by the time the first are ripe: hence the short time in which the crop can be gathered. It is questionable with me whether early blossoming is a sure indication of earliness, as our latest varieties of apples blossom first. And the same may be said of strawberries. The Downer Prolific blossoms late, but ripens early: the Lady-finger blossoms early, but ripens late. Hence the great disparity in the value of the two varieties as a market-crop; as the last-named is generally cut off by late frosts, while the Downer is one of the most certain: and, for that reason, the Wilson Early is the more valuable on account of its blooming with other varieties."

Mr. Collins also states that the original plant was not transferred to a garden in which the Lawton had long been domesticated. He saw the mother-plant in the garden referred to, with no Lawton there; and the proprietor informed him that no Lawton nor any other variety of blackberry had ever been in the garden. The Wilson, thus standing alone, had always borne well. But Mr. Collins is now inclined to think it would have borne better had there been some other variety growing near, "As experience shows me, that, however well it may fruit when planted alone, the berries grow more uniformly large, and ripen nearer together, when set out close to Lawton or Kittatinny; which is little, if any, real disadvantage; because, if a person wishes to have ten acres of Wilson's Early to fruit, he would be likely to want at least a fourth of Kittatinny or Lawton to continue the use of pickers, boxes, &c. By planting every third or fourth row with the latter varieties, the plantation could be picked with little inconvenience; and as for getting plants out of a fruiting-plantation, it is poor policy, as are the plants in quality. Better devote a piece of ground to plants exclusively, where they could be dug with roots, or without endangering next season's fruit-crop; the plants for which should be cultivated, which cannot be done to advantage, and allow suckers to grow, too, between the rows."

GRAPES IN 1867. — SOME OF THE NEWER VARIETIES. — The *Cynthiana* (*synonyme*, Red River). — This grape is, perhaps, the most valuable of our native varieties for *red wine*. It is closely related to the Norton's Virginia, and, in fact, resembles it so closely in foliage, bunch, and berry, that it is only by carefully comparing the fruit, but more especially the wine, that even the best judges can distinguish the difference. I obtained it some nine years ago from Prince & Co. of Flushing, N.Y. It is said to be a native of Arkansas, found on Red River. It has fruited with me eight summers; has been uniformly healthy, hardy, and productive; and I am satisfied that it is well adapted

to this latitude. Several spurious varieties have been sent out from Eastern nurseries under this name, against which the public should be on their guard. The *true* Cynthiana, as remarked before, resembles Norton's Virginia so closely in growth and foliage, that few will see the difference. The berry is a trifle larger, somewhat more juicy, not quite so astringent. It will make a dark-red wine of very delicate flavor; which will, on that account, please the wine connoisseur better than the Norton. It has not as much astringency; which latter quality makes the Norton's Virginia invaluable as a wine for medical purposes. Wine of the Cynthiana has been sent to Europe, and was there pronounced the finest red wine which they had yet tested. It is, no doubt, one of the most valuable and reliable grapes for our latitude. Specific gravity of the must by Oehsles scale this season, a hundred and twenty degrees.

Martha. — This bids fair to be one of the most valuable for *white wine*. Exceedingly hardy, healthy, and productive, it has all the good qualities of its parent, the Concord, though perhaps not as showy for market. Bunch medium, shouldered, moderately compact; berry medium, round, pale-yellow, with white bloom, translucent, thin skin; generally but two seeds in a berry; very sweet, juicy, somewhat foxy. It has fruited with me four seasons, and has shown no sign of disease as yet. Specific gravity of the must, ninety-two degrees, — just ten degrees more than the Concord. I have made some wine of it this season, and shall report on it in due time.

Maxatawney. — This has fruited only once here with me, and was the best *white* table-grape I had on my grounds. I am not certain, however, whether it has spirit enough for wine. It seems to be hardy, healthy, and productive; is a fine grower, and better in quality than Rebecca, while it will produce four times as much. Bunch medium, rather loose; berry medium, oblong or oval, golden yellow, with a slight pale-red tinge on the sunny side; translucent; very sweet and juicy. Specific gravity of the must, eighty-two degrees.

If these reports on varieties should prove interesting to your readers, they may be continued through future numbers. Of course, they have only a local character; and I wish to have them appear *only* as such. I should be glad to see similar reports from different sections of the country. If they come from strictly reliable sources, it would give the grape-growing public an idea what would suit their latitude best, and what they should try in their locality. Of over a hundred varieties I have tried, I have found only fifteen to twenty really desirable; and would like to save others some of the rather expensive experiments I have had to make. I have bought many a vine with a very fine name, which was said to combine all the excellences of the native and foreign varieties, at from three to five dollars each, which I have had to cast aside as worthless, after fostering it with the utmost care for several years. This has taught me to be very cautious in what I buy, and what to recommend. I recommend no variety for *general culture in our locality now* unless it has fruited with me at least *five* seasons, and proved to be healthy, hardy, and of superior quality, either for *wine* or the table. Can we not get this practice generally introduced, instead of the sickening and exaggerated praises of varieties which have only fruited with their originator one or two seasons? *George Husmann.*

HERMANN, Mo., Oct. 8, 1867.

THE MINUTER FUNGI ON RIPENING FOLIAGE. — At this season of the year, when the fall of the leaf is preceded by its rich and splendid tints, the curious eye can readily detect a number of minute specks, spots, and discolorations, which are due to the presence of fungi. The oak, the elm, the maple, are particularly liable to these; and almost, if not quite, all the leaves of deciduous plants are subject to the same conditions.

