

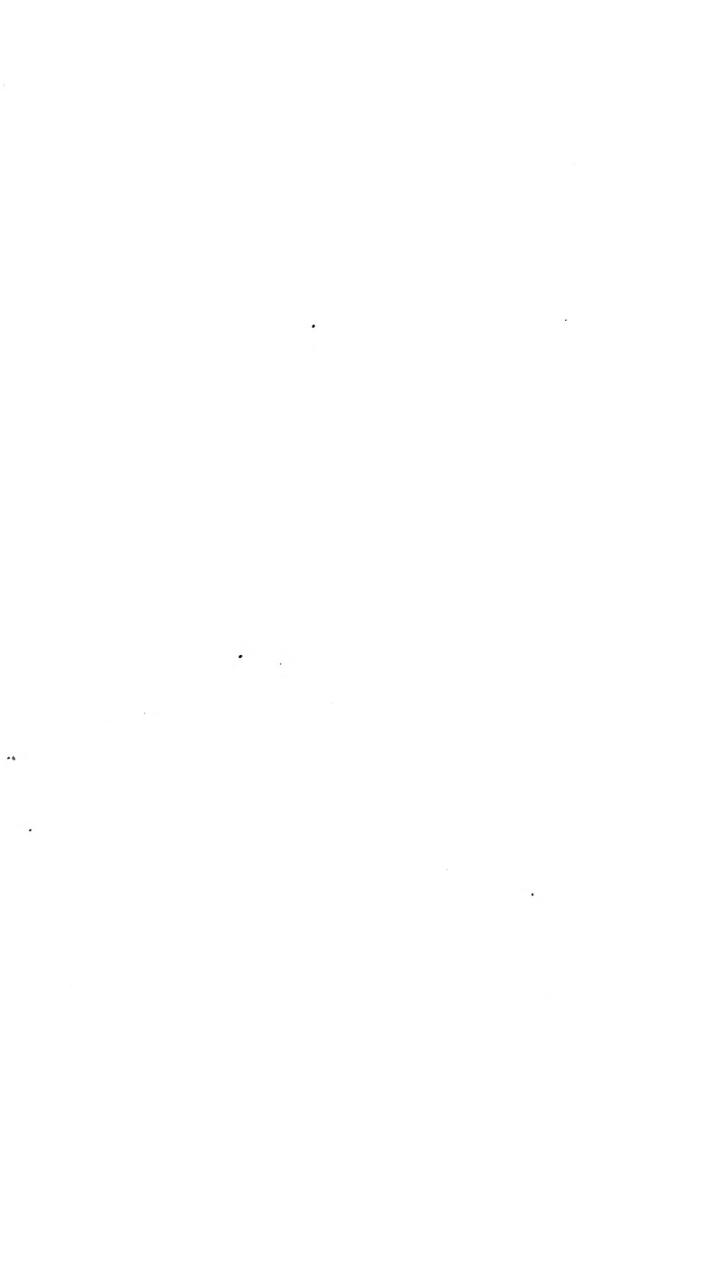
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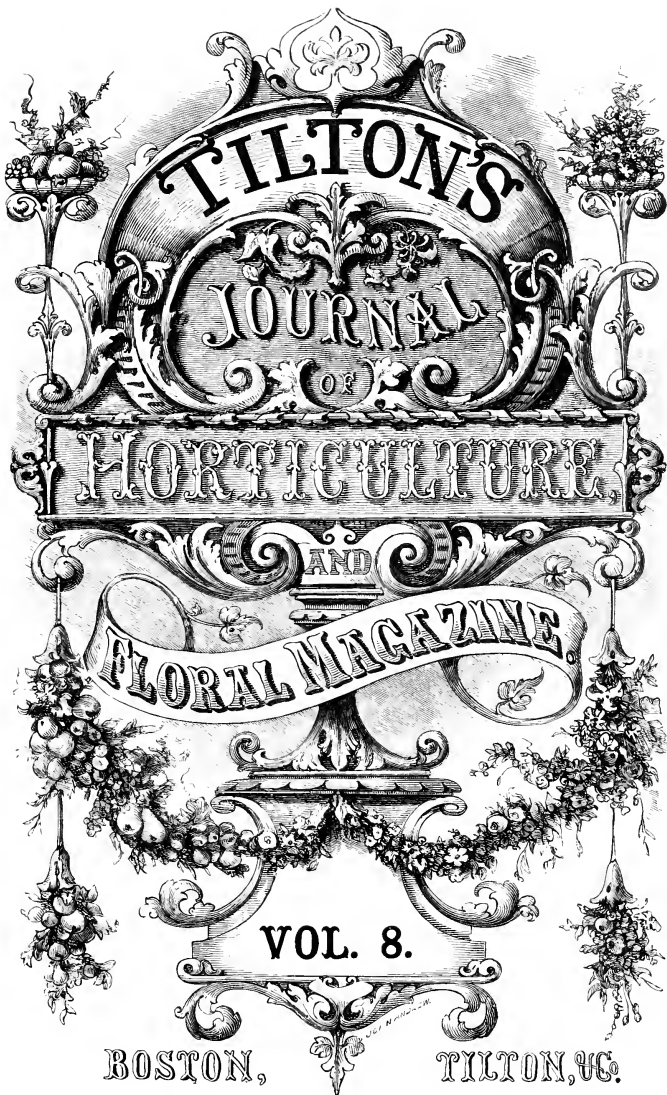
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While these pages were going through the press, we have had our attention directed to a sketch of Mr. WILDER in the "Londou Gardeners' Chronicle," accompanied with a life-like portrait. The editor introduces the sketch in the following words:

"We are glad to have the opportunity of laying before our readers the portrait of one of the most distinguished of transatlantic horticulturists, and one who, by his zeal, industry and determination, has not only conferred lasting benefits on his native country, but has by his careful experiments in hybridization and fruit culture laid the horticulturists of all nations under heavy obligations to him. The name and reputation of Marshall P. Wilder is as highly esteemed in Great Britain as they are in America."

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HOW TO PROPAGATE SHRUBS. (CONCLUDED.)

By FRANCIS PARKMAN, Jamaica Plain, Mass.

Propagation by Seed. — Many shrubs are best propagated by seed, and some can hardly be increased in any other way. All shrubs that are simple *species*, and not florist varieties, can be raised in this way, provided they bear seed, which most of them do. Thus, if you want a hedge of hawthorn, you are sure of getting one by sowing the seed; for the common white hawthorn, being a natural species, will produce a seedling like the parent. But if you sow the seed of one of the colored or double hawthorns, which are florist varieties, and hope to see an offspring like the parent, you will probably be disappointed. So with the “fancy” varieties of the weigelia; they will not exactly reproduce themselves from seed, though the offspring will bear a certain resemblance to the parent, just as a child usually does to its father or mother. This variation from seed is one of the most curious subjects in horticulture; and it is by means of it that nearly all improvements in the varieties of fruit, flowers, and vegetables have been produced.

Leaving out, then, the “fancy” varieties — unless, indeed, we wish

to experiment with them for the production of new ones, — we have remaining the greater number, including many of the best, of our ornamental shrubs. Some of these cannot be raised from cuttings, or even from layers, and at the same time are difficult to bud or graft, but can be raised very easily from seed. Such, for example, is the Virginia Fringe (*Chionanthus*).

Now with respect to the management of the seed. It should be sown as soon as possible after ripening, as it then germinates much more quickly and surely. It may be sown in a cold frame, in a light soil, well enriched with leaf mould and very old pulverized manure. This soil should be at least two feet deep, and well drained. If not naturally very light indeed, sand should be added to it. When the seeds are small, they may be dropped in rows on the surface, or scattered over it broadcast, and then pressed, not too hard, with the flat of a spade, after which light soil should be sifted over them to a depth not exceeding half an inch. If the seeds are large they should be sown in drills, at a depth never exceeding an inch. Supposing this to be done in the autumn, which is the best time, nothing remains but to cover the frame with boards or shutters for the winter. Remove them in the spring, and the seedlings will presently appear, if it is their nature to come up the first season. The same process may be conducted on a smaller scale in pots or boxes, which should be wintered in a cellar or a cold frame.

The seeds of shrubs, like other seeds, differ much in their period of germination. Some, such as the seeds of cytissus and Tartarian honeysuckles, germinate almost immediately. Others, like the hawthorns, require a full year. The habits of the Virginia fringe, already alluded to, are very curious in this respect. Sow the seeds in the autumn, and they do not appear above the ground before the second succeeding spring; but, during the summer, when they are to all appearance dormant, they throw out a root, without the least development of the seed-leaves.

Seeds which do not germinate till the second year, are commonly treated by nurserymen by a process which the French dignify with the name of *stratification*. In a safe and sheltered place they make a pile

composed of alternate layers of earth and seeds. This pile should be turned over two or three times in the course of the season with a spade, thus disturbing the "stratification," but much benefiting the seeds—equalizing their exposure to air and moisture. The pile, by the way, should never be allowed to become very dry. In the following spring, just as the seeds are at the point of sprouting, they are sown in the open ground, and come up at once. The same process may be employed on a smaller scale by placing alternate layers of earth and seeds in a flower-pot, which should then be plunged to its rim in the open ground, the contents being turned out and mixed together once or twice during the season. In all cases the layers of seeds must be very thin; so thin that the seeds should not lie much one upon the other, but rather be spread over the soil.

It often happens, even in the case of seeds which germinate the first year, that one has not cold frames to sow them in, while, on the other hand, it is not well to sow them in autumn in the open ground, liable to the accidents and exposures of winter. The difficulty may be avoided by simply mixing the seeds with earth, placing the mixture in a flower-pot, plunging it to the rim in a dry, sheltered part of the garden, and covering it with boards for the winter. It thus gets all the benefit of autumn sowing, without its risks. In the spring the seeds and earth together may be sown in the open ground. Undoubtedly the seeds of many shrubs will grow readily, if kept dry during winter and sown in the spring; but all those of slow or difficult germination are much better treated as described above.

It is a good plan to scatter a thin layer of light moss over the surface of the earth after the seeds are sown. This keeps the earth moist, and helps to shelter the young seedlings, when they first appear, from the scorching heat of the sun.

SUCCESSFUL PEAR CULTURE.—IV.

By T. T. SOUTHWICK, Dansville, N. Y.

GATHERING AND MARKETING.

MR. MARTIN gathers the small specimens first, as the larger ones rapidly improve after the others are picked, and it is the *large specimens that bring the money*.

Most varieties are gathered six to ten days before maturity, and sorted into four grades — “extra,” and first, second, and third classes.

“Extra” and No. 1 are wrapped like oranges, placed in shallow boxes, and sent at once to the best market. No. 2 are sent to smaller markets, and No. 3 sold at home.

Such specimens as are imperfect in shape, or have become bruised, and not salable at good prices, are canned. I can personally attest that his canned pears are very choice — the best I have yet met with.

For canning purposes he has found no variety so desirable as the Howell. They present and maintain in the cans a snowy whiteness that is tempting to the eye, and makes them very salable.

RIPENING.

Mr. Martin’s plan is, to place the fruit in single layers, between woollen blankets, and cover the whole with other blankets, or some substitute. Each day the blankets are lifted, and the ripe ones taken out.

Winter fruit is allowed to remain on the tree as long as safe from frosts. When gathered, they are placed in barrels, with a peck of apples in the bottom of the barrel, and another peck on top. He has found that apples sweat or ferment more easily than pears, and materially help in the ripening process.

The barrels are now placed where they will remain as cold as possible and not freeze, until the season of ripening of any given variety approaches. The barrels are then opened, and the ripest sorted out; the balance are replaced. The plan for ripening is the same as for summer pears — place between blankets in a warm room.

The longer any pear is in ripening the better the quality. Should any variety be wanted before its season, the process can be forced by bringing the barrels into a warm room.

The fruit should be forwarded to market before fully mellow. He experiences no trouble in bringing the Easter Beurré to its full perfection by the above plan.

PRICES OF PEARS.

The following are about the average wholesale rates he obtains: —

Third class bring one to two dollars per bushel at home.

Second class bring four to five dollars per bushel at home.

First class bring eight to ten dollars per bushel at home.

“Extra” class bring two, three, and five dollars per dozen.

Mr. Martin has taken off as high as nineteen dozen from a single tree — seven years planted — three fourths being “extra” and No. 1.

The following are the weights of some kinds as grown by him: —

Duchesse d'Angoulême, nineteen ounces. Beurré Clairgeau, twenty-two ounces. Bartlett, sixteen ounces. Easter Beurré, twelve ounces.

SELECTION OF VARIETIES.

He has some fifty varieties in fruiting, nearly all of which do well. The Belle Lucrative and Onondaga seemed least healthy, while some fine varieties drop their foliage in dry seasons, as Flemish Beauty and Beurré Diel. Sheldon cracks badly. White Doyenné is variable; in some soils he produces them as fine as ever grew. No variety is troubled with rotting at the core. He recommends the planting of more varieties than others do, particularly if a large orchard is to be planted. In dwarf pears, the variety he was most cautioned about, has done best, viz., Bartlett. With Duchesse d'Angoulême he succeeds finely.

For a pear orchard, mostly for market, his list would be, for his section, in one thousand trees, 300 Lawrence, 120 Vicar, 30 Beurré Clairgeau, 50 Easter Beurré, 65 Beurré d'Anjou, 150 Bartlett, 20

Clapp's Favorite (not fully tested yet, but thought well of), 55 Buffum, 140 Howell, 60 Seckel, 10 Doyenné Boussock.

Osband's Summer, Duchesse d'Angoulême, Belle Lucrative, Doyenné d'Été, Flemish Beauty, White Doyenné, Brandywine, and Beurré Bosc, should be added for the family in small numbers.

BLIND ASTERS.

By JOSEPH BECK, Ex-President of the Massachusetts Horticultural Society.

IN the past season many of my asters "went blind," as the saying is; that is, although the flowers form, they do not show the proper color, but, instead, come out with a sickly greenish-white color; sometimes one half of a flower will be diseased, while the other half will be all right; sometimes one half the flowers on a plant will be blind, and those on the other part will be perfect; but generally all the flowers will assume this character. Nearly a quarter of my plants were affected in this way the present year. Consequently I had to weed them out, which made unsightly gaps in my otherwise splendid bed of asters.

Upon examination I found a worm in the pith of the stem of every sickly plant. The worm I took to be one of the many species of wire-worms; but, as I am not much of an entomologist, cannot define it, or give any description of its character or habits, only that it is addicted to the very bad habit of mutilating or destroying the beauty of my bed of asters. I think I missed it in planting the same ground with asters four successive years, whereas they should not be grown upon the same soil for more than two years.

The only remedy I can think of when they are to be planted on old ground is, to give a good dressing of lime in the fall or early in the spring, which I have no doubt will be efficacious in destroying the wire-worm and other pests which infest the soil of old gardens. In my own grounds they have greatly multiplied. In the spring I laid a piece of board a foot square, on my aster bed, at night, and in the morning, upon taking up the board, as many as twenty or thirty wire-worms were visible on the surface of the ground.

CULTIVATION OF PELARGONIUMS.

By JOHN PEATTIE, Ellerslie Park, Rhinebeck, N. Y.

MR. EDITOR: My object in writing is to give my mite to your Journal, for the great cause it promises so ably to advocate, — horticulture, — and to give to some of our young growers of the pelargonium my experience in the cultivation of that plant. It is a plant that we see in almost every collection; no matter how small the collection may be, there it is, and there is no plant in cultivation more neglected. Often we see them huddled together in a close, warm green-house, hot enough for ordinary stove plants, with about two to three stems three feet in height. In that condition they are no beauty to the green-house nor credit to the grower. The pelargonium does best in the coldest house we can possibly keep them in; say from thirty-five to forty degrees through the winter, and near the glass, where they can get a good supply of air; but be careful they do not freeze, if extremely cold. There is no plant in cultivation that better pays for good care and culture than the pelargonium. With our long winters here, we have to keep up much fire heat, which is the only obstacle preventing us on this side of the Atlantic from competing with the growers in the vicinity of London; yet, with good management, some good specimens can be grown.

One great point in growing pelargoniums is, to start a good bottom. In this point I believe many fail. In the first place, many let the plant exhaust itself into flowering shoots, as we often hear our brethren talking of propagating their pelargoniums when they are done flowering. The cuttings are then too hard and too late to make good specimens in twelve months, and many keep their old plants from year to year, which take up more room than there is any use of. For the pelargonium can be propagated and grown from two and a half to three and a half feet in diameter in twelve months. The best time to flower it is from the 15th of May to the 15th of June.

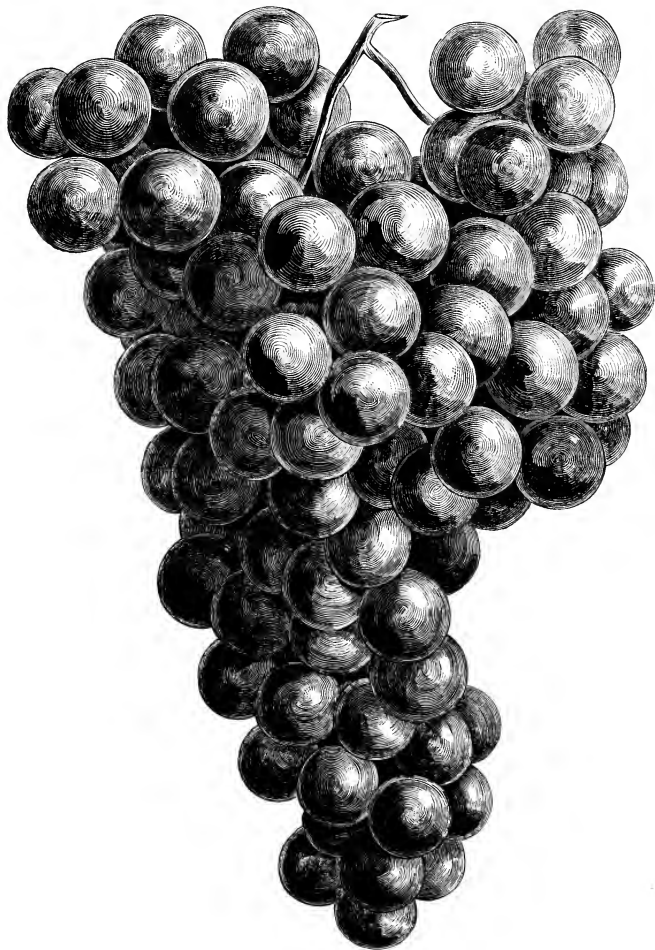
I now give you my system of growing the plants into good specimens. I go round the plants about six weeks or two months before they come into flower, and cut back two or three shoots on the outside; these give me fine, strong, healthy, vigorous cuttings for the next year's

plants. When they have made about three or four well-developed leaves I take off my cuttings, insert in a box, or fill a number of seed pans, and place in a cool green-house, which root in about a month or six weeks. I rather at this season object to putting them into a tight frame, because it draws them, and makes them too spindling and tender. When rooted, I pot in small thumb pots, and let them remain therein until they have made five fully developed leaves above the pot, which I then pinch back to three. I neglected to say that in putting in the cuttings I take no leaves off except the bottom one. Now you have got a plant with three good-sized leaves (no leader); at the base of each of those leaves you will get a young shoot; pot again into a larger pot, and let each of those shoots grow until they make five well-developed leaves; then pinch again to three leaves, from where they started, and from these get nine shoots; these will now have to be brought down to the outer side of the pot; always allowing your young shoots to make five full-grown leaves, and pinch back to three; for if pinched before they have made that number of leaves, you will get but one or two, because you have not given the eye at the axil of the leaf time to develop itself. From nine shoots you get twenty-seven; you have then got enough shoots to make you a plant three feet in diameter. Each of those twenty-seven shoots will give three flowering ones each, making eighty-one flowering stems. Each of those stems will give from two to three trusses, being a little over two hundred trusses, if the plant has been properly managed. I give my plants three shifts from the small thumb pots, making my last shift about the last of February into an eight-inch pot, using strong turfy loam with ground bones, say about as rough as ordinary gravel, and charcoal, potting very firm each time, growing in a very cool house, using as little fire heat as possible, as it tends to draw them too much, and prevents them from being short-jointed and stubby.

Some of the varieties which I think are very fine, especially those I purchased from Messrs. Bennett & Davison, Flatbush, L. I., are, Dunbar, Cornett, Lord Cardigan, Scarlet King, Annihilator, Princess, Mr. Koyle, Mazeppa, Agnes, Crimea, Eclipse. They are all fine, compact growers, and free bloomers.

THE SENASQUA GRAPE.

THE Senasqua grape was grown by Stephen Underhill, of Croton



THE SENASQUA GRAPE.

Point, N. Y., the originator of the Croton grape, described and figured in our vol. v., p. 223. Mr. Underhill's description is as follows:—

A black grape grown from Concord, fertilized with Black Prince. The seed was planted in 1863, and the first fruit produced in 1865.

The vine is a strong grower, with large, firm, healthy foliage, which has every appearance of a pure native. The berries set very compactly on the clusters; so much so, that part of them do not obtain their full size, and occasionally some of them burst from the pressure.

The fruit is like the fleshy foreign varieties, totally unlike any hardy variety yet disseminated, and considered by several of our best pomologists the finest hardy grape they ever tasted. When well ripened it can be broken in two like a ripe peach. It commences to color at Croton Point a few days before the Concord, ripens about a week after, but continues to improve for a long time. It has a fine, refreshing, vinous flavor, which is much admired by many, especially those who are partial to the foreign varieties.

A NEW WAY OF HUNTING THE CURCULIO.

By J. A. DONALDSON, St. Joseph, Mich.

It has been discovered very recently by Mr. W. B. Ransom of this place, that by putting chips around the collar of the tree, the curculio seeks shelter under them, and may be more easily caught than in the usual way. When the chip is turned over, the curculio is found with his feet to the chip, back downwards. Several thousand were caught in this way in a neighborhood near this village in one day. One gentleman informed me that he found from four to a dozen under each tree. Whether this plan will succeed when the weather becomes warmer, and the fruit exposed by the falling of the blossom, remains to be tested.

If it should, the discoverer of the plan will deserve a pension from fruit growers while living, and a high monument when dead. I ought to state that the ground should be smoothed near the tree, and chips or pieces of boards laid all around the tree.

ON THE CULTURE, TREATMENT, AND VARIETIES OF
THE CHINESE AZALEA. II.

By ROBERT BUIST, Philadelphia, Pa.

THE plants being trained, or pruned, according to your taste, there is yet one point that ought not to be overlooked: that is, cutting off the seed vessels. We find it very beneficial both to the improvement of the foliage and the perfection of the flowers the following season. This brings us to the criterion of a first rate flower of a first rate sort—habit must be compact, or made so; flower in form should approximate a circle, color clear, flower firm and waxy, and studded with crystallizations; edges of the petals smooth and even, with a bold, open face. These forms are very apparent in Clapham Beauty, Standard of Perfection, Gem, Queen of Whites, Rosy Circle, Beauty of Reigate, and others. There are round-flowered, fringed sorts, such as Alexander the Second, Glory of Belgium, and Lion of Flanders.

Double sorts have been known in cultivation nearly half a century; but the late improvements on that section far eclipse all Chinese introductions. These are, *Alba plena*, Glory of Sunning Hill, Bouquet of Roses, Bernard Andre, Fredrick de Vos, Souvenir de Prince Albert, Narcissiflora. These and some others are always perfectly double. There is, however, one drawback upon nearly all the double varieties: they are bad growers; they take longer time to arrive at what is termed a good specimen. There are many kinds termed double that are far from it, rarely showing the centre petals; such as *Alba fimbriata plena*, Doctor Livingston, William Bull, *Cedo nulli*, with a few others.

There is in all the azaleas, directly from China, a dulness of color, except in the brilliant gem *Obtusa*. We still hope the Chinese will show us some more brilliant illustrations of their taste and culture in this very extensive and popular family. Not so in the camellias; of those we have had from them the colors are bright and pure, and the more recent flesh colors are surprisingly beautiful.

Having given your readers these brief and close hints on the culture, treatment, and character of the Chinese azalea, I am not so arrogant

as to suppose that they excel all others, or that there is no other path to success. I do say, however, that it is the result of forty years close observation, on a stock that has no rival in this country. If it clears up the minds of your lady friends to a more cheerful employment amongst their favorites, giving them a more flowery return, my object is accomplished.

THE WILSON'S EARLY BLACKBERRY.

By PHILIP SNYDER, President Vineland Horticultural Society.

DIDN'T "Bismarck" mix things a little too much for perspicuity in the December Journal? Under the caption of "The Wilson's Early Blackberry" he refers to a white blackberry, expends a paragraph upon it, and then goes on to tell that "the plant" should not be recommended for small gardens, because it rambles too much. I really don't know whether he means the Wilson's Early to be the Rambler, or the white blackberry.

However, I know a little about the Wilson's Early, and, by your leave, will tell it. It does ramble some the first year, but *then* its wanderings are done. The second year it is as erect as any well-behaved blackberry need be. Clip it at the height of three feet, and then clip the laterals as they put out, shaping it like a pyramidal tree, and it will be as well adapted for "small enclosures" as a dwarf pear tree.

I put out three hundred and eighty-eight plants of this variety, in the spring of 1868, in two rows. The ground was first fairly ploughed; then we made two furrows, nine feet apart, and filled them about one third full of composted muck, closed the furrows, drew a line, and set the plants four feet apart. The roots were closely pruned in order to propagate from them; but the plants grew finely. The young canes at first made an upward growth of about two feet, when I pinched them off. Then out came the laterals, and away they went, in many cases ten and twelve feet. In September, the tips were buried, and from these we

raised about a thousand plants. In the spring I cut back, to form a bush, leaving the laterals from six inches to a foot in length. When they blossomed, it was a splendid sight; and the fruit, when that matured, though not so showy to passers by on the road, was nevertheless quite attractive to me. From these three hundred and eighty-eight plants, and from, perhaps, a hundred more grown from the cuttings made from the roots of these plants, we picked a trifle over seven hundred quarts of berries — a yield compared with which the Lawtons of the same age are “nowhere.”

The wood made this year (1869) is at least four times in excess of that which fruited last year, and up to this date there is every promise of a magnificent crop for 1870. As to earliness over the Lawtons, it consists in the earlier ripening of *the crop*, and not of individual berries. Picking of each commences simultaneously; but the Wilsons are done in about three weeks, while the Lawtons last six weeks or more. This is of great importance whenever blackberries have to compete with peaches.

In quality there is, with me, hardly a perceptible difference between them and the Lawtons when each is well ripened; but generally the Lawtons are esteemed a little the best. In appearance, with the same treatment, the Wilsons are ahead; and ahead again in the matter of retaining their color on the way to market. As to comparative hardiness, I have seen no satisfactory test as yet; but the Lawton we know to be a weak sister in this particular, while, as to “Jersey” at least, I never heard any complaint of the Wilsons. As a market berry, it is pretty certain to displace the Lawton in this state.

VINELAND, N. J., December, 1869.

CORNELL'S FANCY APPLE,

Called also Cornell's Favorite, though only locally known, is highly esteemed in Pennsylvania, where it originated. It is of medium size and handsome shape and color, being streaked and clouded with red, deepening into a crimson cheek in the sun. Ripe early in September. Tree vigorous and productive.

WARDIAN CASES. — No. III.

STOCKING AND MANAGEMENT.

By JAMES L. LITTLE, JR., Boston, Mass.

IN considering the subject of the stocking of Wardian Cases, I shall not attempt the naming of a long list of ferns suitable for case culture, but refer the reader to a more complete article on this subject.* The amateur will find in our own woods, in fact, in all woods, some ferns and mosses, any of which will in all probability do well in his case. The study of mosses will well repay the lover of nature, and nowhere can it be so successfully pursued as here, the moisture of the case always keeping them fresh and bright, while their growth is rapid. There are few of our green-house ferns that will not do well under this treatment; the gold and silver ferns are perhaps the exception; they do not always attain their full size and beauty in a Wardian case, but the *Adiantums*, *Pteris*, *Polypodiums*, *Blechnums*, and others, do well.

In planting a case, do not place the plants too near, nor use too many of a large size, but put in fewer plants and of a moderate size. Water well after setting the plants out, and shade the case for a day or two; then give it the morning sun each day for an hour or two, and your ferns will soon start. Nothing can now be more interesting than to watch them — the frond pushes its head above the earth, the heat and moisture of the case have their effect, and it gradually rises and uncurls till it reaches its height, then it expands into the most beautiful and graceful of shapes; then what can exceed in delicacy and freshness this newly born part! The *Lycopodiums* grow finely, and spread very rapidly in the case; small pieces introduced at regular intervals in the case will in a marvellously short time double their original size; and if the pendent roots of the creeping species are pressed well on to the surface of the earth, the spaces between the plants and ferns will soon be filled up, and a rich and delicate carpet be produced over the whole case. For vines, nothing can give more satisfaction, I think, than *Ficus*

* Rand's Flowers for Parlor and Garden.

stipulata, which can be obtained at all green-houses. The roots of this plant, which strike out at every joint, have an adhesive power, and will attach themselves firmly to the glass in the case, which renders the growth more rapid and regular. It is a very interesting vine to watch; the roots adhering to the glass allow a free use of the microscope, and the growth and circulation can be studied to great advantage from the outside of the case.

As to soil, the best mixture for the growth of ferns and lycopodiums is the following: leaf mould two parts, fresh sand one part, gravel, about the size of a pea, one part, and stable manure, chopped very fine, one part. Many writers on this subject are opposed to the use of manure, but I have found it very beneficial. Ferns which grow naturally in dry places can be arranged on a rock work in the centre of the case, if it is large enough to admit of it, and those requiring more moisture should be placed nearer the sides of the case, and they will get more moisture from the glass, where it deposits in great quantities. The spores of ferns can be sowed on the surface of the earth in the Wardian case, and a constant supply of young plants can in this way be obtained, thus enabling the student to watch them in every stage of development.

It happens that not unfrequently the larvæ of insects are introduced in the earth into the case, and hatch out under the influence of the heat. To provide against this it will be found useful and interesting to put in several small sized toads, and the insects will disappear very soon, and give no further trouble. Toads will live through the winter perfectly well in this way, and their habits can be studied; some may become aware, by trying this experiment, that the toad, although not one of the handsomest of our reptiles, is not the least interesting. Experience will teach many things that cannot be laid down as rules; let us have the result of such, and we may hope ultimately to introduce the Wardian case more extensively than at present. Success may not always be attained by following prescribed rules; if not, let the amateur or the proficient in horticulture follow a course of reasoning of his own; in this way and under these circumstances success is all the pleasanter, and the means of attaining it more firmly impressed on the mind of the achiever.

In stocking Wardian cases, let us remember plants of different natures and requirements cannot be successfully grown together; any amount of management will not produce it, any more than the inhabitant of the tropics can stand the changes of climate in the frigid zones; and it is the opinion of the writer, that the culture of ferns and lycopodiums, also such plants as love heat moisture, and this class only, will repay those interested in the Wardian case.

RAISING SEEDLING GRAPES.

By J. M. MERRICK, JR., Walpole, Mass.

WE need no evidence to prove that a wide-spread interest is felt in raising grape vines from seed. The number of new vines that appear every year, and the stories that come to light in the journals now and then, that so-and-so has a thousand seedlings growing on his grounds, and his neighbor ten thousand, show that innumerable experiments are being made in this country to improve the quality of our out-door grapes.

The brilliant successes of a few cultivators, and the fascination of the pursuit, attract new experimenters annually, and I have thought that a few hints drawn from my experience in raising seedlings, during the last eight years, might save beginners from some blunders and waste of time. When I began, I was so ignorant of what was being done all around me, that I actually planted a large quantity of seeds of the wild grape, and kept the plants till they were three years old, before I destroyed them. Of course we should begin with the best and most improved kinds, and of these plant only the largest and ripest berries.

Seed may be planted out doors in spring or fall. Fall is rather the better time. Select a warm, mellow, rich piece of ground, and make a seed-bed about four feet wide, and of any convenient length. Fork in a large quantity of rotten manure, unleached ashes, and bone-dust, — one or all of these fertilizers, — rake level, and plant grapes or seed in drills, about an inch and a quarter deep, and fourteen inches apart.

In a drill four feet long, put at least fifty good grapes, or a hundred seeds; for, in my experience in raising plants, only a small percentage of seeds ever germinate. (I planted quantities of the seeds of Allen's Hybrid, Adirondack, and Martha, last fall, and did not get one seedling.) Fill the drills with soil, press down firm, by laying on a board, and stepping on it from end to end, and finally drive a stake at each end of the drill. Use zinc labels, written on with a solution of sulphate of copper (blue vitriol), and, for additional safety, make a record of the number of drills, varieties planted, &c.

Nothing is now to be done till the following spring. If any weeds show themselves, they may be cautiously hoed down till the 15th of May, with a sharp hoe, disturbing the surface of the ground as little as possible. The most of the seed that does germinate will come up between May 20 and June 15. If the weather is very dry and hot, the young plants may be watered as they show themselves; but usually this is needless. As soon as the rows are well defined, hoe the intermediate spaces clean, taking great care not to disturb the plants, which are exceedingly sensitive to violence, and which must be weeded by hand. A sharp lookout for cut-worms must now be kept. The bed must be examined every morning, and when a seedling is found cut off, search must be made, and kept up, till the worm is found. If left to his own guidance, he will destroy the whole row of plants. If I remember aright, cut-worms made great havoc among Mr. E. S. Rogers's young plants. Give the bed a light sprinkling of Peruvian guano before rains, which sprinkling should be repeated at least every ten days. The plants must be kept growing without check from the time they are visible till the middle of August. Mildew may be looked for after the 10th of July, and once a week, at least, after first of July, and oftener, if rains are frequent the bed should have a liberal dusting with sulphur, sprinkling it on when the leaves of the seedlings are wet with rain or dew. By the middle of August the vines should be at least eight to twelve inches high, and at that time the leading shoot must be pinched off, and also any laterals that may afterwards be thrown out. No guano need be applied after the middle of August, but the bed should be constantly hoed and kept clean.

About September 1, the base of the canes should begin to brown, showing that the wood is ripening. As soon as frost has destroyed the leaves, the tops may be cut down to one bud above the ripe wood; or, if they have ripened very well, three or four inches of ripe wood may be left, and the rest cut off. The young vines may then be lifted from the seed-bed, half the roots trimmed off, and set out in the bed where they are to remain till they either fruit, or show their incapacity to do so. The bed to which they have been transferred should be covered for the winter with two or three inches of leaves, kept down by pine branches or boards, to be removed early in the spring. Seedling vines should make a growth of four or five feet the second year, two thirds of which should be cut off in the second autumn. The vines should be kept within reasonable bounds until they blossom.

I have never had a seedling fruit earlier than the fifth year from the seed, and then only a small percentage of the whole number. As soon as a vine blossoms, the flowers should be examined, and, if found staminate, the vine should be at once destroyed. No seedling should be condemned or approved until it has fruited at least three years. If it shows merit it should be closely watched, its time of blossoming, coloring, ripening, &c., carefully noted, and the flavor of its fruit tested by comparison with well-known and standard kinds.

Perhaps, on the whole, the Concord and its best seedlings are the best grapes from which to raise new vines. Health, vigor, and productiveness are attained in them, and high quality is to be hoped for in their descendants. Seedlings from hybrid grapes should show curious results; and I have a number from Rogers's, Arnold's, and Underhill's hybrids, which I watch with much interest.

Notwithstanding all that has thus far been done in grape-growing, we are by no means satisfied. We want, first, hardiness and health; second, productiveness; third, high quality; and, at the North, earliness. We have the first and second demands met by the Concord; the Iona shows an unsurpassed quality, and the Hartford is early. Who will give us a grape combining the characteristics of these three?

CHAPTER ON GREENHOUSES.—No. V.

By F. A. LORD, Syracuse, N.Y.

FOR the illustrations this month we give the plan and elevation of a range of houses erected by the writer, some two years since, for Col. James M. Thompson, at his residence, Highland Place, Springfield, Mass.

As the location is very elevated, overlooking the beautiful Valley of the Connecticut, and the mansion, grounds, and surroundings are elegant and expensive, it was desirable that a structure should be erected which would be ornamental as well as useful, but also with the view that ornament should not be at the expense of *utility*.

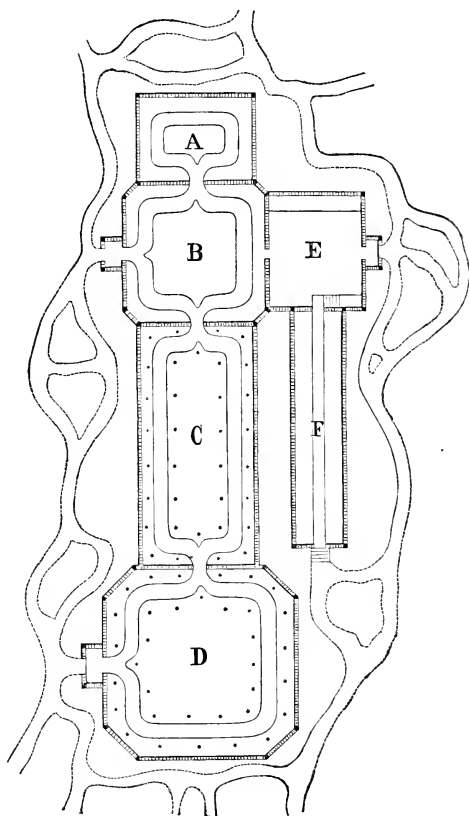
The location selected was east of and in full view of the dwelling, in a recess made by a high evergreen-hedge, that formed the boundary of the estate on the north and east sides, and screened from the stable on the south.

By reference to the plan, A is intended as a hot-house, B is for a general conservatory, C is a forcing-vinery, D is a cold-vinery, E is the work-room, F is the forcing or vegetable pit. All are connected by suitable walks, &c. The conservatory is fitted with the aquarium, rock-work, and fountain, and has a broad shelf around the sides. The aquarium is well stocked with trout, placed there some two years since. The hot-house is fitted with shelves in the usual manner.

The vineries have worked well, giving canes of from twenty to twenty-five feet growth the first season. The pit gives abundance of vegetables during the entire winter, and is also well adapted to the growth and cultivation of small fruits and flowers. The flue of the boiler-furnace is brought across under the walk, and rises up in the centre of the conservatory, passing out through the blind-chimney at the top. Ventilation is given in the octagons by a row of sash at the top of the sides and in each dome: this proves a very efficient way of equalizing the temperature.

In the hot-house and forcing-vinery, ventilation is given by a row of sash at the top and bottom, opening out, which are all operated with arms and levers, to open simultaneously. The form of the exterior is curvilinear, with two octagons connected by the forcing-vinery. The large octagon has

a double dome with ornamental sash for ventilation, and is surmounted with a *finial*, on which is placed a weather-vane of unique design, being a

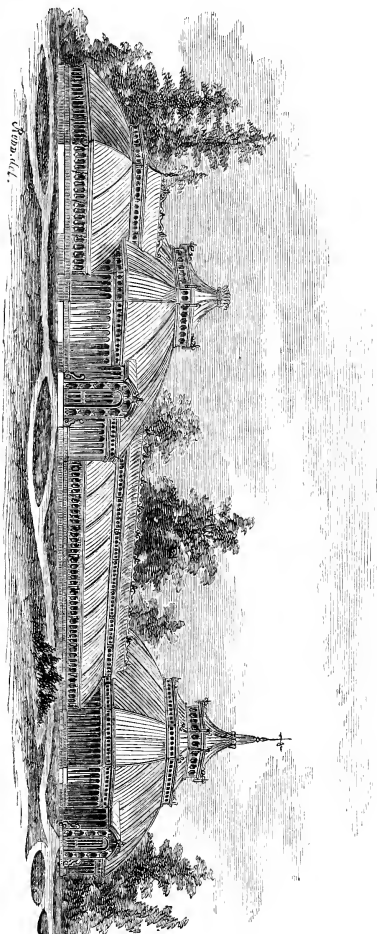


A. HOT-HOUSE.
B. GREENHOUSE.
C. FORCING-VINERY.

D. COLD-VINERY.
E. POTTING-ROOM AND FIRE-PIT.
F. FORCING-PIT.

branch of a grape-vine with its clusters of golden fruit hanging temptingly near, and yet beyond the reach of Sir Reynard and his clique. The small

octagon has a single dome, with similar sash for ventilation, and is sur-



mounted with a crown to screen the smoke-pipe that rises from the furnace

below. The connection between the octagons has sash and ventilators similar to those in the octagons. The main entrance projects from the building, with inside doors for winter use ; the whole being ornamented by suitable tracery on the rafters and ridge. In this house, the sash in the upper row of ventilators was filled with colored glass of the four prominent colors. The building being transparent, the colored glass served to break the sameness, and formed a prominent and pleasing object to relieve the eye from the glare arising from the glass in the building being visible at all times, and from any point. In a picturesque view, the effect was good.