To attempt an explanation of their presence would be as futile as to attempt perpetual motion, especially under the present state of our knowledge of the occult operations in Nature. To find a remedy for the mildews on the grape and the gooseberry, for the spots of incipient decay on the apple and pear, or the bitter rot on some particular sorts of apple, might be desirable, but hardly possible. That they yield to sulphur, seems to merely indicate an affinity to certain skin-diseases in the human frame; and even this the more effectually when immediately and externally applied. By what possible way, soil, sulphurously prepared, can ward off the yellows in the peach or the "curl in the leaf," as has been averred, is not so evident. Yet some facts well authenticated of the success of such treatment is worth a great deal of theory. Whatever causes injury or ill health to a living plant *seems* to induce the presence of these minute forms; but from whence they immediately proceeded, or how they came, we have as yet no means of knowing. Their complicated and varied internal structure, vying with that of the highest organizations, indicate to the reflecting mind some design in the presence, and some use in their action. It belongs more particularly to the operative horticulturist to ward off their presence if possible. Under what conditions they appear, how they affect the plant they infest, and on what species each kind delights itself; how polymorphal their different aspects; how to classify and arrange them so as to be readily recognized, — these and kindred subjects, in which minute observation and common sense combined will be called into play, it is the province as well as the privilege of the naturalist to enjoy. Meanwhile, no one can be insensible to their economy in Nature; and the most pleasure, instruction, and profit we can get from them, it seems to me, decidedly all the better. To such a class of readers and thinkers, observers and lookers-about; to those more or less given to study into the wonders which lie around them, finding "sermons in stones, and books in the running brooks," — no fact connected with these lowest forms of vegetable existence will be trivial or nonsensical.

The relations in general aspect which one kind of life bears to some other are at once obvious. Circles of black dots on a grayish-white, scaly ground, and seen on our hardest granite rocks, indicate a lichen with its black fruit-specks. Similar concentric circles, with little papillæ of black specks, show upon the apple-skin the presence of a fungus known as *Dothidea* or *Asteroma pomigena*. Another but similar species checkers the crimsoning leaf of the herb Robert Geranium, and adds much to its charms.

The yellow foliage of the dying clover will become flecked with irregular specks of vegetation due to some such cause; and every other leaf, perhaps, of many species of grasses, is adorned with longitudinal lines or chinks of the *Puccinia graminis*.

Beautiful stains appear earlier in the season on growing foliage, which mark the coming of some fungus, which, later, will hasten its decay, or add a grace to its perishing and ripened condition. Such may be seen on the foliage of the red garden-currant, on the leaves of several sorts of roses, and on the foliage of plants which borrow beauty from their approach. Singular abnormal growths, simulating these fungi, also die, and stain with rich pencillings and dashes of violet, crimson, purple, or golden tints, the leaves of the poplar, the hawthorn, the crab-apple, the quince, and the maple; some of these fantastic, and others more modest and simple.

No portion of the tissue escapes. Particular kinds affect only the midrib, others the angles of the veins, and others the broader and general surface. Even the petiole, or leaf-stalk, of some plant, bears its appropriate parasite; and the roots, and that portion of the trunk or stem buried beneath the soil, may sustain its subterranean fungi. To suppose that these productions are the results of accident or of chance, or come immediately from defective cultivation, which preparation of the ground by empirical rules can obviate, does not appear to be according to reason or common sense; and marks a hasty conclusion in the premises, which an acquaintance with other facts would modify.

John L. Russell.

Apple-Stocks. — One would think that enough trees had been raised to supply all the West; but I have lately seen a sight that would almost lead to the conclusion that orchards were yet unplanted, and every farm was to be supplied. I refer to a twenty-acre plantation of the seedling apple-trees, from seed sown this spring by Skinner and Wedgewood. It is on new prairie, about seven miles from their orchard at Marengo, — a long distance to go back and forth; but it is found cheaper to go this distance, and have new, strong land, clear of weeds, than to fight weeds nearer home. The seeds were sown in rows about two feet apart, with a drill made specially for the purpose, and drawn by a horse. They have been hand-hoed, and cultivated with a single cultivator. They stand very thick in the rows; so crowded, that it would seem they would hardly have room for a healthy growth: but with strong, new ground, excellent cultivation, and a favorable season, they have made an astonishing growth, stocky, and of uniform height. Take the whole twenty acres of beautiful dark-green, and I doubt whether the world has ever produced its equal.

I understand that the whole crop has been contracted by F. K. Phœnix of Bloomington, and it is estimated at two or two and a half millions. These, if planted in a row, two rods apart in the row, would reach half-way round the earth. When grafted, the number will be about doubled. Many think it a bad practice to make more than one tree from each seedling; insisting that the scion in root-grafting should be set upon the collar of the seedling-root. But, as long as seedlings are as scarce as they have been for a year or two, nursery-men will probably continue to use pieces of roots. To change the subject, let me give

A Hint about canning Fruit. — Many of the cans in use are sealed up with a preparation of wax and rosin, which accomplishes the work perfectly; but, as

it must be put on hot, there will be almost invariably some of the wax found in the fruit when it is eaten, which does not particularly improve the flavor. I have found common putty to answer the purpose very much better. It requires no heating, is no trouble to use, and never leaks through into the can. When wanted for use, the cans are easily opened; and after sealing, and standing to become cold, the name of the fruit, and the date of putting up, can be easily written with a lead pencil on the putty. If it be desired to keep the putty on hand, it should be put in a cup with enough water to cover it.

The Apple-crop in Northern Illinois is unusually heavy, many trees breaking down beneath their loads. Being so full, of course the fruit is small, as most fruit-raisers are too tender-hearted to thin out their fruit. Another trouble is, that most kinds are somewhat scabbed or blotched. One orchard of Red Junes, that have heretofore brought the highest prices, were this year made into cider. As to the reason of their being so blotched, I have no theory to offer, except that it was probably, as the old lady said, *the weather*. The like may not occur again for many years. Pear-trees have borne well, and it is a wonder that so few are planted. I saw two young Flemish Beauties from which the owner told me he had taken two bushels each. Would not an acre of such trees be a paying investment? *C. C. M.*

New Grapes. — A few years ago, and there were only two good hardy outdoor grapes known: now there are scores; and the number is increasing so rapidly, that it is really almost impossible to keep up with them. Go where you will, into any garden or nursery of any note, and you will find tens, hundreds, or even thousands, of seedling grapes. The careful experimenter has resorted to the use of the camel's-hair brush, and hopes to produce a cross between some favorite varieties that will utterly eclipse all others. Now, it will be strange indeed, if, among all these new varieties, some good ones are not found, possibly possessing all the good qualities we have ever desired in a grape. There is room enough yet, and a wide field open before all who would enter upon this interesting work. We have very few grapes that can be safely recommended for general cultivation.