This plan and elevation, divested of part of its ornaments, and greatly enlarged, was adopted by President Clark of the Agricultural College at Amherst, Mass., and erected at that place through the liberality of the Messrs. Hills of Amherst, and Dr. Durfee of Fall River, who each generously gave ten thousand dollars for its erection and maintenance, in connection with the botanical garden attached to the college grounds.

The large octagon, D, is intended for a palm-house, sixty feet square and thirty feet high ; the connection, C, as a hot-house, fifty by twenty-two ; the small octagon, B, as a general greenhouse, forty by forty ; the small apartment, A, as a victoria or lily house, twenty by twenty-two.

An addition for a camellia-house was made in the rear of the victoria-house, adjoining the work-room, eighteen by thirty-two. The work-room, E, was twenty-five by twenty-five ; the boiler and coal-room being placed beneath. It was provided with two pits, F, fifty by twelve, for the propagation and growth of the smaller plants.

SHELTER.

THE importance of protection against winter winds is every day becoming better appreciated ; but it should be borne in mind that in many places a free ventilation of orchards in summer has been found necessary, especially when the weather in summer is *damp* as well as hot. In locations subject to late frosts also, it is quite possible to have too much of even so good a thing as shelter, for it is well known-that frosts are much more frequent in a still than in a windy night.

THE CURRANT WORM.

By GEORGE CRUICKSHANKS, Whitinsville, Mass.

HAVING had a severe fight with the currant worm, and conquered the enemy, I send you the mode of attack. The worm made its appearance here three years ago, and has grown worse each year. Since its first appearance previous to this year I have tried whale oil soap — four pounds to thirty-two gallons of water and carbolic acid; but not finding either of the above so effectual as I could wish, I began to use kerosene with the whale oil soap, increasing the kerosene till it would kill the worm. I used five pounds of whale oil soap and one wine quart of kerosene to twenty-five gallons of soft water. Stir the soap and kerosene till thoroughly mixed, add two pails of hot water, stir till the soap is dissolved, then add the balance of the water cold, when it is ready for use. Apply with a syringe, with *force*, in bright sunshine. I do it in the middle of the forenoon. Since I have used this solution I have had few currant worms, after three applications in bright sunshine. The sun dries the liquid on the leaves, whereas if applied in the evening, as is the custom with many, the falling dew gives the worm a chance to revive, so as to go on with its work of destruction the following day.

June 3, 1870.

Besides the above, we are informed that an intelligent and observant horticulturist has found a solution of copperas, in the proportion of one pound to six gallons of water, sprinkled on the leaves, a sure preventive and remedy for the currant worm. It kills not by contact with the worm, but by poisoning their food, so that they die in a few hours.—ED.

HOW TO CAN FRUIT.

By Rev. I. F. HOLTON, Everett, Mass.

LAST year I attempted, too late, to tell the readers of the Journal how to can fruit. It may be as well, for I was intending to recommend a particular jar on theoretical grounds. I have since proved it a perfect success, yet have engaged a slight variation in its cover this year to avoid a theoretical imperfection.

People can fruit on a false theory. It is that of driving the air out of a jar by *steam*. This can be done, and perhaps sometimes is, but I think of no circumstances in which I would attempt it. The true way is, to fill the jar absolutely full of boiling liquid, and clap the cover on, leaving no particle of air *or steam* under it. Now to particularize.

First. Take a *glass* jar. It is unchangeable, and is as good as new till it breaks. No fruit acts on it. You can see its contents. You need not break it.

Second. Heat it till it will bear boiling liquids. This may be done by pouring in water that will not break it, and adding successive portions of boiling water, shaking it after each.

Third. Dip in the substance to be canned from a *boiling* kettle, as deliberately as you please, so that the top does not get so cold that boiling water will break it. Fill to within a half inch of the very brim.

Fourth. Lay a circle of stiff paper on the surface.

Fifth. Pour on a quantity of boiling water, letting it run over the top, till the last particle of foam is washed away. The paper keeps the steam from washing away the substance beneath.

Sixth. Put on a hot *glass* cover, that will project a little into the mouth of the jar, with a rubber ring between the top of the jar and the shoulder of the cover, so that no air can pass the cover.

Seventh. Put on a clasp, or other contrivance, to hold the cover and rubber firmly against the top of the jar air tight. The lid touches the surface of the boiling water, and there is no place for air or steam in the jar. But as it cools, the surface of the liquid sinks away from the cover, and it looks as if there were air in. The more rapidly filled,

the greater will be the vacant space. The less of liquid in the contents, the less the space.

Eighth. Test the jar when cold. Remove the clasp or other contrivance *without disturbing the cover*. If now you can remove the cover with your fingers, the jar is not sealed. If jar or cover be defective, sealing may be impossible. If all be tight, replace the clasp and rest secure.

Of course, with many patterns of jar, these directions cannot be followed. Reject all such jars. A jar might fulfil all these conditions, but be unsatisfactory and difficult to open, because air cannot be conveniently let in by passing the point of a knife between the jar and the rubber. The covers of my Hiltons last year left a minute bubble of air beneath them. It did no practical harm. The manufacturers promised to make the under surface of the cover a little convex this year.

I see no reason why jars should not be as good after a use of twenty years as at first. They will keep quicklime, potash, spices, ground coffee, putty, and perhaps paints and varnishes — certainly, if the mouth and cover can be kept clean. None of these need a vacuum.

CALYPSO BOREALIS.

SELDOM have we been more disappointed than we were at the first sight of this rare native flower. It is very pretty, and that is the best that can be said of it. If it had size it would be showy; but it is too small, and is so difficult of culture, that, except as a rare botanical specimen, it is not worth growing.

The root is a small tuber, about as large as a small pea; the foliage one small leaf, and the whole plant is not more than an inch and a half in height.

However, it is probably the rarest of our native plants; few botanists have seen other than the specimens in herbaria, and to have it in the garden is not unsatisfactory.

R.

DECORATIVE PLANTS. II.

THE ARALIA. — CONCLUDED.

By EDWARD S. RAND, Jr., Boston, Mass.

WE have now exhausted our list of hardy aralias, or rather of those which are hardy in New England. We next have *A. Sieboldii*, a beautiful species, with entire lobed evergreen leaves, which has proved hardy in England. We have plants in the garden this winter, but have little hope of their surviving, although up to the first of December the only injury was a slight blackening of the leaves.* As a plant for massing, this species is most desirable. The leaves are large, deep green, coriaceous, on long foot-stalks, and the plant, whether grown as a single stem or as a bush, is very effective. As a flowering plant it is not to be despised; although the flowers are not very showy, they are freely produced, and are succeeded by dark purple berries.

Our mode of culture is, to plant out in latter May, in beds of rich soil; the plants grow freely, and are very ornamental all summer. About the first of October they should be potted, and removed to the green-house or parlor; they bloom in December, and are ornamental all winter. Our experience is, that they do not keep well in the cellar, as the large leaves mould or turn black and fall off. There are varieties with foliage marked with silver and gold, which are very handsome, but are yet rare.

Another very beautiful species, and perhaps the most beautiful of all, is *A. pulchra*. The foliage is very large, bright green, shining, palmate (five to nine leaflets), on a very long foot-stalk. This species has succeeded with us under the same treatment as *A. Sieboldii*. It is one of the most beautiful parlor plants we know, and in the garden in summer is most effective. We have not yet seen it in bloom. It will not keep well during the winter in a cellar, and is not hardy. As yet it is rare.

The best aralia for bedding out is undoubtedly *A. papyrifera*. It

* April 15. On examination, the plants proved to be killed, root and branch.

is a native of the Island of Formosa, and yet is a hardy summer plant, and with a little care attains great size. The foliage is very large, furrowed, covered with a fine down, as are also the stem and leaf-stalks, and presents a striking contrast to the other members of the family.

Small plants, set out in rich, moist soil, become very large by autumn. It is as a plant for summer bedding that it is most valuable, for, though effective in the green-house, it is very subject to mealy bug, and when the plant once becomes infested, it is almost impossible to clean it. Fortunately, however, this fine plant can be wintered in a frost-proof cellar with very little trouble. It should be potted before the autumn frosts, and placed in the cellar; the only care is to prevent it from becoming dust dry, and it will usually be found in the spring in good condition for bedding out.

This plant is equally effective in masses or as a single specimen. For planting out, stocky plants are the best, as the effect of a plant bearing enormous leaves to the ground is very striking. Propagation is easily effected by root cuttings. It is from the pith of this plant that the Chinese rice paper is made.

This species does not bloom until it has attained some age. The flowers are produced in panicles from the extremities of the stem and branches rising above them, and then become pendulous, one to three feet long, bearing numerous umbels of small greenish flowers.

There are many other aralias often grown in our stoves which do passably well bedded out in the summer. These, however, which we have mentioned are the best for general cultivation.

Those who have no green-house can easily preserve their plants during the winter in the parlor, where their elegant foliage and graceful growth will make them welcome.

As we write, we have before us a large mass of aralias: *pulchra*, *Sieboldii*, and *papyrifera*, which have grown all winter in a parlor window, requiring only water twice a week, a room free from frost, and plenty of light. If we could have but one, it would be *A. pulchra*; but we should be loath to part with any of those we have mentioned.

THE GARDENS OF AMERICA. II.

THE examples which we have selected for the second of the series of articles under this heading, though of less pretensions than the one previously described by Mr. Foulis, are in some respects more characteristic of *American* gardens than a splendid place like Ellerslie.

Aug. 23, in company with our friend Col. Wilder, we visited the garden and forcing-houses of Gardner Chilson, Esq., at Mansfield, Mass. The grounds, about two acres and a half in extent, are laid out with a marginal walk, leaving a border next the fence, and cross-walks in the centre, all of which are bordered with trees, mostly pears, in considerable variety. The number of kinds is, however, now being considerably reduced by grafting the poorer kinds with better sorts, among which Beurré d'Anjou takes the lead. The greater part of these trees, which were originally on quince-roots, have now rooted from the pear. Mr. Chilson notices, that, previously to putting out pear-roots, the tree always presents an unhealthy appearance; and we think that it does not often send forth these roots until the quince stock begins to fail, when Nature makes an effort to supply its place. The trees were generally of pyramidal form, and presented a healthy and fruitful appearance: a Belle Lucrative showed a full crop of remarkably fine specimens; and others, including Bartlett, Beurré Bosc, Merriam, &c., presented a fine appearance; a Dix, twenty years planted, had, after its usual manner, never borne any fruit. Quite a number of trees were trained on a fence with a southerly exposure, where the fruit becomes higher colored and higher flavored.

When Mr. Chilson commenced, he was informed that the soil of Mansfield was not suited for pear-trees; but, not deterred by the fears of others, he began by trenching the ground deeply, manuring with stable-manure and phosphates. His success has shown that he was right in his faith; and we commend his example to others who have never planted pear-trees because they "won't do in my soil." Mr. Chilson believes in thorough preparation of the soil in the first place, in preference to high annual manuring.

The forcing-houses for grapes and peaches had all the fruit gathered, the grapes in the second house having just been cut. The vines were look-

ing well, mostly Black Hamburg ; and the others were being rapidly superseded by this standard variety. Mr. Chilson has been very successful in grafting the grapes in his houses : the operation is performed in November, and a pot placed over the graft, and covered with sufficient litter to keep out all frost. By this means, the grafts begin to unite during winter. The peaches in the forcing-house were extremely vigorous in foliage and wood. The Hale's Early is found superior to any other for forcing ; and is here quite free from rot, to which it is sometimes subject.

One of the most noticeable features of these houses was the extremely simple heating-apparatus adopted by Mr. Chilson, who, being an extensive furnace manufacturer, should be able, if anybody can, to devise an efficient method of warming hot-houses. The apparatus employed consists of a cylindrical iron furnace, enclosed in a brick air-chamber, with an opening to the shed for the admission of cold air, and similar openings to allow the warm air to enter the house. In the lean-to peach-house, where the trees are trained on the wall and trellises, there is one of these furnaces at each end ; and a straight, horizontal flue leads from each furnace to a chimney, containing two upright flues in the centre of the house. In a large span-roofed house devoted to peach-trees in pots, and capable of containing a hundred trees, there are furnaces in two corners diagonally opposite ; the flue leading first the whole length of the house ; then half way across the end, *under* a walk ; then, rising again, to the chimney in the centre. No difficulty is found in securing sufficient draught, even where, as in the latter house, a portion of the flue is depressed below the level of the rest, provided the chimney is kept warm ; and this condition is secured by placing it in the centre of the house, instead of in the outer wall as is generally done. Some heat is also saved by this arrangement, as any that escapes, instead of going into the outer air, is received into that of the house.

The plan adopted for securing two crops of fruit in the last-named house deserves to be mentioned. A row of vines is planted outside the house, and an opening left in the side-walls, through which the vines can be brought and trained to the rafters as in an ordinary grapery after the pots of peach-trees are removed. To economize room, a row of grape-vines is planted in the centre of the span-roofed grape-house ; and here the White Frontignan is preferred, as it is found to succeed better in the shade than any other.

Leaving Mr. Chilson's, a pleasant drive of two or three miles brought us to the grape-house of George E. Leonard, Esq., in Foxborough, which we were very desirous to examine. It is a span-roofed cold-house, sixty feet by twenty-six, containing thirty-four vines, mostly Black Hamburg, but a few Grizzly and White Frontignan. The vines were six years old ; and the crop was estimated at from seven hundred to eight hundred pounds, some of the bunches weighing as much as three pounds. The fruit was evenly distributed over the vines, and absolutely free from the slightest injury by insects or mildew ; and the wood was well ripened. Specimens of the fruit from this house were exhibited before the Norfolk Agricultural Society four years ago, when the product was about three hundred pounds : but, though superior to any others shown, the premium was withheld, on the ground that the vines were so overcropped, that it was impossible they could continue to flourish ; yet they have thriven, and produce regularly-increasing crops, the first of this year's having been cut on the day of our visit. Mr. Leonard is a carpenter ; and his health becoming impaired, so that he was unable to work constantly at his trade, he built this house to partly employ his time ; and it is to the constant and watchful care which he has given to his vines that their healthy condition is due. The house originally had ventilation in the side-walls ; but, after the first season, these were screwed down, and have never been used since, relying wholly on the openings at the top, and thus avoiding the currents of cold air by night, which are one of the most frequent causes of mildew. Indeed, Mr. Leonard informed us, much to our surprise, that he closed even the top ventilators every night, commencing when the thermometer was at about eighty degrees, and continuing so as to keep that temperature as nearly as possible, and generally finding about sixty-five degrees in the morning. But, though the vines have not suffered from overcropping, they have, we think, had about as much as they could carry ; more, indeed, than they could have borne with less skilful attention.

The house was built by Mr. Leonard himself, in a cheap yet neat and substantial manner. The plate, about three feet from the ground, rests on the top of stone posts ; so that all the parts below, which, from their contiguity to the ground, are most liable to decay, can be renewed without disturbing the superstructure. Inside, a plank supported on upright and cross

timbers runs the entire length of the house, about six feet below the ridge, affording easy access to all the upper part ; while a step-ladder, with the upper end resting on this plank, and inclined at the same angle as the roof, is equally convenient when working below.

The vines are planted outside of the house, the border being twenty feet wide, trenched deeply, and a liberal quantity of manure incorporated with it, but no carcasses. Directly under the sides of the house, a drain was made by filling small stones into a trench three feet wide, and about two feet and a half deep.

The fruit, though remarkably early for a cold-house, was well ripened, the house perfectly neat, and its whole appearance highly creditable to its owner, who had evidently watched over it with a measure of care and skill seldom given by hired help ; and it is of great interest, as showing, that, with such care, a much larger crop may be produced without injury to the vines than has heretofore been thought possible.

In closing, we desire to acknowledge the courtesy of Messrs. Chilson and Leonard, and also of Hon. Otis Cary, through whom Mr. Leonard's invitation was received, and who also conveyed us to his place.

CARTER'S FIRST-CROP PEA.

THIS is not one of the newest peas, but, having tried it for the first time this year, I wish to say a word in its favor.

It is a good grower and a good bearer, and, with me, seven or eight days earlier than the Daniel O'Rourke.

Planted April 1, in light sandy soil, and manured only with a little guano at the time of planting, and a little ashes scattered along the rows when the pods were filling out, it gave peas fit for shelling June 14 ; and by June 23, the whole crop was gone.

Daniel O'Rourke, planted April 2, in the same soil, and receiving the same treatment, was not fit for the table before June 22. *J. M. M., Jun.*

PRUNING TOMATOES—HOW TO DO IT, AND IS IT ADVANTAGEOUS?

IN pruning tomatoes the knife should be used sparingly, if at all, until the appearance of the first blossoms, when the main stem should be cut off just above the joint from which the cluster proceeds. The buds next below will then soon develop, putting forth other branches and clusters of buds. On the opening of the first of these flowers, cut off the branch just above the joint, as in the first instance. These operations must be repeated until the plants have attained a height of about two feet, and have set as much fruit as can be well perfected; after which further growth should be checked by continually nipping out the young clusters of buds, and pinching off or shortening in the leading shoots and laterals. Thus treated, the plants become dense and stocky, and are said to produce finer fruit than when allowed to make their natural growth.

The operation, however, requires unremitting care and attention, and is rarely fully carried out. There will be no increase in the quantity of fruit, and aside from the beauty of the plants, one will scarcely be repaid for the time and labor bestowed.



CRITIQUE ON THE JUNE NUMBER.—*The Vineyards of Vineland.*—I notice the writer speaks well of the Clinton grape, both as regards its value for wine and for the table; and so also did another writer, at page 43 of your last volume, describing it as sugary, very spicy, and rich. While it probably succeeds much better at Vineland than with us, I believe, even in New England, it has not received the attention it deserves. It has its defects, it is true. It is small in berry and cluster, and there is also much acidity in the flavor; but the vine is hardy, bears abundantly, and the fruit is generally ripened in tolerable perfection: and these are considerations of no small importance to northern growers.

The New England cultivator who neglects the Concord, Hartford, and Clinton, and labors in the expectation of realizing in his products the ripeness and lusciousness of the Catawbas of the Middle States or California, will assuredly taste of disappointment in the end. Now and then, at long intervals, seasons occur when our most sanguine hopes are fully answered. But, will-o'-the-wisp like, the beauty and delights of such a harvest encourage us to continued endeavor; and new varieties are added, and the old multiplied, until at last we find our grounds encumbered with plants too profitless to keep, but which, in the perpetual hope of a better future, we hesitate to throw away. I am satisfied that varieties requiring winter protection will never be generally cultivated; neither can any variety be considered adapted to our climate that, in a majority of seasons, fails in bringing its fruit to full perfection.

But I have wandered a good ways from the vineyards of Vineland; and now to come back to them. Mr. Snyder's account of the beginning of grape-growing at Vineland, under many disadvantages, gives me a more vivid idea than I ever had before, of the true aspect of life in such a new settlement; and I think

the results which he has arrived at are highly encouraging; and as to the quality of the "Vineland Concords," they made a reputation for themselves, wherever they went, last summer, as being among the most superior specimens, especially as regards flavor, of that grape for the million.

Preservation of Fruit after Gathering. — This is a subject on which we have got a good deal to learn yet, and I am glad of every statement of experience in regard to it, and especially from one who has experimented in so many ways and so extensively as Dr. Houghton. But I am very much surprised at the conclusion he has reached, that pears should be placed on shelves in such a manner that the air can reach them. I know that this method is recommended by English writers, but it is contrary to my own experience, and, so far as I recollect, to that of any American writer on the subject, — certainly since we left off copying everything from our English cousins.

Noticing the superior keeping of both apples and pears in tight barrels or boxes, — always provided they are not bruised, for nobody who knows the first thing about keeping fruit expects bruised fruit to keep well any where, — it has occurred to me whether the same change which takes place in the great air-tight tanks used in Professor Nyce's system (for this is what his fruit-houses really are) might not also take place in an air-tight box or barrel, thus enveloping the fruit in an atmosphere of carbonic acid gas. But though Dr. Houghton would have his fruit exposed to the air of his fruit-room, he would not admit fresh air to the room with a view to ventilation. Now, it seems to me there is something a little inconsistent here, and I should like a little more light on the subject.

Dr. Houghton is exactly right about the difficulty of carrying even winter pears through the hot weather in October. It certainly is extremely difficult, if not impossible, even farther north than Philadelphia, to do this without ice. Whoever will devise a certain and economical way of carrying pears past this critical time, will confer a great boon on pear-growers, and I most devoutly hope that Dr. Houghton's fruit-houses may prove to be such a method.

The Chinese Wistaria. — Mr. Noble opens a new field for the training and management of the wistaria. Left to itself it has no peer among our ornamental climbers; what it may become by "education" one can only imagine. A Chinese wistaria *tree* would indeed be an object beautiful in the extreme. But to subdue its native vigor, and train it in the attractive forms described, will require not only a patient hand, but some measure of instinctive skill and taste. The fact, however, that the plants patiently adhere to the forms once adopted, is an important consideration, and, it is hoped, may induce some of your readers to put in practice the suggestions of your correspondent.

I have found that the wistaria recovers slowly from the effects of removal, but once well established, it is truly wonderfully vigorous. With regard to new varieties, no one has yet come under my observation for which I would exchange the old. The blossoms of the double-flowering are neither so elegant nor so delicate as those of our common blue, and the clusters, in my judgment, will bear poor comparison with the graceful and attractive trusses of our familiar wistaria. For contrast of color the white may prove an acquisition, though I suspect it will prove less abundant in bloom, slower in growth, and feebler in habit.

The Caladium and Calacasia.—I think Mr. Rand correct in his estimate of the value of the Caladia as bedding plants. I have never seen a specimen in open culture that had not a sickly, discontented appearance. But they are recommended, and I suppose will continue to be employed for the purpose, though you may date the decline of their freshness and beauty from the hour they are deprived of the protection, and moist congenial atmosphere, of a greenhouse or conservatory.

So far as regards the esculent Calacasia, I know of no plant outside the tropics that surpasses it in stateliness of growth, or excels it in the wonderful size and beauty of its leaves. Where space is abundant, nothing can be more showy or effective; but like cannas and the castor-oil bean, it is scarcely suited to small enclosures.

How to raise New Pears.—I suspect, Mr. Editor, that there will be some among your readers to whom the idea of amusing one's self, by examining seedling pear trees the 20th of January, will be rather novel. What possible difference can there be among pear trees then? I hear asked by some one who has not the slightest idea that there is any difference at all between trees, except in the fruit. What difference? Why, go out among them with your eyes open, and you will find that there are not two alike! Read the notes of the veteran pear grower, Mr. Rivers, over again, and see if you can't catch something of his enthusiasm,—enough to induce you to go and do like him,—thereby not only enjoying the opportunity of studying some of the most interesting sports in the whole range of horticulture, but of benefiting your fellow-men by the production of a new pear, superior, perhaps, to any that have preceded it.

Among the practical lessons to be learned from Mr. Rivers's experiments, it is interesting to note how completely they disprove Dr. Van Mons' theory, that each generation fruits in a shorter time than the one preceding, so that we might come to have pear trees bearing in two or three years from seed. But his observations go to confirm the doctrine of Mr. Knight, that a scion from a young seedling could not, by grafting on an old tree, be made to bear fruit sooner than the tree from which it was taken,—a doctrine which has been generally rejected of late, and of the truth of which I am still doubtful, notwithstanding Mr. Rivers's opinion. But the pith of all Mr. Rivers's notes is to my mind condensed into this sentence: "Good kinds of pears may be raised from seed with great facility, but it is not an easy matter to raise better pears than we already possess; the great advance to be made will, I think, be in seedling pears raised from flowers judiciously crossed." This is just as true as anything can be; we want not only *new* but *distinct* varieties; and Mr. Rivers has shown that pears raised from unfertilized flowers follow their parents, with but slight variations; it is, therefore, to cross-fertilization that we must look for novel types.

Bismarck.

THE CURRANT WORM.—A correspondent of the Horticulturist has found his red currants untouched by the worm when planted alternately with black currants, while in other parts of his grounds they were utterly destroyed by that insect.

PLANTING TREES.—I beg to supply an omission in my remarks as published in the January number, on the above subject, and to which Mr. Adams has kindly alluded in the April number, and which further demonstrates the necessity of a knowledge of the principles governing vegetable growth, so that the operator may be enabled to deduce a course of practice suited to his soil, and to the general and local climates by which he is surrounded.

I regret not being more explicit at the time, but, so far as I recollect, my object was principally to direct attention to principles, rather than to prepare an essay on tree planting.

The omission will, perhaps, be supplied in the following quotation from my report to the Agricultural Department, and which will be found in the volume for 1863, page 557:—

“These so far show great advantages in favor of fall planting; but there are other questions to be canvassed before deciding the question. It is very clear that unless planting is performed within a certain period, the advantage of immediate root growth will not be secured; if delayed beyond the first week in November, success will be less certain. The best period is undoubtedly as soon as the leaves change color, stripping off the foliage before removal.

“The character of the soil and location will also materially influence success. In undrained clayey soils the trees may not get sufficient root-hold to enable them to resist the throwing-out tendency of alternate freezing and thawing, or the young spongioles may be destroyed by constant saturation. Again, in very bleak and exposed localities, the drying winds of spring may exhaust the juices faster than the young roots can supply the demands of evaporation. Of course, the very evident precaution of securing the plant from swaying, should be attended to, otherwise many of the young rootlets will be twisted off. Staking may be necessary when the trees are tall, but it is much preferable to stay them with a slight mound of soil over the roots, which can be removed when of no further use. It will also be of great benefit if the frost can be kept from penetrating to the roots. A covering of loose material will be a protection—a wise precaution, even, on well-established trees.

“In northern latitudes, where the winters commence early and continue long and severe, fall planting will not generally be so successful as in more temperate regions, except in particularly favorable localities. Early spring planting, taking the precaution to prune the branches, so as to restore the balance destroyed by the root mutilation inseparable from removals, and mulching over the roots, so as to retain moisture during summer, will be the most likely auxiliaries towards success.

“Evergreens can, in all cases, be most successfully transplanted just as growth commences. When the young shoots exhibit symptoms of pushing, they can be removed without risk of failure, with ordinary care. They may also be removed in August and September, so that they can have a good season to furnish new roots before winter. Early spring removal of such trees is not so advisable, as they have a large evaporating surface, which, when subjected to drying spring winds, require a constant action of roots to retain life.” *W. Saunders.*

DESTRUCTION OF THE CURCULIO. — We print in another part of the present number in a communication from Mr. J. A. Donaldson, of St. Joseph, Mich., an account of what is believed to be a new method of destroying the curculio. This discovery was deemed by the St. Joseph Fruit Growers' Association of so great importance, that they immediately printed and distributed a circular giving directions how to destroy this pest. As these directions are more minute than Mr. Donaldson's, we copy them here.

“Put the orchard in the best order ; level down the soil about the root of every peach tree, and smooth a circle for a diameter of two and a half feet from the tree as a centre. Have the ground very clean around the base of the tree. Do not leave a single hole next the tree. Leave no place where the curculio can hide, except under the shelter you provide. *Now lay close to the tree, and close to the ground*, about four pieces to a tree, either chip, or bark, or board, or lath, or rag, or corn-cob, or old leather, or anything for a covert.

“The curculio will conceal itself under this shelter, and may be destroyed by the thousand. Go around every day and turn over each chip, kill every curculio. They will generally adhere to the chip, but may often be found on the ground under the chip.”

We make no apology for again referring to this subject, for if the remedy is effectual, its importance cannot be overrated. But we regret that later information leads us to fear that the doubts expressed by Mr. Donaldson, whether it would be effectual later in the season, appear to have too much foundation. The Horticultural editor of the *Prairie Farmer*, who paid a visit to St. Joseph for the purpose of investigating this subject, states that when the weather became warm, the curculios were taken under the traps in diminished numbers, while their numbers were greatly augmented in the trees. Still he advises all to experiment in this new field so recently opened to them, but not to rely on it to the neglect of other means.

We find, also, in the *Prairie Farmer*, the following notes by Mr. Riley, editor of the *American Entomologist* : —

“We are really sorry to damp the ardor and enthusiasm of any person or persons when enlisted in such a good cause, but truth obliges us to do so nevertheless. Of course, curculio extermination is possible ; but not alone by the above method, as our Michigan friends will find to their sorrow. For a short time, early in the season, when the days are sometimes warm and the nights cold, and before the peach blossoms have withered away, we have succeeded in capturing curculios under chips of wood and other such sheltered situations ; but we have never been able to do so after the fruit was large as a hazel-nut, and the little Turk had got fairly to work. Our Michigan friends will, we fear, find this to be too truly the case.

“This process, furthermore, cannot well be called a discovery, because it was discovered several years ago, as the following item from Moore's *Rural New Yorker*, of January 28, 1865, shows : —

““In May last, we had occasion to use some lumber. It was laid down in the vicinity of the plum yard, and on taking up a piece of it one cold morning, we

discovered a number of curculios huddled together on the under side. On examining other boards, we found more, so we spread it out to see if we could catch more, and we continued to find more or less every day for two weeks. We caught in all one hundred and sixty-one. So I think if people would take a little pains, they might destroy a great many such pests. These were caught before the plum trees were in flower. What is most singular is, that we never found a curculio on a piece of old lumber, although we put several pieces down to try them. They seemed to come out of the ground, as we could find them several times a day by turning over the boards.

Mrs. Weir.

“But though Mr. Ransom cannot properly claim to have made a new discovery, and though this mode of fighting will not prove sufficient to exterminate the curculio, yet we greatly admire the earnestness and perseverance which he has exhibited. In demonstrating that so great a number of the little pests can be entrapped in the manner described, Mr. R. has laid the fruit growers of the country under lasting obligations to him. It is a grand movement towards the defeat of the foe, and one which, from its simplicity, should be universally adopted. But we must not relinquish the other methods of jarring during the summer, and of destroying the fallen fruit; for we repeat that the plum curculio will breed in the forest.

“We are fast becoming masters of this stone-fruit scourge. Already, through the kindness of Dr. Trimble, we have been enabled to breed several specimens of the first and only true parasite ever known to infest it; and, by a series of experiments now making, we hope, *Deo volente*, to be able to clear up every mooted point in its history before Nature dons another wintry garb.”

A later number of the *Prairie Farmer* contains a communication from Mr. Ransom, who has studied the habits of the curculio very carefully, giving the results of his method of hunting it, from which it appears that he has destroyed seventeen thousand nine hundred and forty-five of these insects, while his friend Mr. Whitelsey has destroyed over twenty thousand. So much confidence does Mr. Ransom feel in his method, that he has not used and will not use a sheet and jar them. They are apt to hide on the under side of the lateral branches wherever any knot, bud, twig, or other roughness gives a chance, and therefore these places, as well as the traps, should be examined. Later in the season Mr. Ransom has found cloth, leather, or like substances, placed in the forks of the tree for them to hide in, as good as anything.

The editor of the *Prairie Farmer*, on his return from St. Joseph, tried this method on several trees, from the 29th of May to the 2d of June, catching in the traps from none to five each day, while on the curculio catcher he caught from thirty-eight to one hundred and nine. This, however, was in a warmer climate, and too late fairly to test the value of Mr. Ransom's method.

LARGE PEARS. — Some unknown friend left on our table a fine lot of pears; four of them weigh together eight pounds and one ounce, the largest one weighing two pounds and three ounces, the smallest one twenty-nine ounces. Oregon can beat the world for tall trees and large fruit. *Pacific Christian Advocate.*

REPORT OF THE COMMITTEE ON FRUITS, OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, FOR 1869.

By W. C. STRONG, Chairman.

[Concluded.]

BLACKBERRIES.

WILSON'S EARLY received the first prize. Under the superior culture of Messrs. Clapp it was much larger than the Dorchester, which it resembles in appearance—a noble fruit, but, we regret to add, more acid than even the Lawton. It is undoubtedly early, and a valuable market kind. Kittatinny was not exhibited. Missouri Mammoth, judged by the experience of one season, is small and utterly worthless. At present it certainly appears to be an imposition. On the 7th of August the Wachuset was exhibited by R. R. Fletcher. It has the appearance of the Lawton, but was not as large; the quality was fair, and the impression produced was favorable. It seems to be unusually hardy, is undoubtedly productive, and its comparative freedom from thorns will probably make it desirable. The Sable Queen was not exhibited, but coming under the observation of some of your committee, disappointed them both as to size and color. Our means of judging were meagre, and therefore we give no opinion as to its probable value. We infer from the advertisements of the introducer of this variety, that he does not desire our opinion in regard to it. But it seems to us to be a duty to the public that your committee should obtain information in regard to every new candidate for public favor, and freely to express a candid judgment. And we may also be permitted to add, that we think it equally the duty of every introducer of a new variety to submit the same to the judgment of properly constituted local committees. Doubtless, in the present instance, the significance of the language used was not fully realized; but it must be clear, upon a moment's reflection, that to speak of the "opinions of patron saints in horticulture" as of no value in the introduction of new kinds, is to assist in opening the flood-gates of imposition upon a too credulous public. Let the public learn wisdom, and invariably demand that every candidate for favor shall have passed the regularly appointed tribunals for judgment.

C. H. Lake presented, August 21, a blackberry called the Agawam, which appeared to be very prolific, but lacking in quality and size.

GOOSEBERRIES.

An English variety, supposed to be Green Walnut, received the first prize. These foreign sorts do not, however, deserve extended culture, as they are so often a failure. Remarkably productive branches of a fruit resembling the Mountain were exhibited by S. C. Buzzell, of Exeter, N. H., the fruit and foliage of which were so fine as to indicate that it may possibly be a new and valuable seedling. A similar kind, a seedling raised by Josiah Newhall, was exhibited the same day. Mr. Newhall says it is decidedly more vigorous, and the fruit larger, than the Mountain. In his good judgment it is, in all respects,

superior to the Mountain, and your committee are inclined to think he has a valuable seedling.

PEACHES.

Forced specimens of this fruit were exhibited throughout May and June. Mr. Holbrook continues to distance all competitors, sweeping all the prizes with his superb dishes, and proving conclusively that for a score or more of years the trees may be kept in most perfect health, vigor, and productiveness. The Early Crawford continues to be the favorite kind for forcing. On the 28th of August, Hale's Early and Early York received prizes for open culture, on the same day that Early Crawford received the prize in cold house culture. On the same day, George A. Mudge exhibited a high-colored seedling resembling Early Crawford, which was equally good in quality, and possibly was more juicy. It may prove to be distinct and earlier. September 4, Early Crawford took the first prize. Mr. Mudge's seedling took the second prize, and a seedling from J. B. Loomis, resembling Cooledge's Favorite, took the third prize. J. T. Foster exhibited his seedling September 11. It has been heretofore described, and deserves all the praise that has been given in previous reports. If it succeeds as well with other cultivators as it has in the hands of Mr. Foster, it will deserve the prospective prize, as the best seedling recently introduced. Several other seedlings have been upon our tables, both early and late kinds, some of which were of excellent quality. As the peach usually produces fruit from the stone in near resemblance to the parent, it is recommended that cultivators plant the stones of good kinds in the spot where the trees are wanted, in not over-rich soil, in order that a slow and steady growth may be secured. Instead of forcing the peach, as is done in the warmer climate of New Jersey, taking but one or two crops before destroying the orchard, it is undoubtedly a wiser course for us to develop the normal habits of the tree, or, indeed, holding in check its ordinary luxuriance, and thereby securing the strength and hardihood of age. One of the best seedlings we have seen was presented at the annual exhibition by Mrs. G. L. Stearns of Brookline. It was of medium size, possibly a seedling from George IV., of bright color, flesh white, melting and delicious.

October 1, James Cruickshank presented a peach which he names Hunter, of roundish obovate form, with slight suture, large, well colored on the sun side, a cling, exceedingly juicy, rich, and high flavored; well deserving attention.

The list of awards will indicate the exhibitions of plums, figs, and nectarines, concerning which we have nothing new to note.

PEARS.

The first prize was awarded to Madeline, July 31, the specimens of which were fine, although the variety does not compare with its early competitor, Doyenné d'été, in quality. A week later, and again August 14, Beurré Giffard received the first prize, as it has for several years past, Supreme de Quimper taking the second prize. After this time, and until the Bartletts came in, Clapp's Favorite held a marked preëminence, Rostiezer being second in rank. The Clapp appears to be very hardy, vigorous, and prolific, larger, and by some pro-

nounced better, than the Bartlett; and as it requires early picking (in order to avoid rotting at the core), and ripening in advance of the Bartlett, it certainly promises to be our most valuable summer variety. September 11, Bartletts were the best variety.

At the annual exhibition we observed the effect of the gale of September 8. Most of the pears were blown off at that time, before the fruit had attained its full size. And yet we had a long list, and unexpectedly creditable specimens. G. F. B. Leighton, of Norfolk, Va., exhibited extraordinary specimens of Louise Bonne, the largest we have ever seen, and also very superior Duchesse d'Angoulême. They were a surprise to us, and indicate that in chosen localities at the South extraordinary size may be obtained. Still, our home specimens indicated, by their solid, sterling excellence, that we may hold rank with any section for this fruit. Other sections may produce larger fruit, as is the case with apples at the West, but it is well known that the quality of this large growth is inferior, light, and thin. But we would not detract; we must award generous praise to the fruit from Virginia, from Kansas, and to the magnificent Glout Morceaus, and Easters, and other varieties from California. Only let us not be at all discouraged, but rather have confidence that, making quality a test paramount to size, we may hope to compete with the most favored sections. The seedling pear of F. & L. Clapp, called the Sarah, has been described in previous reports. It is about of the size and may be compared with Belle Lucrative, but is more sprightly and colors up better, becoming a bright yellow; is a little later, skin thin, quality very good; is well worthy of trial. Another seedling, called the Nicholas, was exhibited by Messrs. Clapp, November 7. It was of medium size, obovate, stem long, skin thin, yellow, very juicy and high flavored; a promising variety. Francis Dana presented a seedling, November 13, without a name, which was above medium size, smooth and fair, yellowish; melting and very sweet, but not juicy. For fall varieties, Beurré Bosc received the first prize, Sheldon the second, and Duchesse d'Angoulême the third. Of course this is not an absolute test of the relative value of the kinds, since one may have had better culture than another; yet we believe the list of awards is suggestive, and to considerable degree a guide to planters. Making Downing our guide, your committee rejected Beurré d'Anjou, as a winter variety, for the prize of November 13. Yet it was later than the Lawrence this season, and may, with ordinary care, always be kept until midwinter. We have seen it in superb condition at Easter. It is, therefore, proposed to regard this inestimable, incomparable variety, among the late kinds, as a winter fruit. This season Lawrence received the first prize, and Dana's Hovey the second.

The fruit of the single tree of Mount Vernon was blown off by the gale in September; yet the specimens of this promising winter variety were creditable.

Our society is greatly indebted to Dr. Strenzel, of Martinez, California, for a collection of his fruits, which arrived in season for our Annual Exhibition, and thus gave an opportunity to multitudes to see the varied products of that favored state. The Winter Nelis, Beurré Diel, and Vicar pears were especially fine, as were also the quinces. Flame Tokay, Lombardy, and Chasselas grapes indicated healthy growth and excellent quality, although somewhat injured by the long transit.

APPLES.

Red Astrachan was the first to appear on our tables, July 31, and subsequently, August 21, received the first prize, Williams ranking second.

At the Annual Exhibition, Porter was remarkably fine. There were also fine specimens of Hubbardston and Gravenstein, but the effects of the gale, which occurred a fortnight previous, were very plainly to be seen in the collections. No section of our globe is exempt from these accidental, or rather providential, destructions of our crops; and instead of complaint or discouragement, we ought rather to be thankful that these evils are of comparatively rare occurrence with us.