We have many varieties of pears, with a very wide range of flavors; and it should be our aim to extend the list of grapes until we get some suited, if possible, to each locality throughout our extended country. There seems to be something lacking in almost every variety now before us; and the grape for the million is yet to be introduced.

We are occasionally delighted to hear that such a person has a new grape that is far superior to all others: but when we come to see or taste it, or, what is better, to fruit it, we find that we have paid our money for that which does not satisfy us; and we turn and look in another direction, and go through the same process many times over without any satisfactory results. Once in a while, some old and well-known variety is trotted out under a new name; and the public are cheated either designedly or ignorantly by the originator, or some person to whom he may have sold his stock. But let the work go on until we have secured the desired results.

Fall and Winter Treatment of Strawberries. — All strawberry-beds should be carefully weeded in the fall; for, if neglected then, a large crop of weeds, stimulated by the manure used for the good of the strawberries, will grow and flourish early the next spring, to the great injury of the crop of berries. Chickweed and shepherd's-sprout are among the nuisances that so trouble the fruit-grower, especially where he attempts to raise this fruit on old land. After the beds have been carefully looked after in this respect, then they should receive, just as the ground freezes up, a covering of coarse horse-manure, straw, sedge, meadow-hay, or even evergreen boughs, to protect them during the winter. It sometimes happens that snow comes, and remains all winter, and is sufficient protection for all the plants it covers; but this cannot be counted upon, and so the safest way is to cover artificially. Peach-trees would be greatly benefited by some such protection; certainly at the North and West, where the peach-crop often fails from exposure.

Pound or Uvedale St. Germain Pear. — This pear grows to the largest size, often weighing a pound and a half or two pounds. It is a great bearer, and the fruit is most always fair. It colors up yellow when ripe, with a reddish cheek. The flesh is solid, and it is an excellent winter-cooking variety. The tree is hardy and vigorous; and the fruit, though very large, hangs well.

Hunt's Russet. — This apple originated in Old Concord, Mass., on the farm of a Mr. Hunt, and has an excellent reputation in that goodly town. The fruit is of medium size, and rather conical in shape; russet with red and greenish yellow on sunny side. It keeps all winter, and has a very excellent sub-acid flavor. Some prefer it to the American golden russet, which it somewhat resembles. Good bearer.

To protect Trees from Mice. — Some years ago, we adopted a cheap and yet successful plan to prevent field-mice from injuring our apple-trees. We cut birch-bark, and put it round the tree near its base, and let it curl up and hug to the tree. Not one was injured where the bark was used: they will not gnaw through it, as we believe. We have known tin used in the same way, and it answered an excellent purpose. Others adopt the simplest way of all, — tread the snow firmly down around the tree soon after it falls, and thus form a barrier against the mice. Again: where the trees are small, and stand in ploughed land, the earth can be so heaped up about the tree as to furnish no harbor or retreat for this little enemy. When small trees stand in the grass, if any are allowed to do so, one of the above plans should be resorted to, or the trees may suffer.

Grape-Cuttings. — These should be secured before the wood has been frozen much, cut into convenient lengths, and covered up in earth, unless they are wanted to start early in the propagating-house. Only the well-ripened wood should be saved for propagation. They may be buried in the ground or cellar, or any place where they will keep fresh, and, before being used in the spring, cut into single eyes, or such lengths as are preferred.

St. Ghislain Pear. — We have received specimens of this nice little pear, raised in Bangor, Me., where it flourishes well. Though it is of foreign origin, yet it seems to be well adapted even to the northern portion of the United States. It is a fruit of the first quality, quite juicy and sprightly. It is rather small to be popular as a market variety, but is an excellent one for home use. The tree is a good grower and bearer. Season, September.

Keeping Vegetables. — Those intended for table-use through the winter should be so cared for that they will not shrivel, but retain their freshness even until spring. Turnips, beets, carrots, parsnips, and the like, may be covered with sand, and kept fresh. Many vegetables are nearly ruined by being stored in cellars heated by a furnace. This should never be allowed. It is better never to store such things in a cellar under a house, but in a cool place, either under the barn, or elsewhere convenient to the house. The cooler they are kept, the better, if they do not freeze.

Wood-Ashes for Strawberries. — There is no better fertilizer for strawberries than ashes. We remember that one of the best crops we ever had was raised when the only manure used was wood-ashes. All soils will not alike be benefited by such an application; but it is always safe to use ashes in connection with other manures. If ashes only are used, there are fewer weeds, as no seed can be introduced by the manure.

Winter Protection. — Many of the shrubs, plants, and vines in our gardens and on our lawns are not perfectly hardy, but need, and should have, some protection in winter. Plants near the ground may be covered with leaves or hay; but shrubs and climbing vines will need different management. When evergreen boughs can be had without much trouble, they may be used to good advantage. This work should, if possible, be done before the ground freezes, so that the ends of the boughs may be stuck into the ground to keep them in place during the winter: when this cannot be done, they will need to be tied together to keep them. Some who cannot readily get such boughs may get straw more easily, and it can be used to equal advantage. Bind and tie it around the plant in such a way as to protect it both from the extreme cold by night and the heat of the sun by day. It is not generally the extreme cold that kills the tender or half-hardy tree or plant, but the alternations of heat and cold. Then, when so protected, the plants are less liable to be broken down by sleet, snow, and ice, which often greatly injure them.