We were under obligation to R. W. Furnas, Esq., of Brownsville, Neb., November 17, for a fine collection of apples, twenty-five varieties, which gave us an opportunity of comparing them with our own products. Fameuse was specially fine, and the rest compared favorably with our best specimens.

The prize kinds, November 13, were, first, Northern Spy; second, King; third, Hubbardston. Messrs. Clapp's first and second collections were as large, fair, and fine as we have ever seen, and indicated how entirely practicable it is to cultivate this fruit to perfection.

On the 16th of January, 1869, F. Burr exhibited fine specimens of the Murphy, high-colored, remarkably beautiful, and of good quality. Mr. Burr states that the tree is uniformly productive. Lane's Sweeting, exhibited by Mr. Burr a week later, appears to be a good winter sweet. March 12, Nahum Smith, of Weston, exhibited Gravenstein apples in a remarkable state of preservation—fair, plump, juicy, and excellent. He states that they were simply kept in a cool barn cellar. Would it not be a profitable enterprise to preserve some of our best winter sorts in this inexpensive way, and bring them fresh and crisp into the market at the period of the dearth of fruits, in April and May?

On the 3d of April, Mr. Lester Goodwin presented an apple of peculiar appearance, seeming to be a mingling of Baldwin and Roxbury Russet. As this appears to be another case of the influence of the stock upon the character of the graft, the instances of which are becoming too frequent to be disputed, we give Mr. Goodwin's description, which is entirely trustworthy.

“Apple without a name; name preferred, if consistent, Whiting's Sport. History as follows: Nathaniel Whiting, originally from Dedham, Mass., then residing on his farm in Amherst, N. H., planted apple seeds about the year 1820, and within three or four years afterwards procured scions from Dedham, with which he ingrafted the seedlings: one scion grew and bore the regular Baldwin Apple, becoming a large tree, of twelve to fourteen inches diameter of trunk, in 1854; at which time a small branch, which had started from a limb at a point about twenty feet from the ground, was observed to bear fruit differing from the rest of the tree, and was, in appearance, between a Baldwin and a Roxbury Russet. This branch has continued to enlarge and bear these peculiar apples; and grafts from it have been inserted in other trees, where they grow differently from the Baldwin or Russet tree, and are of upright, rapid growth; in fruitfulness about the same as the Baldwin. The fruit presented was borne in

1868, by grafts of this peculiar branch inserted in other trees, five years from cleft-grafting, on the same homestead. The keeping quality is evident from the specimens herewith, April 3, 1869, which were taken from a barrel packed the middle of October, in which no decayed ones were found when opened, the 16th of March.

GRAPES.

The forced fruit of M. H. Simpson, June 5, was fine, and was worthy of the prize. Afterwards, in July and August, Messrs. Holbrook and Turner received prizes. But we have too few competitors for these prizes. Latterly, our Native grapes have been so abundant and excellent in the market, and have been sold at such low rates, that the products of cold houses have been neglected, and have been unprofitable, being dull of sale at thirty-five cents per pound, at wholesale. As the fruit is so perfectly at home in the forcing-house, and is such a beautiful as well as remunerative crop, when brought in quite early in the season, we do not hesitate to recommend its extended cultivation. With the great increase in wealth and population, we doubt if we have as many forced grapes in our market as we had twenty years since. The collections of exotic grapes exhibited in September were large and fine. It is not amiss, however, to intimate to cultivators, that your committee will regard color and healthy maturity as more important than rank size. The first appearance of Native grapes was August 28, B. B. Davis exhibiting Jenning's Seedling, a tough, foxy, black variety, which is still found to be profitable on account of its earliness. Dr. Waters, of Newton, exhibited a black grape of the Burgundy class, small, sprightly, and good, which, he says, has almost uniformly ripened in Maine, and now, in Newton, produces regular crops, with little liability to mildew. The same day James Comley exhibited a fine-looking black grape, not quite ripe, but promising. Upon subsequent days it bore a very close resemblance to the Hartford. Mr. Comley thinks it is different and earlier.

September 11, Delaware received the first prize, and Adirondac the second, as early varieties. At the Annual Exhibition our tables were completely full, and we doubt if a finer display could be made in any part of the country. The Delawares and Concords were particularly fine, and also the exceptional Isabella; though it is not exceptional for Mr. Wellington to produce this variety in unsurpassed excellence. Iona was not fully ripe. We regret to say that it does not appear to be as early as Concord. Mr. Allen Putnam presented a grape, called Nashua, which appears to rank between the Hartford and Concord, sweeter than either, and does not drop. We regard it as promising. Several seedlings, by C. F. Gerry and James Comley, did not sufficiently indicate their character or merit to require notice. The seedlings of S. W. Underhill, which were described in our report last year, were again on our tables at the annual exhibition. They continue to sustain their character, and we must regard them as the most promising varieties now on trial. Mr. Underhill regards the Senasqua, which he states to be a cross between Concord and Black Prince, as the most valuable. It has much of the character of Black Prince, is brisk, juicy, tender, with no pulp, excellent in quality. It is said to be remarkably healthy and vig-

orous in growth, and, if it shall so prove, we know of no drawback, except its time of ripening, which may, indeed, be serious for this section. It is said to be no earlier, and probably is a little later than Concord. Another black grape, of same parentage, and similarly resembling the Prince, though not quite equalling Senasqua in quality, is thought to be two weeks earlier, and this point may determine its value with us. These two were more fully described last season, as was also the white grape now named Croton. This last is of the Chasselas type, having the foliage of one of its parents, the Delaware, though larger and thicker. It is said to be very vigorous and healthy, and if so, it must be valuable. Possibly sufficient notice has not been taken of the Fedora of Mr. James Cruickshank. For several years creditable specimens of the Chasselas type have been upon our tables, your committee presuming that the fruit was obtained in some favorable position in the neighboring city of Chelsea. Mr. Merrick, of the committee, has visited the vines this season, and states that he found vines in fruit on the first of October in two different gardens. "In one, the vine was trained upon a high trellis, about four feet in front of a brick wall, with a southern exposure. The clusters on this vine were large, fair, and fully ripe, as were the grapes on a Rebecca and Delaware vine on the same trellis. The foliage, which seemed here, perhaps, a little scanty, was perfectly healthy. Other vines were found growing in a shady low spot of ground, where mildew might be expected, but they were all healthy and vigorous. The fruit is of a marked Chasselas type, and the vine is undoubtedly a seedling of some Chasselas variety. Time and experiment alone can determine its value for general cultivation." Mr. Dana's seedlings, the Dana and Nonantum, were again presented, and were of usual quality, but we regret that no definite test of their value for general culture has yet been obtained.

The Concord was again exhibited under the name of Main's Seedling. Colonel Newhall presented a red grape which sprung from the Concord; it was sweeter than its parent, but showed indications of dropping. Mr. Wellington compelled the award of the first prize to the Isabella, October 9, although this variety is of little value for general culture. Besides the fine collections of Davis & Bates and S. G. Damon, which took prizes, Charles H. Higbee and D. M. Balch exhibited large collections, embracing most of the numbers of Rogers and many new kinds. Salem is a compact bunch, berries reddish black, thick skin, of fair quality, and nearly ripe. Martha, a green or white grape, was sweet, with melting pulp, and pleasant. Arnold's No. 2, of Clinton type and parentage, and of same size, was brisk, rather sharp, but agreeable and promising. Arnold's No. 1 was larger, but very acid and poor. Colonel Wilder presented several second crosses of Rogers's Hybrids to your committee for testing. Some of these have lost character by recrossing, and none seemed to have special merit. Nos. 41 and 43 are very like No. 4, now called Colonel Wilder, and we trust it may deserve so honorable a name. To us it seems to be the most valuable of Mr. Rogers's seedlings.

Mr. C. M. Hovey presented, from Francis Houghton, a seedling, supposed to be from the Concord, and resembling it, though not so large. It was said to be grown under unfavorable circumstances. In character it was as melting as the

Adirondac, brisk and agreeable. It deserves notice. It is well to note the date when the above kinds were tested.

Still later, October 22, the extreme verge of the season for the grape, very fine bunches of Union Village were exhibited, and also of the Diana. This last does not require so long a season, but it ripens so unevenly that its bunches appear to better advantage when all the berries are fully ripe, at the close of our longest seasons. There is no doubt, however, that, upon certain conditions of culture, an earlier and uniform time of ripening may be obtained for the Diana. More space in the vineyard, more extended growth of cane and laterals, seems likely to be the method by which we shall obtain permanent health and productiveness with varieties which, with the close pruning system, are very uncertain.

THE CHICAGO WINTER CRAB. — We have received from C. Andrews, of Marengo, Ill., specimens of this new crab, which was described by Dr. Warder, in our Vol. V., p. 208. The specimens were just as large as the outline on page 209, which was said to be taken from a specimen somewhat under size. Those which were in perfection were tolerably juicy, and of pleasant sub-acid flavor, with a slight roughness. Some, which approached a state of decay, were quite sweet.

We cannot agree with Mr. Andrews that the excellence of these sorts is such as to render them of worth everywhere; but we think he is quite right in the opinion that they are indispensable wherever the severity of the winter excludes the larger apples. If we were living in such a climate, we should remember with regret the Baldwin, Northern Spy, Hubbardston Nonsuch, and similar varieties; but we should all be disposed to accept with thankfulness, and prize highly as the best substitutes for those favorite fruits, the improved varieties of crabs. But while we set this estimate upon them, they are, in our opinion, of greater importance in the promise which they give of still further improvement, so as to approach, if not to equal in size and quality, the best of the common species, at the same time retaining the hardy constitution of the Siberians.

The first attempt to turn the hardiness of the Siberian crab to account was made by Mr. Knight, who, in 1806, spoke of cider apples which he had produced, adapted to cold northern climates. The Siberian Bitter-Sweet was afterwards raised by him from a seed of the Golden Harvey, impregnated with the Yellow Siberian Crab. In this country, the earliest attempt to improve crabs was by the father of the writer, who, about 1823, sowed the seed of a peck of Siberian Crabs, which produced a great number of varieties, of which no two were alike, nor one like its parent. They varied in size, from scarcely larger than a good-sized pea to the size of the largest of the present improved varieties, but we do not recollect ever noticing a sweet one among them, nor any keeping later than autumn; though, as no attempt was made to preserve them, later varieties may have existed without being noticed.

RIPE PLUMS were picked, on the 1st of January, from an orchard near Milwaukie, Oregon, being part of the second crop of 1869.

PLANTING AND PROTECTION OF FLOWERS.—*Planting.*—This operation varies with the nature of the plant. Large-growing herbaceous perennials should be set deep; the more delicate, so that the top of the young shoots will be on a level with the soil. Everything should be firmly planted; and, in setting out bedding plants, or seedlings from frames, the earth should be brought well up to the collar of the plant, which should generally be set a little deeper than when in the pot or in the seed bed.

The depth at which bulbs should be planted varies from two to six inches, or even eight for very large lilies and crown imperials.

The usual mistake in planting crocuses is, in not setting them deep enough; each year they make a new bulb on the top of the old, and soon grow out of the ground.

In sowing annuals, much depends upon the size of the seed; it would be as foolish to sow lupines or four-o'clocks on the surface as to plant portulaca with a trowel. It is impossible to lay down exact rules; and where common sense has no influence, experience will generally teach wisdom.

Soaking seed before sowing is not generally advisable; the exceptions are in the case of large, hard seeds, such as Indian shot, or those which are long in vegetating, as globe amaranth.

The great fault in seed sowing is planting too thick, and this also in transplanting. It taxes our faith sorely to believe that a seed as large as the point of a needle will give a plant which will be a foot in diameter. Yet crowded plants never look well; and one plant, well grown, will be more effective than a dozen crowded together, and give more and better bloom.

Do not crowd the plants! Let each have room to develop its full proportions, and to show the foliage, which is often quite as beautiful as the flower, to advantage.

Transplanting is best done in the spring. Phloxes, however, and some plants of like nature, are best removed and divided after they have done blooming.

Herbaceous plants often form very large clumps, and grow out of the ground, or die out in the centre, in either case becoming unsightly. In these cases they should be reset or divided, and reduced to a suitable size in early spring.

Watering is not recommended; but when water is given, it should be in abundance, and the soil be saturated; a slight surface watering is worse than none at all. Sometimes, in transplanting, water may be advantageously given, to prevent the plant from drooping, but a judicious shading from direct sunlight is often preferable.

Where it is necessary to give water, it should be supplied to the roots. A good way is to place a flower-pot close to the plant, press it down into the earth, and fill it with water, which will gradually drain out of the hole at the bottom, and moisten the ground at the roots of the plant. It is a good plan to frequently slightly stir the surface of the soil, as thus much moisture is attracted from the atmosphere.

The arrangement of the garden must be a matter of individual taste. In general, tall plants should occupy the background; or, if the bed is to be seen from both sides, the centre, and the low-growing species should be in front.

Fine effects may be produced by arrangement of plants with reference to their habit of growth, their color or shade of foliage and flower; and it is often in this that the beauty of a garden consists. The choicest flowers will often look badly if ill arranged, while the commonest—if planted with an eye to contrast and color—will produce a charming effect.

The planting should be done with an eye to a continuance, or, rather, succession, of bloom. We often see a garden glorious in June and bare all the rest of the year, when by a little care in selection of flowers a display can be kept up from May to November.

In planting masses for effect, it is not wise to mix colors, or even shades. Let each mass be one color, — better still, the same plant, — then uniformity of habit and bloom is secured. In ribbon borders or beds the contrast should be striking, and the bands never be allowed to run into each other.

Many plants, and all annuals, have their season of bloom greatly prolonged by removing the flowers as soon as they fade, thus not allowing them to ripen seed.

As plants going to seed are not generally sightly, it is a good plan to have a reserve bed, where a few plants of each variety can be grown for seed.

The leaves of bulbs should *never* be cut off until they turn yellow; if removed earlier, it is at the expense of the next year's flower; for the stronger the leaves are grown, the better will be the flowering condition of the bulb. The flower-stalks of bulbs should be cut off as soon as the flower has faded, unless it is desirable to ripen seed.

Winter protection is best given by a slight covering of litter or coarse manure.

Evergreen boughs laid over the plants are excellent for preventing the alternate freezing and thawing which in open winters are so destructive to herbaceous plants. We have found pine-needles serve an admirable purpose in protecting half hardy plants — keeping them warm and dry, yet not allowing them to start into growth. Leaves are not to be recommended, unless in a frame, as they become wet and sodden, thus rotting the plant, or blow away and leave it exposed.

The cold frame is invaluable in the garden. It may be made very cheaply, of old rough boards, the back higher than the front, so that the slope of the sash may carry off the rain, and the sash may be an old window. It is only for winter use, and need not be sightly.

The shape and size may vary; it may be a permanent structure, into which plants may be removed, or it may be placed over the bed in autumn, and removed in spring. Its use is simply to fill it with plants in November, then fill it with dry leaves, draw on the sash, put a board over this, and leave all till April, when the sash may be taken off, and a little later the frame may be stored away until wanted the next autumn. A board cover will in many cases serve instead of a sash, but it should be made tight, so as to shed water.

There is no difficulty in having a garden; a few moments each day will keep it in order, and a few square feet of land, planted with a good selection of flowers, all of which need cost but a few dollars, will give flowers every day, from early spring until late autumn, and will be a constant source of pleasure.

Seventy-five Popular Flowers.

THE PEACH ORCHARDS OF CALIFORNIA. — The State of California has eight hundred thousand peach trees, or about five to every voter — enough to produce more than one hundred pounds annually for every person. The figures are large, but they are official, and are supposed to be correct. Santa Clara County is down for seventy thousand trees, Sacramento for seventy-four thousand, El Dorado for fifty-six thousand, Sonoma for fifty-two thousand, San Joaquin for forty-five thousand, Butte for forty thousand, and Napa, Placer, Tuolumne, Colusa, Amador, Yolo, and Yuba range between twenty thousand and thirty thousand each. Our climate and soil are well adapted to the peach, and the fruit will in time probably be cultivated on a large scale in this State for drying and curing.

The peach tree, if cultivated with care, in situations suitable to it, is profitable, and it should receive more attention than it does. The average yield is about one hundred and twenty pounds to a tree; the number of trees, one hundred to an acre; the wholesale price, five cents per pound — making six hundred dollars gross per acre; and the entire expense does not exceed fifty dollars. If the trees are well transplanted when two years old, they will bear an average of five pounds the first year, forty the next, one hundred and twenty the next, and one hundred and sixty every year thereafter — that is, if of the varieties that bear well. The most prolific, such as the Mixons and the Late Free White, yield two hundred pounds. In Italy there are trees that have been in bearing ninety-years, and we know of no reason why they should not do as well here. In New Jersey, however, which probably has the most extensive peach orchards of the world, overbearing and the cold winters exhaust the trees after they have borne three crops, and the orchards are replanted. The Briggs orchard, near Marysville, lost its crop by frost only once in eighteen years, and that was in 1858. The curl comes occasionally in unfavorable seasons, and injures the crop. There is no protection against it, no remedy for it. But the chief cause of loss in peach orchards is incompetence of management. The insertion of the rules for their cultivation would make this article too long, so we mention varieties which thrive best in this State. The times of ripening were observed near Marysville, and will apply to all the low lands in the middle of the State. The prices are those of last season, which may be regarded as a fair average.

The Early German, a small white peach, with a rose tint on the sunny side, ripens from the 15th to the 30th June, and though without fine flavor, commands fifteen cents per pound at wholesale, because of its earliness, and is therefore profitable. It is good for marketing; that is, it does not bruise or rot readily. The Early Tillotson, a peach of moderate size, good flavor, green on the shady, and purplish red on the sunny side, bears thirty-three per cent. less than the Early German, and comes in about the 25th of June. It is good for marketing, but not equal to the German. It commands five or six cents per pound. The Early York, fine in flavor, cream-colored, with a red cheek, very handsome in appearance, and of good size, ripens from the 5th to the 20th of July. The green fruit has a woolly coat, which is shed at maturity. The price is from four to five cents per pound. The tree bears twenty-five per cent. more than the German. Livingston's Rareripe is very similar in every respect to the Early York.

Coolidge's Favorite comes in from the 10th to the 15th of July, is of moderate

size, and is very tender, so that it requires much care in sending to market. The tree, if permitted, grows large, and bears from one hundred and twenty to one hundred and forty pounds annually. The Early Crawford, a large peach of fine flavor, deep yellow in color, and good for packing, ripens about the 25th of July. The tree requires much attention. Pullen's Yellow, and Honest John, another yellow peach, are large, good peaches, and preferable to the Crawford, because the trees bear more and thrive with less care. They ripen at the same time. George the Fourth ripens with them, and is a large, finely-flavored peach, white, with a red cheek, and good for packing. The Early Crawford, Pullen's Yellow, and Honest John command from five to eight cents per pound. The Free Mixon is a large, white, red-cheeked peach, fine in flavor, and good for packing, worth five or six cents in the market. It bears about two hundred pounds.

The Late Crawford is very similar to the Early in color, flavor, and price; but it is larger, and begins to ripen about the 10th of August. The Late Red Rareripe is a large, palatable, cream-colored, red-cheeked peach, and ripens about the 25th of August. It sells for five or six cents, and the trees bear well. The Late Ward is a large, finely-flavored, cream-colored peach, which ripens about the 5th of September, and sells for five or six cents per pound. The tree is a fine bearer. The Late Free Smock, a large yellow peach, of excellent flavor, comes in about the 1st of October, and sells for five or six cents per pound. The tree bears well. The Late Free White, a large, palatable peach, ripens about the 15th of October. The trees bear two hundred pounds.

Clingstone peaches are not in demand, and ninety-five per cent. of the trees are of the free varieties. Only two clings are to be recommended, the Cling Mixon, which is like the Free Mixon in color, taste, size, time of ripening, and amount of crop; and the Late Heath, which ripens on the 20th of September. The clings are handsomer than the free peaches, and when there is a demand for them bring the same price. They are preferable for pickling. *Alta.*

IMPROVED PERSIMMONS. — Dr. Kirtland has been experimenting with these. He says he finds them vary considerably from seed, and capable of great improvement.