Cutting Scions. — Many good grafters prefer to cut their scions in early winter, before there has been much severe cold weather. It often happens that scions left on the tree until spring, will, when cut, show the pith of the scion quite black; and sometimes the wood itself is injured by the severity of the weather. Such wood should not be used; for many of the grafts will fail, however skilful the person may be who sets them. If cut in the fall, they should be kept fresh, either by burying in the earth where the water will not stand, or in moist earth in the cellar.

FORCING CUCUMBERS. — We are often inquired of concerning the growing of cucumbers under glass. Years ago, it was of little use to attempt it, except on a small scale, merely to supply one's own family; for there was no sale for them: but now it is quite different, as there is a demand for them all through the winter. It requires great care to raise nice ones, such as will suit the market; and it is only by years of experience that one can become expert in the business. A border or bed should be prepared, say eighteen inches deep by three feet in width, in which to plant the seeds; and under it should run a ten-inch pipe, heated either by hot air or steam, so that the temperature may be kept up from eighty-five to ninety degrees by day, and as high as fifty degrees at night. This border should be made up of about one-half of common garden-soil, the other half of old well-rotted cow-manure, with some bone-dust or fish-guano. From the time the plants make their appearance, they will need watering occasionally, — once a week or oftener, according to the weather; and, at such times, manure-water may be used to advantage. Hen-manure or ground fish are excellent substances for such a purpose; but care must be used lest the solution be too strong. As the plants grow, train them to the rafters of the house. The cucumber has two persistent enemies with which the grower must contend, — the red spider, and black and green aphis. The treatment for the former is to syringe with water, and do it often; the oftener, the worse for the insects. The latter insect may be killed by fumigation; and after that process, say the next morning, thoroughly syringe the plants. These operations should be repeated as often as necessary to keep the vines free from vermin. In order to have the fruit set well, it is necessary to have the pollen supplied artificially to the female flowers; and this may be done either with a camel's-hair brush, or, what is better, by picking off the male flowers, and scattering the pollen over the female. The more rapidly the fruit is grown, the better it is. They grow to great size if well treated; though this is not desirable, as cucumbers of medium size sell the best. Among the best varieties are Conqueror of the West, Prize-fighter, and Carter. When this crop does well, it is quite profitable.

RAISING NEW PEARS. — Nothing is easier than to plant the seed of the best varieties of pears, and get new sorts, many of which will be equal if not superior to the parent. If seed be selected from fruit raised in an orchard, when natural hybridization takes place, new varieties possessing the good qualities of two or more kinds will be likely to be produced: sometimes they seem to be an almost reproduction of some favorite sort. We have just seen a pear, said to be from the seckel, which is like the parent in every respect, except in form, which varies slightly. We believe no one could recognize the difference in flavor. It is well known that grapes have been sent out as new varieties that proved to be so nearly like the parent, that no one could tell the difference. In other cases, as with the Clapp's Favorite Pear, the influence of both parents may be distinctly seen. The old theory of Van Mons has been practised for many years, and few good results have followed; while some who have sown but comparatively few seeds, like Mr. Francis Dana of Roxbury, have raised many varieties, some of which will take the first rank among the best American pears. There is no

particular art about it. One has only to sow the seed of good fruit, all the better if it comes from where many trees are grown in the same neighborhood, and the best results will follow: not, of course, that many can be produced that will at once take the place of those now in cultivation; but good sorts can be obtained. Many of the best fruits now on the list are chance seedlings that have been so produced. The Seckel, Bloodgood, Fulton, Tyson, Collins, and a host of others that we could name, are chance seedlings; and, if such have been so produced, why may not others as good or better? We believe that the work has but just begun, and that year by year new pears will be added to the list, such as will even surprise the veteran pomologist. We are confident, from our own experience and success, that what we have said in relation to the ease with which new varieties may be obtained is strictly true.

THE CREVELING GRAPE. — This is one of the most refreshing grapes on the list, though not of the very highest quality. Its general reputation is looseness of bunch; but, under some circumstances, it produces very handsome bunches. Unfortunately, in some localities, it is inclined to lose its leaves by mildew, when the fruit fails to ripen. It ripens, when the foliage remains healthy, as early as Hartford Prolific, and is a very much better grape. In some localities, it is not a valuable market-grape, on account of its tendency to produce straggling bunches.

We have received from a subscriber in Vineland, N. J., a photograph of a Vicar of Winkfield dwarf pear-tree, bearing many specimens of this well-known variety.

There is much difference of opinion as to the value of this pear, and also as to its quality. We have eaten it when it was quite good, and again have found it worthless. The exposed specimens that color up on the sunny side are usually very good for cooking, and fair for eating. It is a hardy tree, though somewhat liable to fire-blight, and an enormous bearer; does well on quince or pear; fruit keeps well, grows to large size, and, on the whole, in many localities is well worth growing.

PRUNING GRAPE-VINES. — There is no better time to attend to this important work than in November and December. When the vines are to be laid down under the earth, the pruning should be done by the first of November, so that the cuts will have time to dry before the vines are laid down. We have noticed, where the vines were laid down the same day they were pruned, that, when lifted in spring, they bled as though the wounds, or cuts, were fresh. When wood is to be used for propagation, it must be cut off before the extreme freezing weather has injured it. Some varieties need very much more pruning than others. Those inclined to make wood too freely should be pruned close. We have often trimmed so as to leave but a single bud for fruit; and, in some instances, we have cut so as to have the plant push a dormant eye. During the following year, the vine will not bear much fruit; but it will become strong, and better prepared for the succeeding season. In fact, many of the vines in the country are over-pruned and over-fruited, and they need rest and less severe

pruning. We have seen fine fruit produced from a vine not pruned at all, but left to run over the top of a tree; yet few are prepared to adopt such trellises for their vines.

THE YELLOW CRAB-APPLE. — This is not only a very ornamental tree when in blossom in June, or when covered with its golden fruit in autumn, but very useful, as its fruit, if properly treated, furnishes the most delicious jelly. Then the fruit may be preserved in various ways, all very agreeable to the taste. The tree is one of the most hardy, and usually gives a large crop of fair fruit. No garden is complete without one or more of these beautiful and useful trees. It is rather upright in growth, but forms a handsome head.

LARGE RED CRAB-APPLE. — This is another good variety of the crab, but not so showy as the former. It is worthy of a place, however, as it is in all respects quite as useful as the yellow variety. One variety of the large red resembles the yellow in shape; and another is more flat, with a shorter stem.

SMALL RED CRAB-APPLE. — This variety presents a very beautiful appearance when in blossom, and also when in fruit; though the fruit is much smaller than the former-named varieties. The wood is smaller, and the habit of the tree less upright. It is used for the same purposes as the others, but is not quite so profitable. All of them may be budded or grafted on to the common wild apple, though the stock of a free-growing tree often outgrows the bud or scion.

MONTGOMERY GRAPE. — I mail you to-day a photograph of a cluster of medium size, from a heavily-fruited three-year-old Montgomery Vine.

This unfavorable season, a row of six vines, about equally laden, ripened half their crop between the 5th and 20th of September; the balance all ripe now, and the foliage beautiful until this frosty morning.

This cluster weighed twenty-three ounces, is pale-green, with faint straw color on sunny side, covered with a white bloom; the fruit so like the Chasselas, that it is always suspected of being that variety by the knowing ones, until the foliage shows the contrary fact. This vine has been acclimated about eighty years, from unknown origin, in a town in Pennsylvania; and was introduced here by the Montgomery Family of Poughkeepsie, about twenty years since: wherefore the name, extemporized for neighborhood convenience for want of the proper name, and not a usurpation by the family.

In thin, warm, gravelly, or sandy soils, it is immensely prolific, of magnificent clusters of slightly acid though melting and vinous dessert fruit, which, though ripe in September, keeps well all winter. The vine is about as hardy as the Adirondac and Allen's Hybrid; a strong, short-jointed grower, better for protection in winter, and shading from mid-day sun in summer; much inclined to overbear. It is better for close pruning and thinning; and, so treated, the established vine produces huge clusters of the marvellous weight of four pounds.

NEWBURGH, N.Y., Oct. 8. *W. A. R.*

Habrothamnus Berries. — Grown on a pillar in a conservatory, *Habrothamnus elegans* blooms freely from the autumn onwards, and, during winter, matures its large and beautiful clusters of rich rosy violet-colored fruit, which equal in size those of the Black Cluster or Verdelho grapes, and prove it to be most useful for decoration at a season when flowers and fruit for decorative purposes are extremely valuable.

The Cultivation of Passiflora laurifolia, or Water-Lemon. — This fruit, which is becoming popular, is of very easy culture.

Supposing that you have a plant well established in a six-inch pot, say in January, shift it at once into a twelve-inch pot, and place it in a stove where there is a bottom-heat of 80° and a top heat of 65°. If all go on favorably, the plant will be well established by March: and then comes the final shift, which must be into a box or tub three feet in diameter, two feet six inches deep, and provided with good drainage; or, still better, into a bed suited for pines. The soil which I find best is good turfy loam, rough peat, and silver sand in equal parts. Train the branches upwards to the roof, along the lightest part of it, and as near the glass as practicable. Let the laterals hang down from the roof, and they will grow, and produce flowers very freely by July. These must be impregnated with the pollen of *Passiflora cærulea*, or some other common kind, as their own will not fertilize. The plant will require abundance of water at the root; and, if this be supplied, the fruit will swell very rapidly, and be ripe in about six weeks.

The fruit has a very pretty appearance; being about the size of a hen's egg, and in color of a bright yellow. Of the flavor I cannot say much, as it is rather inferior, like that of most other tropical fruits. The plant will continue fruiting until December, when it should be kept rather dry at the root, and in the temperature of a pine-stove. About the first week in March, give a good watering at the root, which will excite the plant into growth again, and the flowers will soon appear, and continue all the summer.

How to grow Phloxes. — To have phloxes in the finest possible condition, they must not be planted out in the borders, and left to their fate; but they must have some cultural attention. The following course of treatment may be recommended: —

In February, pot a few plants in light, rich, loamy soil, and place them in a greenhouse or frame. They will soon make shoots long enough for cuttings; and these can be quickly rooted in a moderate hot-bed, with verbenas or other bedding-plants; and, after being properly potted and hardened off, they will be fit to plant out in May.

In selecting a situation for planting out, a spot where there is a little shelter from strong winds is to be preferred; but otherwise it should be fully exposed to all the air and sunshine. The soil should be enriched with some good rotten manure; and, when the plants get strong, they should be liberally watered with liquid manure. They should be planted about fifteen inches apart for the first season's blooming, which will commence about August, and continue till the end of September; but, in the ensuing spring, they should be replanted, placing them

eighteen or twenty inches apart for the second year's blooming, which will begin in July, and, if the plants are prevented from seeding, will go on till the end of September. Care should be taken to have a stake to each plant; and, as the shoots advance in growth, they should be securely tied to it. If this is neglected, they are very likely to be snapped off close to the ground. A slight wind is sufficient to do this, and then the plant is spoiled for the season.

If a phlox is well managed, it will be in its prime in the second year of its flowering. Early in the spring, when the shoots are three or four inches long, it is a good plan to thin them. A good two-year-old plant will generally start more shoots than are required; but five or six only should be left to go up for flowering. The spare shoots make excellent cuttings; but they can seldom be rooted early enough to flower the same year like those obtained from plants put into a greenhouse in February. However, the plants obtained from these cuttings make fine flowering-plants for the next year.

But little can be done in arranging phloxes according to their height: indeed, in this respect (with two or three exceptions), there is very little difference between them. The first year they generally flower when about fifteen or eighteen inches high; but the same plants in the second year will grow two or three feet high.