"The persimmon is perfectly hardy here (Cleveland, Ohio), but whether it would bear your climate is questionable. It is found native at Beavertown, thirty miles from Pittsburg. My trees were raised from seeds planted in 1840. They began to bear fruit in seven years. This tree is diœcious, and at least three out of every four are barren or staminate. The fruits of no two are alike in size, form, flavor, and time of ripening, and they come into maturity, in succession, from the 20th of September to the 1st of March. Greatly improved varieties will no doubt be produced by crossing and cultivation. The foliage is rich and beautiful; hence the tree is ornamental on the lawn." *Western Pomologist.*

THE SEED BUSINESS IN CONNECTICUT. — One of the two principal firms in the garden-seed business at Wethersfield, Conn., raised last season twenty-five hundred pounds of onion seed, seven thousand beet, one thousand cucumber, fifteen hundred pumpkin, squash, and melon, and one thousand bushels ears of sweet corn. The other firm did two thirds as much. Twenty-four women are now engaged in doing up the seeds in packages.

YUCCA DRACONIS AND COCCUS HESPERIDUM. — MR. EDITOR: I send you to-day a small box containing a few specimens of the fruit of *Yucca draconis* — grown in the open air, and plucked yesterday. This fruit is very curious. I send it to you more for the seed it contains than for any other object. The fruit grows on a terminal spike, and there are about a hundred and fifty in each bunch. They look like bananas, but are erect, not pendent, like that fruit. When mellow ripe, like bananas, the fruit is very sweet, the flesh a bright rich purple. One pod will produce a mild purge similar to a dose of oil — they are sometimes used for that purpose. I send one *dead ripe* specimen, and several others which are not now in that condition, but will be soon.

The specimens of *Coccus Hesperidum* which I send were obtained from some distance. We have very few in our neighborhood. There are none that I know of amongst my trees. These specimens are from a tree that is dying from the effects of the insect. They spread with the greatest rapidity, and soon accomplish the destruction of large groves. Mr. Dummit who owns a grove of a thousand or fifteen hundred choice trees, living about one hundred and fifty miles south of this point, never had an insect on his trees until year before last: now his grove is ruined, — probably never will recover. On discovering his grove attacked by insects, Mr. Dummit tried to ascertain the cause, and found that some enemy had pinned a leaf infested with the orange insect to a leaf of one of his orange trees, and in a few weeks they spread over the whole grove.

It is said that the smoke of burning pine wood or "light wood," and the planting of gourd vines, and allowing them to run over the trees, will *prevent* the attack of the insect. Cold steel freely used on a diseased orange tree is the only *cure*. The orange insect originated in Florida, from some Mandarin orange trees brought from China, and has spread rapidly.

H. G. L.

VOLUSIA, FLA., Jan. 1870.

[We are much obliged to our correspondent for the specimens of fruit and insects, both of which arrived in good order. The fruit of the yucca is curious and interesting, but its quality is not such as to cause very deep regret that it is not hardy here. The orange twigs were very thickly covered with the coccus, which in shape resembles the species that damages our apple trees so much, but they are smaller and of a lighter color. ED.]

SPANISH MOSS. — This plant, the *Tillandsia usneoides* of botanists, belongs to the *Bromeliaceæ*, or Pine-apple family. It is found hanging from trees from the Dismal Swamp to the southern limit of the United States, but is most luxuriant near the lower part of the Mississippi River, where the pendants are often twelve to fifteen feet long, and weigh over a hundred pounds. Besides its use for stuffing mattresses, etc., it forms, where abundant, a most excellent article for mulching the ground in gardening, lying up lightly, and keeping the ground moist and cool, without excluding the air.

THE PINE-APPLE CROP. — Florida expects a pine-apple crop worth two hundred thousand dollars, this year.

PEAR CULTURE IN OHIO. — Notwithstanding the failures and discouragements occasioned by the *blight*, pear culture is steadily progressing in our state, and good pears are beginning to be somewhat plenty in our markets in their season.

According to the assessor's returns, there were produced in this state in 1868, nearly *sixty-seven thousand* (66,712) *bushels* of pears, which is more, I will venture to assert, than were produced in any other state of the union.

Probably one half of this fruit was of the old-fashioned varieties, and of rather poor quality, as Windsor, Jargonelle, St. Germain, Summer Bon Chretien, Bergamotte, etc., of which there are many old orchards and scattering trees, still healthy and very productive, in the southwestern quarter of the state, where the statistics show the greatest amount of pears are produced.

Very much pear planting has been done in the past ten years, and, but for the dreaded *blight*, the amount of pear orchards would soon be doubled. We are not without hope that this disease, which has so long baffled our horticulturists, will in a few years be so well understood, and so far mastered, as to cause little mischief; then we shall expect to see good pears as common and as cheap, all the year round, as good apples. The trees grow as freely, bear as soon, and as plentifully as apples, and the crop is quite as reliable — aside from the liability of the trees to *blight*.

The pattern pear orchard of Ohio was described in the Journal of Horticulture for November, 1868. It is owned by A. Fahnestock, Esq., of Toledo, and is situated at the mouth of the Maumee River, near the west end of Lake Erie. It consists of ten acres of flat clay soil, well underdrained, and planted seven years ago with standard trees, twenty feet apart. The varieties, selected by Mr. Fahnestock, after much inquiry and observation, were, Bartlett, Flemish Beauty, Sheldon, Seckel, Beurré d'Anjou, Buffum, and Louise Bonne of Jersey, with a few trees each of a score of other varieties for experiment.

The trees have been well cared for, and the growth has been all that could be desired. Some of the varieties have borne fruit the past two seasons, and nearly all are in prime condition for fruiting next year. The following observations are taken from a recent letter from Mr. Fahnestock, and I think may be useful to other pear growers.

“As one of the results of my experience thus far, I am changing my one hundred trees of Buffum by grafting them with Bartlett and other sorts, although the Buffum was recommended to me by several leading pomologists and pear growers of the Atlantic States. I find the trees of too rank growth — the shoots averaging three to four feet annually, and hence the wood is spongy, rendering the trees liable to disease. I have had a few cases of blight among my Buffums and Louise Bonnes the past season, none among the other varieties.

“I think one of the causes or premonitory symptoms of blight is, the tree becoming *bark bound* in spots, commonly the year before the blight is manifest. My remedy is, to score the trunk with a sharp knife, cutting only through the bark, wherever this tendency is manifested, then scrape off any rough bark, and wash with strong soap suds.

“Among two hundred trees of Bartlett, two hundred Sheldon, two hundred

Flemish Beauty, one hundred Seckel, and one hundred Beurré d'Anjou, I have had scarcely a symptom of blight, and most of the trees are perfect beauties, branching from within two feet of the ground, many of them eight or ten feet in width at the base, and tapering regularly, cone shaped, to eighteen or twenty feet in height.

“The past season was very promising at the start, my trees blossoming full, and the fruit setting well; but the long, cold rain storms in June caused most of the fruit to fall, so that but little remained till maturity, excepting on the Bartlett trees, which bore four times as much as any others; though this, I think, may have been partly owing to their standing on the side of the orchard which was adjoining a piece of heavy forest, though not in the direction of the worst storms.

“I am more than ever convinced that tenacious clay subsoils are the best for pear trees, but a tile drain should be laid at least every thirty feet, and full three feet in depth. Last season the United States government surveyors put a range light in my pear orchard, as a guide for vessels entering the river, hence I had to take up a few of my best trees, and in doing so I dug out strong roots three or four feet in depth in the solid yellow clay, and there had to cut them off. It is astonishing to see what an affinity pear roots have for deep, tough clay; and trees on such soil are generally more healthy and vigorous than on friable soils, especially if the subsoil is sandy or gravelly.

“We have concluded to plant five hundred more Bartlett trees, as we find this the most popular market variety, and the earliest and surest for bearing. People know Bartletts better than any other pears, and will pay more for them. Good samples sold readily at home last season for five dollars per bushel; and in Chicago, nicely selected, and wrapped in thin paper, they sold for twenty to twenty-five dollars per barrel of two and a half bushels.” *M. B. Batcham.*

THE PRESIDENT WILDER STRAWBERRY. — At the annual Strawberry Exhibition of the Massachusetts Horticultural Society, June 22, the highest prize, a silver cup valued at twenty-five dollars, for the best four quarts of any variety, open to all competitors, was awarded to J. E. Tilton & Co. for the President Wilder. Two baskets were exhibited, one of which was grown on the grounds of the originator, Colonel Wilder, and the other, which took the prize, on soil of an entirely different character, miles away.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

NEW PLANTS. — *Jerdonia indica*, Indian Jerdonia (Bot. Mag., t. 5814). — A curious little plant, with leaves like those of a cyclamen, and pale lilac flowers like those of a violet.

Phalænopsis Parishii (Bot. Mag., t. 5815). — A lovely little orchid, with broadish dark-green leaves and elegant flowers, which are white, the lip having a large purple terminal lobe.



BEGONIA BACCATA.

Begonia baccata. — This fine begonia was described in the Floral World in 1866, from the figure then published in the Botanical Magazine. Having made acquaintance with the plant, and found it to be a valuable acquisition to our now extensive collection of begonias, we present a figure, reduced from Mr. Fitch's plate, for the purpose of again directing attention to it. The growth of the plant is remarkably robust and tree-like, and the large pure white flowers are produced in great profusion.

Rhodotypos Kerroides, Japanese Rhodotypos (Bot. Mag., t. 5805). — An elegant shrub. In growth it resembles *Kerria Japonica*, but has white rosaceous flowers, and in winter bears black fruit resembling blackberries.

Iris nudicaulis, Naked-scaped Iris (Bot. Mag., t. 5806). — A handsome herbaceous plant, native of Bohemia and Silesia. In habit, dwarf, with broadish leaves, the flowers very large, the color a fine deep purple, with blackish shades and lines. A valuable addition to this showy family of hardy plants.

Eria vestita, Furred Eria (Bot. Mag., t. 5807). — A curious orchid, native of Borneo and Manilla. It possesses no attractions for cultivators.



ANDROSACE PUBESCENS.

Blandfordia aurea, Golden-flowered Blandfordia (Bot. Mag., t. 5809). — A pretty plant, with campanulate flowers of a deep yellow color.

Gladiolus cruentus, Blood-red Gladiolus (Bot. Mag., t. 5810). — A splendid plant from Natal. It is allied to *G. cardinalis*, but differs in the larger flower and notched segments.

Achimenes bleu (*Flore des Serres*, 1872). — A pretty plant, with broad bronzy green leaves, and smallish flowers of a fine cobalt blue color.

Androsace pubescens, Downy Androsace (Bot. Mag., t. 5808). — “A lovely little alpine, belonging to a genus notoriously difficult to keep in cultivation. It is a native of the lofty mountains of Dauphiny, the Pyrenees, and Swiss Alps, at

elevations of seven to nine thousand feet, and often occurs near the glaciers, on whose detritus it likes to grow. For the plant figured I am indebted to Mr. Backhouse, of York, in whose splendid collection of alpinés it appears to flourish. Beautiful as this species is, it cannot compare with the *A. glacialis* of the Tyrolese and Enghedien Alps, which carpets the rocks with sheets of the most lovely rose-purple, and is the choicest of all alpinés known to me." *A. pubescens* forms a neat, close-growing tuft, and when at its best, is completely covered with its delicate snow-white circular flowers.

Vanda Denisoniana, Lord Londesborough's Vanda (Bot. Mag., t. 5811). — A fine species, resembling in many points *V. Bensoni*.

Antigonon leptopus, Slender-stemmed Antigonon (Bot. Mag., t. 5816). — A splendid stove climber, rivalling the Bougainvillea in the abundance and color of its blossoms.

Cattleya superba, var. *splendens* (L'Illust. Hort., t. 605). — A moderately good figure of this well-known *Cattleya*, which we take the liberty of saying, need not be figured in any work not wholly devoted to orchids.

Epidendrum ambiguum (L'Illust. Hort., t. 608). — A pretty Guatemalan species, the flowers of which are white, faintly tinged with blue.

Chirita lilacina (L'Illust. Hort., t. 508). — A handsome cyrtandraceous plant, with all the outward aspects of one of the gesneraceæ. The leaves are richly mottled, the flowers are gloxinia-white, with purple lip. *Floral World*.

POIRE DE PREUILLY. — This pear, described in the *Revue Horticole*, is of the very largest size, measuring seven inches in length, by four and a half in breadth. It is of pale yellow color, and exhibits much of the Bon Chrétien type. It is not recommended for quality, but it is thought that its size and beauty may make it desirable for the decoration of tables, like the Belle Angevine. It is also suggested that it may be of value for raising new varieties of pears of large size, by artificially fecundating the flowers with the pollen of good late varieties. The time of maturity is not stated.

ZONAL PELARGONIUM, MADAME VICTOR LE FEBRE (Van Houtte) is described and figured in the *Flore des Serres*. It is compared for beauty and excellence with *P. Madame Cassier*, *Rose Rendatler*, *Beauté de Suresne*, *Rosalba*, and *Surpasse Beauté de Suresne*.

TRIUMPH OF HOLLAND STRAWBERRY. — This new variety, originated by M. J. Copyn, of Utrecht, is said, in the description accompanying the beautiful colored plate in the *Flore des Serres*, to be much larger and better than other varieties of the monthly alpinés, to which class it belongs.

NEW CRAB APPLE. — As a companion to the Fairy Apple, which we have recently figured, we may mention the *Imperial Crab*, a beautiful deep-red fruit, resembling the Red Astrachan Apple, of which a drawing was exhibited by Messrs. Paul & Son, at the meeting of the Royal Horticultural Society.

Florist and Pomologist.

THE ARRANGEMENT OF CUT FLOWERS. — To arrange a bouquet, or to dress a vase with skill and taste, is no mean accomplishment ; requiring, as it does, a thorough knowledge of the relative value of colors, much taste in producing harmonious blending or skilful contrast, a judicious use of spray and greenery to tone down the brightness, and, above all, a natural aptitude and liking for the work.

The composition of every bouquet, the arrangement of every vase, should form a separate study. All formality and stiffness must be avoided, and as close an approach as possible to "Nature's sweet simplicity" ought to be aimed at. Overcrowding, too, is an error but too often met with. I have seen bouquets, so called, which were a compact mass of roses, and whose entire surface bristled with buds ; the only aim of the maker appearing to be the crowding-together of as many flowers as possible in a certain space.

The advantage of being able to throw a few flowers together quickly and effectively can hardly be overrated. For instance, a lady, accompanying her visitors about her grounds, wishes to offer them a bouquet ; and, in passing the gardener, the request is made. He starts at once with knife and bast, forming his bouquet as he goes from plant to plant, and meets those for whom it is required, with the flowers skilfully arranged and neatly tied. In such cases, — and they are by no means uncommon, — the bouquet-maker has to decide promptly upon his flowers and colors, to combine them in pleasing and graceful order, and to do this so quickly and well that his employer may not be detained, but may likewise feel pleasure in offering such a bouquet to her friends.

In selecting flowers for this purpose, too great variety is to be avoided : a few fine blossoms, whose colors are complementary to each other, if well arranged, will invariably afford greater satisfaction than the most complicated piece of composition. It should always be remembered, that, when two colored surfaces are in juxtaposition, they mutually influence each other : hence the importance of placing side by side those flowers whose form and color are best adapted to harmonize or contrast favorably. And although it is not intended here to enter into a disquisition on the relative value of colors, yet it may be useful to remark, that, when a person is thoroughly conversant with the relative value of the primitive colors and their complementaries, it becomes an easy matter to effect harmonious combinations of their various shades.

Form, size, color, and lightness are the leading features to be studied in the formation of a bouquet. A circular and convex form is, I think, the most pleasing, and is more generally appreciated than a decidedly flat surface. But it is in the size of a bouquet that bad taste is too often visible. A bouquet for the hand, which is nine inches in diameter, would appear to be quite large enough : but the tyrant fashion demands bouquets of at least twelve inches ; and, as this is a decision from which there is no appeal, the maker has to use as much wire as possible, so that although the bouquet is of a large size, yet its weight may not be burdensome to the wearer, nor the handle too bulky to fit into the bouquet-holder. Wire, in addition to its usefulness in reducing the bulk and weight of a bouquet, is very serviceable when the stalk of a blossom is short, as in the case of some rare stove-plants, many orchids, and, indeed, any plant whose

appearance is likely to be affected by hard cutting ; but as no plant can be very materially injured by retaining an inch or two of stem to its blossoms when cut, so the use of wire must allow of a greater number of the more rare and choice kinds of flowers being employed than would otherwise be possible.

As regards the arrangement of the flowers, while avoiding the formal appearance of regular circles, two methods of equal excellence may be pursued. The first of these consists in blending together a number of flowers, with a due proportion of their buds and foliage, whose forms and colors best tend to produce a pleasing whole. The second consists in arranging side by side masses of color, each mass containing three or more flowers of the same kind ; and these masses are interspersed with the fronds of ferns or other suitable foliage. By this method a much bolder effect is secured, while too much formality is avoided.

But although bouquets for the hand undoubtedly demand skill on the part of the maker, yet their formation, I think, ranks second in importance to the bouquet for the vase, flower-table, or basket, which, when once dressed, and placed in the elegant boudoir or stately drawing-room, has to pass through the ordeal of a daily criticism till the flowers fade. In an arrangement of flowers for this purpose, due regard must be paid to the form of the vessel to be decorated, as well as the place it is to occupy when the arrangement is completed. A large, tall vase for a centre-table should contain larger flowers, and a bolder mass of color, than one which is to occupy a position of less importance ; but, in using strong colors, all tendency to glare or heaviness has to be particularly guarded against. The flowers should not be crowded, but should be gracefully relieved by their buds or foliage. I have frequently, after dressing a vase, found it desirable to remove a flower or two at parts which had become so crowded as to appear heavy : for, in arranging flowers in vases, water only can be used ; and, as the flowers have no support for their stems, it is, at times, a difficult matter to arrange them satisfactorily.

With flower-tables or baskets this difficulty is avoided, as, generally, sand can be used. Few more beautiful objects can be seen in a drawing-room than a well-arranged flower-stand, or table with a circular top about two feet in diameter. I can remember seeing two such stands about the same in size, but with no other resemblance whatever. One, a mass of gilt and glitter, had its gaudy flower-tray curiously upborne on the head of a Cupid : the tray was not filled with cut flowers, but with four or five tall plants, altogether presenting a singular and ungraceful appearance. What were the accessories of the other table, I am unable to say, as I saw nothing but its exquisite arrangement, the materials employed being a few choice flowers of bedding pelargoniums, roses, and liliams. These flowers were thus arranged : Around the edge of the tray was a broad fringe of green leaves ; next these came a circle of pelargoniums ; then a circle of medium-sized roses not fully expanded ; and the top, or centre, was occupied by a few blossoms of *Lilium lancifolium rubrum*, interspersed with fronds of maiden-hair fern. None of the flowers touched its neighbor ; for although each flower contributed to the appearance of the whole, yet each was a perfect gem in itself, whose glowing brightness was agreeably softened by its setting of living green. The pelargonium trusses rested on a bed of moss, a few sprays of which

were visible between and around the flowers; while the roses nestled in their own beautiful foliage. And here I would observe, that most flowers appear to the best advantage when accompanied by their own foliage. What can be more exquisitely beautiful than a vase of the blossoms of lily of the valley, interspersed with, or springing out of, its own foliage? or a bouquet of sweet-pea, with its graceful shoots and tendrils? The pure white blossoms of *Eucharis amazonica* always seem most pure and lovely when seen in company with the plant's own deep-green leaves, and a truss of sprightly *Oncidium* always more fairy-like when seen springing out of its own somewhat stiff foliage.

Of the forms of vases I may observe, that almost any form may be rendered pretty, if its design be natural.