A continual succession of young plants should be kept up by cuttings. Dividing the old roots is a clumsy method of increasing the stock; and plants obtained in this way seldom produce fine healthy foliage and good flowers. A phlox should be thrown away when it gets over two years old, and a young plant put in its place. Sometimes phloxes may be placed here and there in mixed borders or shrubberies, where they help to make a garden gay, and furnish a supply of cut flowers; but the spare plants only ought to be used for this purpose, as they never, under this treatment, produce such fine flowers as when they have a place to themselves.

Phloxes may be easily grown in pots by attending to the instructions given for growing them in the open ground; only they require more care in watering.

The varieties of *Phlox decussata* are the best and hardiest, and have been very much improved lately. There used to be some pretty varieties of *Phlox pyramidalis;* but they are delicate, and have given place to the former.

Summer Pruning. — Few persons are fully aware of the advantages of summer pruning, especially as applied to the pear-tree. Thrifty-growing dwarfs particularly need pinching in during the summer, and the fruit on such trees is greatly benefited by such management. We recently visited a pear-orchard, all dwarfs, where the trees had been highly manured, and had made great growth, and were still growing, though the trees had set a large crop of fruit. Now, it would have been very much better for the fruit if the owner could have found the time to have stopped all the shoots after they had grown four or five inches, and saved the strength of the tree somewhat. They will require severe shortening in this fall or next spring, or the trees will lose their beauty of form, become straggling, and cease to be fruitful. One of the best cultivators of dwarf pears in Massachusetts trains his trees very much as a grape-grower does

his grape-vines, — on the spur-system, — and, after his fruit has set, pinches in all the laterals, and allows the trees to make but very little growth. It is very clear that a tree, whether dwarf or standard, cannot bear fruit to any great extent, and at the same time make great growth. Many varieties are inclined to run to wood too much, and they should be pruned; while some, such as the Bartlett, just as soon as they begin to bear, which is quite early, will nearly cease growing, and expend its energies in producing fruit. It is not wise to cut back severely in summer, but to pinch from time to time to prevent excessive growth. The same will hold true of dwarf apple-trees: pinching in or stopping the most thrifty branches or leading shoots will be found to be of great advantage. Peach-trees, both in tubs and in the orchard, if time will allow, will be greatly improved in form, and the wood will ripen better, if the vigorous leading shoots are stopped. Whether it will pay to carry the work still further, and summer-prune standard pear and other trees, will depend upon circumstances. As a general rule, after a tree gets to bearing, it will not grow so excessively as to need the thumb and finger to stop the leaders. This work may seem formidable; but it is not really so, but may be done quite rapidly, and will generally pay for the trouble. Currant and gooseberry bushes will be greatly improved by this summer pruning or pinching-in; but it should be attended to early in the season.

Deutzia crenata flore pleno. — This variety was introduced a few years ago, and has now been in cultivation long enough to gain an established character. The flowers are perfectly double, and grow profusely in large clusters. Where they got their peculiar coloring is a mystery. Neither the old *D. crenata*, nor any other of the race, as far as we are aware, shows any trace of it; for their flowers are pure white. The peculiarity consists in a very delicate and beautiful shading of pink, which is most distinct in the outer petals, passing into white towards the centre. The shrub has the habit of the well-known *D. scabra*, though it is much smaller. It is of about the same degree of hardiness, and has stood four winters with us uninjured. It is one of the prettiest shrubs in existence, and grows well in common garden-soil. — *F. P.*

About the Door. — A bit of shrubbery in the yard, a vine climbing by a trellis, a strip of refreshing green spread from the door, are sure to make a place of greater marketable value; which, with many, is a consideration to be thought of before any other. Such need no further appeal to their sense of neatness, then. But those who really love the suggestions of beauty for their own sake will not omit the turf-patch, the shrubbery, and the hedge and vine, because they make almost any home more attractive and lovely, and cause the sentiments to sprout like the very leaves and buds themselves. How few stop to consider what a powerful association lies lurking in every simple but familiar object, like a bush, a tree, a bit of grass, or a border of flowers! They are objects that hold us almost as steadily and strongly to home as wife and children: they are closely associated with these, in fact, and can with difficulty be separated. Therefore we say to all, "Brush up about the door, and plant near by an object of simple beauty. It will bear fruit in the heart a hundred-fold."

ASHES. — SUDS. — A burglar once contented himself with carrying away from a store a heavy bag of specie. It proved to be of copper, and worth about ten dollars. Specie is not the only term that fails to indicate the value of the article it denotes. One of the great wants of vegetation is potassium. It is found sparingly in many rocks that are pulverized by frost and attrition. Most crops carry it away from the soil; and it is returned, in insufficient quantities, in manure. A considerable part of the potassium in our forests finds its way, after their destruction, into soap. Much of this is used in washing clothes, and is left in the water in the form of suds. The impurities which they contain add to their value as a manure. All of their fertilizing virtue should find its way to tillable soil, if possible.

Up to the time of the present generation, a pound of sodium would buy several pounds of potassium, both being in the form of carbonates. The sodium in salt was not reducible to this form, and all our carbonate of soda came from the ashes of sea-weed. The invention of a mode of manufacturing carbonate of soda from salt wrought a revolution in the chemical arts. A pound of carbonate of potassa will buy several times its weight of carbonate of soda, and twenty-three pounds of sodium is as efficient as thirty-nine pounds of potassium. We are not, then, to look for potassium in any thing in which sodium can replace it. In "potash" we may find little or none, and none in saleratus used for cooking. You find it in no soap except the soft-soap made in families with the lye leached from ashes. It is not improbable that plants may be able to substitute sodium for some part of the potassium they need; but it is on the same principle that cows on certain islands are said to eat fish. Though the gardener invariably overlooks the difference in the two kinds of suds, the plant will be sure to find it out. It fails to find a particle of that element which the soil most needs in suds made from the common bar-soap.