My concluding example shall be a soup-plate filled with choice hollyhock-blossoms. Form a raised mound of damp sand in the centre of the plate; fringe its edge with well-matched hollyhock-leaves; conceal the sand with a thin layer of moss; and cover the whole of the mound with flowers, with their lower sides resting close on the moss. In this way, a pretty effect is gained.—*Edward Luckhurst, Egerton-House Gardens, Kent, in Journal of Horticulture.*

ANNUALS WITH BLUE FLOWERS FOR CLUMPING. — The best of this class is *Campanula carpatica*; but it must be sown early in a frame, and better if in a greenhouse or on a gentle hotbed; and, as soon as the plants are large enough to handle, they must be pricked out into pans or boxes, and taken care of till large enough to plant out. The purple candytuft is worth a place in any garden: when true, it is splendid; but there are some very inferior sorts in trade. *Collinsia bartsiaefolia* is fine. *Eutoca viscida* is a good blue, and pretty. *Gilia achilleæfolia* is a valuable annual: it may be sown at any time, and anywhere, and therefore should be kept at hand to serve the same purpose as Virginia stock. *G. laciniata* and *G. minima cærulea* are also worth having. *Kaulfussia amelloides* is a lovely annual. The branching larkspur may be had in a variety of colors; but, without a doubt, the blue is the best of all, and makes a brilliant clump or bed. The lupins are mostly too tall for clumps; but we cannot do without *Lupinus subcarnosus*, which is one of the grandest plants known. If sown early, it flowers the first season, and will last five or six years afterwards. Fortunately, it only grows a foot high; and is, therefore, just the thing for our purpose. *Nolana paradoxa* is a charming blue-flowering plant. *Veronica glauca* is a novelty: a pinch of the seed may be obtained for sixpence. It grows four inches high, and is covered through the summer with pretty blue flowers. *Viola cornuta* may be treated as an annual, and makes a pretty clump. We never thought it good enough for bedding, and so have never recommended it. We omit the convolvuluses and many other good annuals, as unsuitable for clumping.—*Floral World.*

GARDEN NETTING. — It is made waterproof by immersing the netting for a few hours in a saturated solution in water of sugar of lead and alum. but a better plan is to soak it for a few days in a tanner's pit.—*English Journal of Horticulture.*

TO PHOTOGRAPH FERN FRONDS.—Very beautiful photographs of fern fronds, and other botanical objects, may be obtained by the following process : Prepare a solution of two hundred grains bichromate of potash in six ounces of water, and add thereto one hundred and twenty grains sulphate of copper. Wash the paper with it in the dark ; when dry, lay on the specimen and cover with a thin sheet of glass, and expose to the sun's rays for a few minutes, until it becomes quite white ; remove the specimen, and wash all over with a solution of nitrate of silver, and a beautiful positive phototgraph will be the result—a fine bronzed red on a white ground. To fix the picture, wash in cold water. The paper must not be exposed to the light before using. *Floral World.*

We have seen beautiful photographs of ferns produced by Mr. Thomas Gaffield, of Boston, without the aid of a camera. Mr. Gaffield, who discovered the process in the course of some experiments on the transmission of light through different kinds of glass, has published a description of the method used, from which we make the following extract :—

“First, purchase a few pressure frames (of the size of 8×10 inches and under) at the store of some photographic stock dealer, and a few sheets of sensitive paper from some friendly photographer, in the place of your sojourn. This sensitive paper must be kept in some dark place until you are ready to use it, and, as it quickly changes color, only obtain what you require from day to day. Gather now your leaves and ferns, press them sufficiently to remove any excess of moisture, arrange them in some tasteful manner upon the glass in the pressure frames, fasten them in their position by some thin, adhesive solution, and place a piece of sensitive paper upon the leaves ; put on the pressure in an equal manner, by means of the hinged backboard and its springs, and then expose it to the sunlight until a very dark impression is produced. The leaf impression can be examined from the back of the pressure frame, by means of the hinged backboard.

“When your day's work is completed, carry your prints, shut up from the light between the leaves of a book, to your friend photographer, who can tone, fix, and mount them on cardboard, and return them to you the next day. In your first attempt you may make too light or too dark a picture. But experience will soon teach you how long or short an exposure to sunlight is necessary in any certain month, and under any certain states of the light or the atmosphere, to produce the most effective picture. In a pleasant day of summer or autumn, an exposure of ten minutes will sometimes make an excellent picture. A camera picture of the leaves would show no detail, and no distinctive shading, giving only a dark and flat impression of the shape of the leaves. By using as a negative the sensitive paper sheet taken directly from the leaves, we obtain an interesting print, showing the leaves, with different degrees of shading, upon a light background. When the leaves are so faded as to be useless, this second sheet can be used as a negative to reproduce the first one, although the impression is not so sharp, and does not show the details so finely, as the print taken directly from the leaves. These leaf-prints can be copied by the camera, and make very beautiful card and cabinet pictures.

“The variety of leaves and ferns, and the great variety of designs which can be

made with them, will afford constantly new and increasing delight to the lovers of nature and art.

“The examples showing the degree in which leaves of various colors transmit light are curious and interesting, and show that, at least in this instance, red is decidedly more opaque to actinic light than any other color, — a red leaf perfectly protecting the paper, leaving a clean white space, giving no indication of venation or structure, whilst the green leaves printed at the same time show every marking. Yellow, apparently, in a thin leaf, however, prints almost as well as green ; orange is more adiatinic, and red completely so.”

THE INFLUENCE OF TREES ON THE PUBLIC HEALTH.—A correspondent of the *Scientific Review*, writing on the proposal of Mr. Lord to remove trees from the vicinity of dwelling-houses, on the score of their injurious influence on health, says, “Their electrical influence upon the health is quite as remarkable. By absorbing or emitting electricity, according as it is deficient or in excess, they maintain a natural electrical state of the atmosphere around them, and we all know how intimately atmospheric electricity is connected with disease. Without trees, there is always a deficiency of electricity ; consequently a deficiency of ozone, and the air is not in its naturally healthy state. They act in like manner as regards heat, cooling the atmosphere at eventide, during the hot summer months, by rapid radiation to space, whilst streets and squares without trees remain hot and close, so that the unfortunate metropolitan *bourgeois* is often well nigh stifled. I could dilate upon the direct and practical benefits derived from trees around our dwellings, but I wished to say a word upon their moral effects — upon the healthy action of a green bough upon the mind, its soothing influence after a fatiguing day in the city. It would, indeed, be not only an ignorant, but a cruel act, to deprive the lindens and elms that adorn the suburban residences of the metropolis of one single bough. Let them spread, let them grow, let the winter wind and the summer sun stream through them as of yore, and before the houses which they adorn were built. If needs be, knock down the house, since it came to the tree, and not the tree to it ; but, for the sake of humanity and of science, touch not a single bough of the greenwood tree ! On the outskirts of London let me always say, with our immortal Shakespeare, —

‘ These trees shall be my books,
And in their barks my thoughts I’ll character.’ ”



THE Editors of Tilton's Journal of Horticulture cordially invite all interested in horticulture and pomology, in their 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 horticulture.

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.

C. K. V. H. — The *Cupressus Lawsoniana erecta viridis* is not to be obtained in this country, but may be had from the originators, Messrs. Waterer & Godfrey, Knaphill, Surrey, England. We are unable to state the price. We have seen a single specimen, in a pot, belonging to an amateur. The *Cupressus Lawsoniana*, of which this is a sub-species, is not hardy here, and it cannot be expected that this will be.

D. T. S. — The little bunches of gum which you have noticed at the foot of your peach trees, are caused by the presence of the peach worm or borer. It is said that they have been destroyed by pouring boiling water around the collar of the tree ; but the only effectual way to destroy them is to dig them out with a knife, or kill them by running a wire into the hole they have made. When once extirpated, the tree may be protected from their attacks by wrapping a strip of sheathing paper, about a foot wide, around the base of the tree, and securing with strings, the lower edge to reach below the surface of the ground. The tree should be examined every spring, to catch any borers that may have escaped detection, and the paper renewed. Or, after the spring examination, a mound of ashes may be heaped round the tree, to be removed in autumn.

MR. EDITOR. — So far as my observation of dwarf trees, either apple or pear, which have rooted from the stock extends, they generally have a few large roots, which are apt to be little-branched, and to run to one side. Now, I do not like these as well as finely-divided roots spreading equally on all sides ; and I wish to ask your opinion on these points. *P. J. T.*

We agree with our correspondent, both in his views of the character of the roots described and his estimate of their value ; but we would be pleased to have the ideas of others in regard to them.

J. M. N. — The operation of leaching deprives ashes of nearly all their pot-ash, and that which remains is in the form of silicate, insoluble in water. They are then chiefly valuable for the lime and phosphoric acid which they contain ; but we are unable to state their precise value as compared with unleached ashes.

Leather scraps possess fertilizing qualities, but are very slow in decaying, and, consequently, in producing any effect on plants, as the combination of tannin with the gelatine, which contains a large proportion of nitrogen, renders the gelatine insoluble in water. We should prefer to use them as mulching, for which they would no doubt be excellent. If used as a fertilizer they should be chopped as small as possible.

W. J. H. — Working different varieties of geraniums on the same stock is chiefly practised on the continent of Europe, where cleft grafting is the method preferred. The scion and stock should be chosen of about the same size, and the plant should be placed under a bell glass, or, if large, in a somewhat close, shady place. About fifteen days are sufficient to effect a union.

WE have received from D. Wilmot Scott, Secretary of the Jo Daviess Horticultural Society, a complimentary ticket to their annual June fair and festival, for which we return our warmest thanks.

SECRETARIES of horticultural and pomological societies will confer a favor by communicating to the Journal of Horticulture the names of officers of such societies.

THE PEACH CROP prospects are for half a crop in this neighborhood, the Hale's Early and Large Early York having suffered the least by late frosts. Oldmixon and Crawfords are a very bad crop here.

Small fruits of all kinds promise a good crop ; cherries, quinces, and apples also.

D. S. M.

BRIDGEVILLE, DEL., May 23.

H. F. C., Jamaica Plain. — All shrubs are best pruned in early spring. Of those you mention, the Fringe Tree (*Chionanthus*), Laburnum (*Cytisus*), Smoke Tree (*Rhus*), Snowball (*Viburnum*), *Cornus florida*, Rose acacia, Tamarix, Persian Lilac, Hawthorn, *Deutzia scabra* and *crenata*, *Pyrus japonica*, *Spirea prunifolia* and *callosa*, Syringa (*Philadelphus*), Flowering Almond, and Althea (*Hibiscus*), are perfectly hardy, and need no protection. The Rhododendrons, Kalmias, Tree Box, and Mahonia are best protected by placing evergreen boughs around them in November.

Calycanthus and *Deutzia gracilis* are better for being bent down to the ground and covered with earth, otherwise the tips of the shoots are often badly killed and the flowers much lessened.

IDEM. — Evergreen hedges, if planted in good soil, need no nursing. Any dressing applied should be very fine, and well rotted. Grass should not be allowed to grow around them.

MISS H. F. M., Rutland, Vt. — Any of our large greenhouses can supply you with plants of *Hoya bella*. It is a charming plant, and the flowers look like jewels. It looks best in a hanging basket, grown on peat moss and sand, with plenty of heat and water when in growth.

IDEM. — Roses will bloom well in pots, in a greenhouse, and do not need very large pots. They do best, and give most flowers, planted out in a rose-pit, which is a small, low greenhouse, in which a rich border is made ; in this the plants are set ; in winter, fire heat is given ; in summer, the sashes are removed, and the plants grow out of doors ; in autumn, the sashes are replaced.

IDEM. — Oranges are easily grown in the house, but are valuable rather for flowers than fruit. You can obtain plants at any greenhouse. We should be glad to hear your experience with *Cactus*.

REMEDY FOR MEALY BUG. — A correspondent sends the following remedy for mealy bug, which will be a reply to many questions : —

Take a tub that will hold two or three pailfuls of water, heat the water so that when in the tub it shall raise the thermometer to one hundred and thirty degrees. Take the plant infested with the bug, and first, immerse it in cold water, so that it may be well wet ; then dip it in hot water (one hundred and thirty degrees — not above that), hold it in three or four seconds, — not exceeding four. It will not hurt the plants in the least, and is a sure cure.

FRUITIST, Brookline. — You will hardly succeed in growing apricots in the vicinity of Boston. Try plums, which with care will do well on dwarf trees.

IGNORAMUS, Reed's Ferry. — Your grape-vine is mildewed. Sprinkle with sulphur.

FREDRIKA, Worcester. — It is very common for pansies to grow smaller in summer. Our climate is too hot and dry for fine pansies, and careful culture is necessary to obtain them. As the weather grows cool in autumn, your pansies will increase in size.

ANNIE BELL, Suffield, Conn. — Your flower is the painted-cup, *Castilleja coccinea*, formerly *Bartsia coccinea*.

I OBSERVE occasional reference to the growth of crab-apples. Most of the varieties appear to be ornamental, but some are mentioned as *best* for cider. I wish to be informed of the *three best* varieties for cider in this latitude. If any person can give an answer to this question from practical experience, I shall regard it as of great utility.

J. W. S.

FRANKLIN, N.H.

[We shall be pleased to hear from any one who can answer "J. W. S.'s" inquiry. — *Ed.*]



THE NEW PYRETHRUMS.

By FRANCIS PARKMAN, Jamaica Plain, Mass.

SOMETIMES it is not easy to trace the parentage of garden flowers. Sometimes, again, their parents are perfectly well known, and one is astonished that so much beauty could come from so mean a source. Thus, *Pyrethrum Parthenium* is a weed; but, in its double form, it becomes the pretty Feverfew of our gardens. A much more striking case occurs in the history of another species of the same genus, *Pyrethrum roseum*. This is a wild flower from the Caucasus. It is commonly, as its name imports, of a rosy color. Often, however, it comes white from seed, and then the flower precisely resembles the Ox-Eye daisy, usually called Whiteweed in New England. From this unpromising parent has lately arisen a race of hardy garden flowers, admired by everybody who sees them. They have been made double, till they resemble in form the finest double aster. Their color has been deepened, on one hand, to the most vivid red, and on the other, shaded into every gradation of rose, pink, and flesh-color, down to pure white. There are double varieties of all these colors; but for effect in the gar-

den, they are scarcely equal to a clump or mass of the deep-colored single sorts, with their profusion of crimson-red flowers.

These *Pyrethrums* grow about two feet and a half high, and blossom in June. They bear a New England winter perfectly, grow well in common garden soil, and need only to be taken up and divided every two or three years.

In a bed of seedlings, one occasionally finds individuals of a dwarfish growth. By setting these apart and raising seed from them, and then, through several generations, repeating the same process with the smallest of their offspring, I have produced a dwarf race, scarcely more than six inches high, but flowering as abundantly as their taller ancestors, and forming very bright and pretty ornaments for the border.

DESTRUCTIVE FUNGI.

By J. L. RUSSELL, Professor of Botany to the Massachusetts Horticultural Society.

THE benefit derived from fungi is, perhaps, always overlooked in the supposed or real injury they produce. But, as in insect life, an indiscriminate mode of regarding it is most apt to obtain, all bugs, flies, moths, etc., come under condemnation, except a very few, to whose industry the economical arrangements of home are indebted, so a want of observation ignores certain results which attend the humbler and more obscure ministrations of fungal life.

We have been led to these thoughts by receiving from Mr. F. Burr, of Hingham, a large number of the larvæ (grubs) of the June bug, or May beetles, or dorbugs, each destroyed by a parasitical fungus. The clumsy and droning insects are too well known in early summer evenings, by beating against the windows if shut, or diving towards the lamp light, or striking, in the most impolite and unceremonious manner, against the face or head of persons sitting in the room, and not unfrequently attacking one when in the open air by persistent efforts to make him a resting-place, instead of decently alighting on some tree, or even on the ground, from which they have but very lately issued. A neighbor of

Mr. Burr found them in vast quantities just under the sod of his grass land, devastating the premises by cutting the tender roots completely off, and killing the turf. It is well known that this course is not uncommon, their food being entirely vegetable. Crows, despised and eminently ill-treated birds, select them as a favorite food, attracted, doubtless, by the sweet and fatty viand which they, in good condition, offer. And the ill-treated animal, known as the skunk, is equally serviceable in thinning their numbers. Why so useful creatures should receive the obloquy of man and the persecution of boys would seem singular, did one not know that the greater the benefaction the more abused the benefactor, and that the Semitic race to which we belong is especially hard and cruel on the weak and defenceless. The sombre hue and black feathers of the one, with its warning cry of danger and quick sight, and the powerful scent of the other, are by no means the worst of mundane evils, or in any worse taste, as personal habits, than the fantastic modes of human fashion, or the vile smells of perfumed dandies, or essenced, and oiled, and dyed tresses of feminine loveliness. This we know, that there is many a more insufferable idler than the black crow and ambling nocturnal skunk, and who does not earn a living half as creditably as the bird and beast, even though the hen-roosts sometimes suffer.

The toadstool, suspiciously poisonous, the lurking mould, the mildew of our fruits, and all the host of fungi — yes, throw them into the same heap of ignorant condemnation!

Yet here, in a single instance, is some very minute spore-dust, too fine to be detected but by microscope, incorporating itself in the soil, waiting patiently and abiding its time, harmless to man and to herbivorous animals, the useful ox or horse, swallowed by the worm or grub, mining in the dark, and working mischief by day and night. Unconscious of what is rapidly going on within its stomach, the dust sprouts, sends out myriad threads, which, feeding upon the carbon of fatty matter, swells and permeates the entire system, and finally issues from the mouth, or some natural aperture of the body, becomes a black, club-shaped stem, penetrates the soil, and is charged near its top with numerous hardened pimples, each filled with abundance of the same dust-like seeds, ready to be taken up by the winds, washed hither and

thither by the showers, and ready to kill the larvæ, or eating, devouring, wasteful beetle-worm of the coming season!

So much for a fungus (*Sphæria*, or *Cordyceps*) of the botanist, the particular species in this instance not readily comprehended by me. The most ordinary, which lives on insects, is called *Cordyceps entomorrhiza*, which this is not, nor is it *C. gracilis*, nor does it quite answer to *C. alutacea*; and so why not call it, friend Burr, *Cordyceps melonlonthæ*, or the May-beetle-grub's fungus enemy, but the agriculturist's overlooked, little understood, yet not to be despised fungus friend?

SALEM, MASS., JUNE 12, 1870.

BOCCONIA JAPONICA.

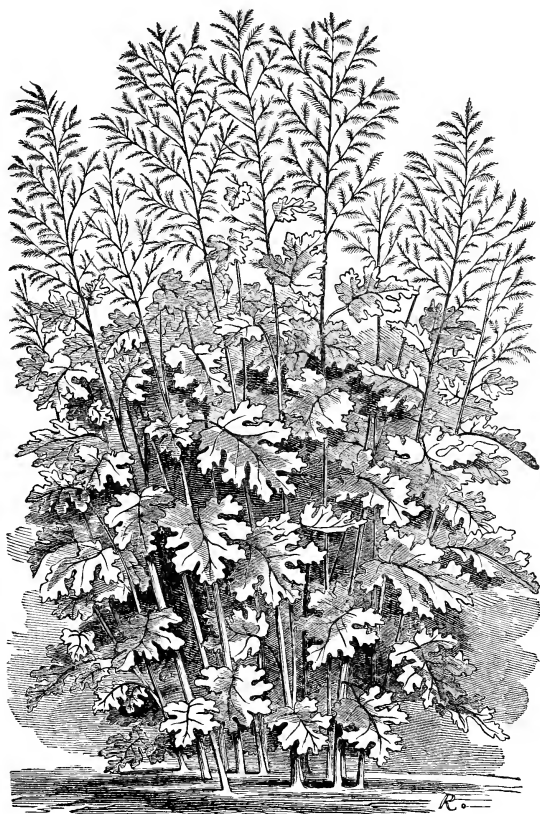
By C. M. HOVEY, Ex-President of the Massachusetts Horticultural Society.

JAPAN has added much to the ornamentation of our gardens. The numerous varieties of variegated leaved plants which have been introduced — not to name the many evergreen trees which are now known to be hardy — have added a variety, and given a new character, to plantations wherever they have found a place.

Bedding plants of the various kinds — which have heretofore been so freely used in beds upon the lawn — do not associate well with the larger vegetation and massive foliage of trees and shrubs. In parterres exclusively devoted to them they have a beauty and brilliancy peculiarly their own; but among trees and shrubs scattered on the broad carpet of green, they look patchy and out of place. Hence the attention of planters has been turned to the subtropical plants, so called — the cannas, wigandias, caladiums, etc., — which form masses of heavy foliage, associate with the surrounding vegetation, and give a rich and tropical aspect whenever introduced.