No one need be told that there is little resemblance between wood-ashes and coal-ashes. Unleached wood-ashes are of great use to the soil; and, in leached ashes, considerable potassium remains. We all know that it is not so with coal-ashes. It is curious to inquire whether the vegetation which originated the coal contained potassium; and, if so, what became of it. But it is a much more practicable question, what we shall do with our coal-ashes. How far will frost disintegrate the cinder or clinker? Having separated all large solid particles with a sieve, the rest may be used in diluting strong manures or tempering soils; but there is no point in the range of domestic economy on which ignorance is more universal than on that of utilizing coal-ashes. *I. F. H.*

SOUTH MALDEN, MASS.

LIQUIDAMBAR. — This very ornamental tree, familiarly known as the gum-tree, is hardy as far north as Boston; though, even there, sometimes winter-killed in exposed situations. For an ornamental tree for street-planting in the city, its elegant habit, fine foliage, freedom from disease, and exemption from the attacks of insects, especially recommend it.

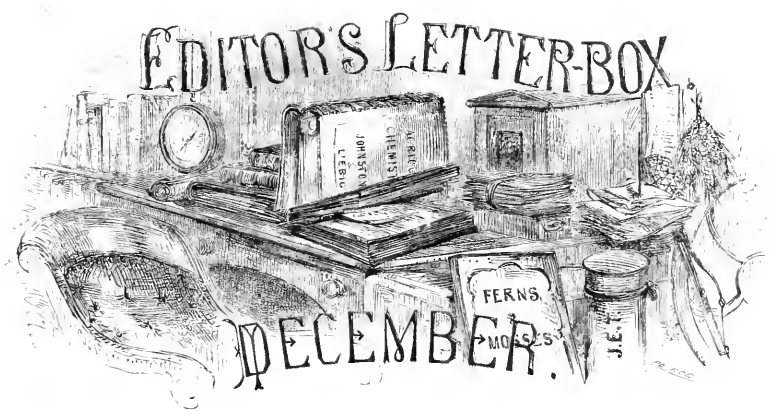
It may be obtained of most nursery-men, and transplants readily. Should it not be extensively planted? *E. S. R., Jun.*

Raising Gladiolus from Seed. — Nothing is easier than to do this; and, out of a hundred seedlings, probably there will not be one that is not worth a place in the garden. Great numbers of seedling gladiolus have, of late years, been raised near Boston. We know one amateur, who, at this moment, has about five thousand seedlings in bloom; and we have rarely seen a more brilliant and varied display even of choice imported varieties. The general effect in the garden is equally beautiful; and though the greater part of the flowers will not bear criticism so well, yet there are many among them, that, in every particular, are fully equal to the best French and Belgian varieties.

Some have been raised, in this neighborhood, of a very distinct and striking character. We have one now in bloom, raised last year, of a uniform purplish-bronze color. A superb spike was exhibited three years ago by a neighboring nursery-man, which showed the finest combination of crimson and white that we have ever seen in this flower.

The first point is to get good seed. If you cannot do better, you may buy it of a seedsman; but probably you will get a better result by raising it yourself. Buy two or three dozen of the best varieties, aiming at the greatest diversity and contrast of color. In any favorable season, they will give you a reasonable amount of seed. You may, if you please, convey the pollen of some varieties to the pistils of its neighbors; but this work of crossing may be dispensed with, as the bees are sure to do it for you in some measure. When the seed is ripe, cut off the stems with the seed-pods on them, and keep them in that state, in a dry place, till spring. Prepare a bed in the autumn by mixing well-rotted leaves, sand, and a little thoroughly-decayed and pulverized manure, with any light garden-soil. Mix and pulverize the whole thoroughly, level it, and place on it a common hot-bed frame. Cover it with glasses or boards to exclude the snow, and let it remain all winter. In April, it will be in a proper state for planting, while the surrounding soil is still overloaded with moisture. Towards the end of the month, smooth the surface, scatter the seeds upon it so that they will lie from half an inch to an inch apart, press them down gently with a flat board, and sift light sandy soil over them to the depth of half an inch. Then put on the glasses, and give them the full advantge of the sun, watering from time to time with tepid water as the soil dries. In a week or two, the young seedlings will appear, like blades of grass. Give them air by wedging up the sashes; and, as the season advances, take these off entirely. With this treatment, we have known bulbs as large as a walnut produced from seed in one season. Such a bulb will blossom the next year; but, in general, it will require three years to bring them into blooming. They must be taken up in the autumn, and treated like the large bulbs, or, what is better, kept in dry sand till spring. The seed may be sown as late as the end of May; but the young plants will not then make so good a growth.

Instead of using a frame, you may, if you please, sow them in a box of light soil set in a window; and, for a small number, this is the better way. When your seedlings blossom, you need not be surprised to find among them some new and distinct varieties; and you will be sure of having a great many attractive and beautiful ones. *F. P.*



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.

X. Y. Z., Cincinnati, O. — Your article would be really valuable if you had avoided personalities. There is never any thing gained by attacking one's personal character or position, and it certainly cannot benefit horticulture. While our columns are open to a full and free discussion of all horticultural matters, we cannot degrade them to be the medium for carrying on a personal quarrel. Send stamps to prepay your article, and we will return it.

MESSRS. EDITORS, — I have fifty Delaware vines in their fourth year. In 1866, they cast their leaves early in August, and the fruit never reached maturity. This result I attributed to the border having been worked over, late in July, for the removal of the weeds, involving the destruction of many of the rootlets. Pains were taken not to repeat this error. The border was worked over last April before the buds had fully burst, and the fork was then laid aside for the season: the weeds, however, were frequently pulled up after heavy rains, and the soil thus kept open. But

> "'Tis not in mortals to command success:
> They *may deserve* it."

Perhaps I did *not;* at all events, I did not *achieve* it: and, in August, the inevitable dry-rot again assailed the foliage of my Delawares, and it vanished.

The border is about two feet deep, composed of sods and moderately-enriched earth. Bone-dust was added last spring, but nothing else in four years; and the soil is rather clayey, and inclined to *bake*. A stratum of stones was thrown in at the bottom; and this, with the declivity of the ground, has insured drainage. I noticed last season, that, while vines not bearing made a good growth, those engaged in fruiting formed very little wood.

My *theory* is, that the soil is too stiff and poor; and my *plan of treatment* is to lighten it up by throwing over the surface a cartload or two of decayed leaves from the woods, to protect the roots during the winter, and, in the spring, add a top-dressing of well-rotted manure, and work both in gently with the fork. The ground will thus be kept light and porous all summer; and the increased richness of the soil should promote a more vigorous and healthful action, both of the roots and foliage of the vines.

My present theory may be as fallacious as the one which has exploded; and I shall be greatly your debtor, Messrs. Editors, if you will kindly flash the light of experience upon the "situation," and help me either to carry out my plan with energy, or to abandon it for a better. *C. W. R.*

LUTHERVILLE, MD.

H. L., Newport, R.I. — I am desirous to ascertain the best kind of hedge to plant where it is exposed to the drip of trees? I should prefer an evergreen. Has the *Wigelia rosea* been tried? and, if so, how far apart should the plant be set? — The hemlock does pretty well under trees where not too much shaded; the arborvitæ about as well. We know of none that will do better. We have seen privet, a sub-evergreen, do quite nicely in such a position. The variety bearing a white berry is the best for hedges. The *Wigelia rosea* has been tried with fine success. Dr. E. G. Kelly of Evergreens, Newburyport, has some very fine hedges of this plant. The distance apart will depend much on the size of the plant you use; say, small plants eighteen inches apart, larger ones in proportion. It does not flower much when cut close, but makes a very pretty dwarf hedge.

PRACTICAL EXPERIENCE, Norwalk, Conn. — Anonymous communications do not receive attention.

W. F. G., Boston. — Plants which bloom out of doors in summer will not at once furnish winter-bloom. We presume you refer especially to such plants as roses, verbenas, heliotropes, and geraniums. If such have bloomed all summer in the garden, they will receive a severe check in transplanting, and probably will have to be both root and top pruned to adapt them to pots. This, of course, will prevent bloom, and the leaves will generally drop. They soon begin to grow, however, and will show bloom after a month or two, and give plenty of flowers after January.

Plants for earlier blooming should be potted in August, and any flower-buds pinched off during September and October: then they will, if properly cared for, give bloom in November and December.

We refer only to parlor-plants: in a pit where flowers are planted out, bloom may be had at any season.

I. R. R, St. John, N.B. — The reason the flower-buds of your sweet-pease blighted or fell off was that the soil was too rich, the growth, therefore, too luxuriant; and the strength of the plants went to leaf, and not to flower, until the heat of summer somewhat checked the growth, when you had flowers in plenty. This is not uncommon with this flower; and, the present year, the wet season has rendered it of frequent occurrence.

Try your plants in a more sandy soil, and you may succeed better

IDEM. — Do not transplant your sea-kale, but form your bed where the plants are. Let the plants stand separately. We do not think sea-kale pots can be obtained in Boston. The plant is very little grown. Large-sized flower-pots will answer instead of sea-kale pots. For forcing, you may cover the pots with manure or leaves: the former would probably be better for you.

IDEM. — Raspberry-plants may safely be separated, and transplanted in the autumn; but we much prefer the spring for all such horticultural operations.

IDEM. — The manure from a hot-bed will make a very good top-dressing for your asparagus-bed. Thank you for your suggestions.

O. A. A., Blackington, Mass. — The insect you enclose is the little-lined plant-bug (*Phytoceris lineclaris*); but it is probably *not* the insect that damages your dahlia-buds, for it has no mandibles for biting or "eating off" buds. It sucks the sap of numerous cultivated and wild plants. You will find it fully described in Harris "On Insects Injurious to Vegetation."

For the cabbage-maggot, see the article *Anthomyia ceparum*, p. 617, Harris.

For a remedy, try wood-ashes or air-slacked lime round the plants.

H. LENNI, New York. — The evergreen-leaf is pipsissewa, botanically *Chimaphela umbellata*. — See Gray's "Manual of Botany," 1866, p. 261.

The other plant is *Monotropa Hypopitys*, — pine-sap or false beech-drops. — See Gray, p. 262.

D. O. M., Fall's Church, Va. — I write to inquire if you have ever heard of a bud from a freestone peach, when budded on another stock, to bear a clingstone peach. Three years ago, I took from the nursery-row what I supposed to be three of the Smock's Late Free, and planted them in my orchard, but find that one of them is a firm clingstone, having every appearance of the Smock's Free, in fruit, leaf, and tree. — We think our friend must be mistaken; for we never knew the stock to exercise so great an influence over the bud as to change the character of the fruit to the extent claimed in this case. We think a bud of a clingstone variety must have got into the wrong place; and hence the result.

W. — Can any thing be done to prevent the premature dropping of the foliage of the Delaware Grape? The grape will not ripen after the leaves drop. My soil is a *dry*, sandy loam, pretty well enriched with compost of peat and barnyard manure. — Some good growers of grapes use flour of sulphur, and scatter it over the vine and under it, to prevent the mildew from injuring the leaves of the Delaware and other grapes, and causing them to drop off. Sometimes this is effectual for a while; but it is very difficult, in some localities, to manage the Delaware, and keep the foliage fine. Our own vines have lost their leaves almost every year; and this year so bad, that we did not get a single bunch of ripe fruit. It will be best to avoid strong unfermented manures, and, during a wet season, stir the soil as little as possible to keep the weeds down. If any of our readers can give our friend any further information on this point, we shall be glad to hear from them.

South Mobile, Ala. — If you will comply with our terms, we will then consider your article.