To add to this class of plants has been the object of cultivators, and especially to add such as are hardy in our severe climate; and just at the right time Japan has come with her many treasures, among them the *Bocconia*, more conspicuous, perhaps, than any other plant, pos-

possessing so many qualities adapting it to lawn decoration. It is entirely hardy ; it is easily propagated ; it will grow in any soil ; its maple-like



BOCCONIA JAPONICA.

foliage is massive, and of a peculiar green ; its stems of a pale, glaucous hue ; and its white flowers — not individually showy — are produced in multitudes, and in loose panicles, or spikes, three or four feet

long. It reaches the height of twelve feet, and forms an object of peculiar beauty.

The preceding engraving so well represents this fine plant, that we need not further describe it. When planted out, it should have a circle of at least four feet devoted to it; and the deeper and richer the soil, the broader the foliage, the taller the stems, and larger its floral panicles. We know of no other plant, unless we except the pampas grass, — which few can raise except under glass, — which at once arrests the attention of every lover of showy and attractive objects.

FORCING VEGETABLES IN HOT-BEDS AND IN GREEN-HOUSES.

By W. D. PHILBRICK, Newton Centre, Mass.

PROBABLY few persons not actually in the trade are aware of the vast amount of glass used by the market gardeners near our large cities for forcing lettuce, radishes, cucumbers, and tomatoes, and a variety of other things in smaller quantities, such as rhubarb, strawberries, onions, dandelions, mint, and parsley.

It is not uncommon for one farmer to use nearly a quarter of an acre of hot-bed sashes, which have to be covered every night with mats and shutters, the frames prepared with eight or ten inches depth of horse manure for giving the proper heat, and the sashes have to be closely watched through the day to give a proper quantity of air.

There is a vast amount of labor involved in working these beds, as many do, through the depth of winter: the mats become rapidly worn out by constant handling and exposure to weather; the heat of the manure is uncertain and irregular even in the hands of the most skilful, and many of the shrewdest managers are unwilling to risk a winter crop of lettuce involving so many uncertainties and so much labor and close attention as well as skill.

The difficulties attending the successful management of hot-beds in winter are, however, much lessened as the spring approaches, and

we very much doubt if they will ever be superseded for forcing vegetables in the spring months. The cheapness of the structure of the hot-bed, the ease with which the earth can be renewed, the ease with which ample ventilation can be secured in mild weather by removing the sashes wholly or in part, together with the healthy growth of the plants close to the glass, are points not so easily attained by the green-house. Still the difficulty of running the hot-bed in severe and snowy weather, and the consequent high price which early lettuce and cucumbers generally bear, have stimulated several of the farmers of this neighborhood to erect forcing-houses for the purpose of growing these crops throughout the winter. Most of them are erected upon the span-roof plan, built of two three by six feet sashes, leaning against each other, and varying in length from fifty to one hundred and fifty feet; a walk, two feet wide, runs through the house; the beds, four and a half feet wide, are on each side, and the heating-pipes, or flues, pass under the frame of the bed. The sashes are lifted for ventilation, and taken off to renew the earth. The house, thus constructed, costs nearly three times as much as the same amount of bed room on the hot-bed plan; the fuel costs more than the use of the manure in the hot-bed; but the labor of attending to the crop is very much less, and no mats or shutters are needed, so that the running expenses, including difference of interest on the cost of structure, are decidedly in favor of the green-house. The crops obtained by the green-houses, we believe, will be far more sure and satisfactory than those obtained by hot-beds in winter; many who have tried them for the first time neglect attending to the temperature properly, and injure their lettuce with too much firing or too little airing. This has created a prejudice in the market against "steam lettuce," as it is called, which we believe will wear off when the men who raise it in green-houses learn to keep it cool enough. Lettuce-houses should range from 40° to 45° at night, and 55° to 65° by day. We are aware that lettuce can be forced much quicker by a heat ten degrees higher than the above; but it will be a light, inferior article, and much of the crop will frequently be unsalable when forced too much.

MARVELS OF PEACH-GROWING.

By EDMUND MORRIS, Burlington, N.J.

THE present will be counted as a memorable year in the history of peach-culture. Wherever a tree would grow, it seems to have borne profusely. Though immense orchards were last winter enveloped in an icy sleet which covered their branches with a thick crust during five days, yet the fruit-buds came out uninjured. No other casualty having been experienced, the yield is believed to be unprecedented. Whole orchards have been weighed down with fruit; many trees, to their certain injury, losing valuable limbs. The trees in private gardens, where the soil is richer and the attention greater, have required extensive propping to save them from destruction. The fruit, moreover, has been fair and good. As a result of this abundance, the masses have been supplied with peaches at lower prices than for many years. One season ago, it was a famine: this season it is a surfeit. Such almost unprecedented abundance of this luscious fruit has seriously affected the prices of all contemporaneous products. When even indifferent peaches from declining trees came into market, an excessive crop of cultivated blackberries became unsalable at paying rates. All the finer melons shared the depression, but not so ruinously. Everybody preferred peaches, and therefore neglected products, which, in the absence of the former, have uniformly been acceptable to the consumer, and remunerative to the producer.

It will be interesting to look into the facts of a crop which is thus able to produce such marked effects on other leading productions. The Middle States have long been celebrated for their peaches. At one time, New Jersey stood in the front rank of producers. She had railroad facilities which enabled her to throw her fruit into New York and Philadelphia in from two to four hours' travel; but the smaller fruits, with truck, had not become the staples they are at present. The trees thrived as they do now, bore well, and the business of peach-growing was extremely profitable. In time, the cultivation extended to Delaware. There it has been extending as new and cheaper outlets were created by the building of recent railroads. New Jersey, discovering that other fruits paid better because of her nearness to

the two great markets, gradually reduced the size of her orchards, though her farms are still dotted with them. But Delaware is now the undisputed centre of that peach-culture which supplies the North with this popular fruit.

The first really great Delaware orchard was planted in 1838 by Jacob Ridgway, the Philadelphia millionaire. Other large ones were soon established. About this time, a small orchard of forty acres realized a clear profit of nine thousand dollars from a single crop, — about ten times more than the land was then worth. This great profit set people crazy to plant trees; and, from that day to this, the peach-culture has been extending. It is no doubt more active now than at any former period. Though the crop sometimes fails, yet the average gain of a term of years is larger than from any other form of agriculture in that State. Moreover, the borer is not so common as elsewhere; and an orchard, with fair precaution, will live many years. Some two millions of trees are now planted in Delaware; and hence the avalanche of peaches which overwhelms the markets in such a season as this. As the business pays well, lands have risen largely in value; those on the lines of new railroads being most enhanced, and worth a hundred and fifty to two hundred dollars an acre. A like result is observable in Maryland, where peach-planting has also been extensively introduced; but, being farther from the great markets, the rise has not been so great.

It is the study of the peach-grower to have his fruit ripen in succession, so as not to be inconveniently hurried in getting it into market. To secure this end, he plants the following, which ripen in the order given: Hale's Early, Troth's Early, Early York, Crawford's Early, Reeves's Favorite, Oldmixon, Ward's Late, Fox's Seedling, Crawford's Late, Delaware White, Freeman's White, and Smock's Yellow. By this arrangement, he has peaches in market from about July 20 to October. Though there is a general struggle to get the earliest possible variety, yet, as a general rule, the late varieties pay the best profit. The first-planted orchards were usually of from ten to fifty acres; but now there are some embracing a thousand acres each. At five to six years old, a tree will produce three and sometimes four bushels; but the average of a large orchard does not much exceed two bushels. The present season, over five hundred bushels have

been picked from a hundred and fifty trees of Troth's Early. The product of some of these orchards, in this abundant season, is astonishing. The Messrs. Corbitts, with three hundred and fifty acres, will ship ninety thousand baskets of three pecks each. Hundreds of others will ship from three thousand all the way up to eighty thousand baskets each. Mr. Fennimore will ship thirty thousand. Last year, this gentleman was the only one who had any peaches ; and his crop of forty-two hundred baskets averaged him six dollars. Everywhere the trees are bending down with splendid fruit, as not a single orchard appears to have failed of a crop. Hence the enormous quantity sent to market, — estimated at five million baskets.

Peach-growing has become a leading staple of Delaware. An immense machinery is required to handle and transport to market such a crop : hence the railroads thrive. There are five to seven long daily peach-trains to Philadelphia and New York, some of them with thirty cars in each. In addition, vast quantities reach market by sloops, schooners, and steamboats, whose sole employment it is to transport peaches. During the picking season, the entire region is alive with bustle. Go where one may, he will find the roads crowded with loaded wagons, and the orchards swarming with pickers. The gathering of such a crop employs three thousand men, women, and children, in merely picking it from the trees. The men receive their board and a dollar a day ; the others, only half as much. Other industries feel the stimulating effect of the peach-trade. A large number of hands are employed in making baskets and crates. Then, while some are canning the fruit in large quantities, others are running stills, and converting the spoiled fruit into brandy. Of course, there has been speculation in the crop. Early in the season, the dealers from New York came in and bought up some two hundred orchards, paying forty to fifty cents a basket all round, the owner to pick and deliver the fruit at the nearest landing or station.

There are orchards here which die out in five or six years ; but this early mortality is entirely by reason of the owners' neglect. In planting an orchard, trees one year from the bud are considered the best. These are purchased of the nurseries at thirty to fifty dollars a thousand. The young orchard thus planted is usually cultivated with corn for three years ; at the end of which period the ground is too much shaded for further cropping,

and the trees are coming into bearing. All this time, the soil must be well cultivated and manured, as want of cultivation is certain ruin to a peach-orchard. If borers attack the trees, they must be taken out, or the life of the tree will be very brief. It is those orchards which are neither well cultivated, nor kept clear of borers, that die out in five or six years. Where the owner does his duty by his trees, they will bear from fifteen to twenty years. The cultivation required is principally that of frequently stirring the soil, as Delaware is not infested with the quick growth of rank weeds that may be seen in South Jersey.

The peach-crop of the present season, enormous as it has been, will probably pay a fair profit. The cultivation is more likely to increase than to diminish, because the machinery of distribution is annually becoming more perfect. A more direct route to New York will probably be opened next year by the Vineland railway, and new lines of sea-going steamers are in contemplation. These will deliver peaches at Boston more readily than now, and will insure cheaper and more complete distribution all over New England. The peach-traffic is already so gigantic as to be worth competing for by rival routes. Let these routes only furnish prompt and convenient transportation, and it will be found that Delaware alone can supply all the peaches that New England may be willing to consume.

HUCKLEBERRIES AND BLUEBERRIES.

By BENJAMIN G. SMITH, Cambridge, Mass.

I HAVE examined many nursery catalogues in vain to find huckleberries and blueberries noticed. I am somewhat surprised that this department of small fruit culture has been entirely overlooked. In my judgment, here is a great field for improvement and experiment. When we are obliged to pay in Boston, for a box containing about a pint and a half of early blueberries, from thirty to fifty cents, — four or five times the price of currants, — it is passing strange growers of small fruits have not ere this experimented with seeds and produced superior seedlings,

of easy cultivation. My attention was first called to this subject two or three years since, by a visit to the Cambridge Botanical Garden. I noticed a bush of blueberries growing as a botanical specimen. The shrub was perhaps two inches in diameter, of symmetrical form, well laden with beautiful fruit. I am neither nurseryman or market gardener, but an amateur cultivator, with about two acres of land, and greatly interested in horticultural and pomological pursuits, and desirous of making a complete collection of the very best variety of small fruits. I addressed a note, last season, to the Agriculturist (Orange Judd & Co.), upon "Huckleberry Culture." If you will trouble yourself to turn to the November number, p. 406, you will notice the reply. The editor remarks, "As long as the fruit grows in such abundance in the wild state, there is no great temptation to engage in its cultivation."

That may be very true with regard to many sections of our country, but does not apply to Boston and its vicinity. Although the huckleberry and blueberry grow in a wild state in considerable profusion in Massachusetts and New England, within a circle of twenty or thirty miles of Boston the fruit has become so valuable that but few of the landholders allow strangers to gather it. They guard it almost as carefully as cranberries and other crops, the value of which has greatly increased the last ten years. I notice in A. S. Fuller's Small Fruit Culturist, p. 249, he exactly expresses my mind when he states his surprise at the general neglect of this fruit, and recommends and directs the mode of producing improved seedlings adapted to general cultivation. A friend recently made a tour along the shores of the great lakes Superior and Huron, and remarked to me, upon returning, the huckleberries and blueberries in that region were perfectly *marvellous*, being on an average twice the size of the varieties hereabouts, and of delicious flavor. If seed could be obtained from that locality, and treated as Fuller directs, is it not probable a very *superior seedling* could be produced? I believe the pioneer nurseryman, who obtains or produces a superior seedling, of easy culture, will reap a golden harvest, and prove a public benefactor. I write this in the cause in which I am greatly interested. If it is of any use to you, or your widely circulated Journal of Horticulture, it is at your service.

CONCERNING WINE.

By DAVID M. BALCH, Salem, Mass.

OF the immense breadth planted with vines in the Northern, Middle, and Western States, between 1863 and 1867, thousands of acres are now in bearing, and other thousands come into bearing every season. As the markets become fully supplied with fruit, and prices fall so that this method of disposing of the crop ceases to be remunerative, much of the product will fulfil its ultimate destiny, and be made into wine. The art of propagating, growing, and training the vine is understood full as well by us as by any other people; but with regard to wine making we have much to learn, and need much practice to arrive at the best results.

It is no very difficult matter to produce good wine in those rare seasons when Nature furnishes fruit to our hand in the best possible condition; but along the northern border of successful grape culture (just where vines have been most largely planted, and where the best wines should be produced) there is a deficiency of heat in most seasons, and the grapes consequently have too much acid and too little sugar to yield good wine. Art, then, must assist Nature. The processes of Gall and of Petiot, rightly understood and applied, entirely prevent the losses arising from insufficient ripening, banish flat, sour, and undrinkable wines from the market, check the production of brandy, and in many ways work advantageously for the producer of wines, and for humanity. Yet mistaken and narrow views have led to much opposition to these methods; and have even caused them to be decried as specious forms of adulteration, by those who stand forth as champions of what they are pleased to call "natural wines."

The question has been much debated in Europe, and is likely to be in this country, as soon as increased production of wine involves it. It is, therefore, very desirable that this matter should be examined in all its bearings, and thoroughly understood. There is a very readable chapter on the subject in Dr. Mohr's excellent work, *Der Weinstock und der Wein*, of which I believe there is no English version attain-

able. Dr. Mohr's scientific reputation, surroundings, and pursuits give great weight to his opinion.

I translate the following from the chapter entitled "*Verbesserung des Weines*" — The Improvement of Wine.

"The vine is not an indigenous plant; its culture demands the kindly, unintermitted care of man. In our district, moreover, in most seasons its fruit is of a quality that leaves much to be desired. To us who dwell in fifty degrees of north latitude Nature often denies the requisite sunlight, and therewith sugar in our grapes and spirit in our wine. Add to this, that in just these seasons acid is sure to be present in excess, and a beverage is supplied us which ceases to afford enjoyment. That which is palatable to man is something quite decided, and restricted to certain limits. Wine with less than six per cent. of alcohol we consider flat, and with more than one per cent. of acid unpleasantly sour. Now if, in a cold season, Nature affords us a must containing from twelve to fourteen per cent. of sugar, and from one and five tenths to one and eight tenths per cent. of acid, we must of necessity set aside as undrinkable the natural wine resulting from such must, or make good the deficiency due to climate in some way or other; and in this conjuncture arises the question, Is the perfecting of natural wines admissible or not? This question has been considerably agitated in the last score of years, but has not been treated with calmness or circumspection by either party, chiefly because self-interest has mingled in the debate. It is scarcely possible that there should arise any doubt that one may through art supply the failings of Nature, for on this our whole mode of life is grounded.

"Our clothing, our dwellings, our furnaces, and gas lights are by no means natural, but mere appliances for making good the deficiencies of Nature in our country. And why, in the case of wine alone, shall we sit with idle hands, while we permit ourselves to convert into an agreeable drink that barley which Nature has destined for bread. Yet we always hear the words 'natural wine' given with an intonation, antagonistic to our processes for correcting the faults of Nature. There is no natural wine under the fiftieth parallel of latitude, for the grape itself is not there a natural product. When upon a declivity we first

blast away rock with powder, hoist to the place basketfuls of earth, and plant a vine there, can we call its fruit a product of Nature? And so it is. Nature is true everywhere; but who bids us cultivate a plant of the south on our northern hills? If we *will* have it, we must also supply the requisite conditions, and we *may* have it. Man is, of a truth,

‘The lord of Nature, and she loves her chains,
Exerts her strength in contests manifold,
And from her wildness mounts all beauteous at his call.’

“Self-interest has given a sharp edge to the debate. The owners of superior vineyards fear that, aided by science, every one will produce wines of as good quality as themselves, and at a lower price; and that they will consequently lose their monopoly; and in this they think rightly. We will not here disparage men who are fighting *pro domo*, nor will we, on the other hand, retreat from the great principle, that the welfare of all is to be preferred to the interests of the few. If these men are right in producing from their wine hills the best wine possible in the simplest way, then are the possessors of inferior sites also right in supplying the needs of their harvest by proper treatment and additions, and both are entitled to just so high a price as they can obtain in the open market. I do not reply to the objections that these artificially prepared wines are unwholesome, will not keep, are not relishing: these are all falsities. But that the natural wine of 1850 was sound, pleasant, and durable, not even the advocates of monopoly dare affirm. A wine with from one and five tenths to one and eight tenths per cent. of acid is not potable; we must either throw it away or improve it. The need of improving wine indeed made itself known betimes, and the champions of monopoly opposed the idea even in antiquity. We are at present acquainted with three essentially different methods for bettering wine.

“First. Chaptalizing: adding sugar to the must.

“Second. Gallizing: reducing the acid with water, and adding sugar.

“Third. Petiotizing: treating the expressed marc with water and sugar.”

(A minute description of these processes here follows, illustrated with cuts; after which the argument continues.)

“It is well known that the consumption of beer was never greater than in the series of bad wine years which lie between 1847 and 1857. The wine in its natural state was really undrinkable, and the injury thus inflicted on the prosperity of the country immeasurable. The wine-producing communities were brought near to beggary; distraint of property, emigration, and, in some places, famine-typhus resulted. The conversion of barley into beer is calamitous as regards national economy. Barley grows like rye and wheat, and affords elements of nutrition. It is capable of nourishing men, and fitting them for labor. But in the brewing of beer we separate its most valuable constituents, in a form that is only serviceable for feeding to cattle, while from the far less valuable portion, the starch, we prepare a drink, which to be sure has its excellences, but can be very well replaced by moderately good and light wine. Where barley grows either wheat or rye can grow, or we can employ our barley like these; but where the vine flourishes cereals can rarely be cultivated. In the grape, the nutritive elements, which separate in the ferment, are unimportant; but they form the chief part of grain. The nutritive powers of beer are fabulous. If it is to nourish, we must at least take a crust with it.

“But it is quite certain that a man will be perfectly satisfied with, and supported by, that quantity of barley in the form of bread, which, as beer, he tosses off contentedly. with the wish for more. But I by no means desire that men shall eat barley bread and drink water with it: let them have white wheaten bread for food and wine to drink; and this can be easily compassed when our barley fields are sown to wheat, and our wines, unpalatable in the majority of seasons, made pleasant by simple modes of treatment. These processes are neither so artificial or unnatural as that of beer brewing; indeed, there was a time when the addition of hops to beer was just as much decried, and even made punishable by law, as the treatment of acid must with sugar is now decried, and sought to be made a punishable offence. But all this cannot mislead us to slight the general good for the whims of individuals, especially when no actual difference can be found between choice

natural wine and well-prepared sugared wine. Soon after the publication of Petiot's process, the opposers of the method in Burgundy applied to the minister at Paris for protection against this branch of industry. His excellency applied himself to the affair quite seriously, and bade the complainants furnish him with the exact difference between natural and sugared wines. 'There is none at all,' was the naturally despondent reply. And in fact there is no difference whatever. No judge of wine, nor any chemist, can with certainty give the tests which distinguish an imitated from a natural wine.

"It is true that the opponents of artificial wines affirm that they can recognize them without fail at the first sip; that they give one the headache; that one desires no more than a single glass. But all these assertions are empty falsehoods. I have myself seen instances where practised wine-tasters, in their fear of being overreached, have declared perfectly pure natural wines chaptalized, and been well laughed at for their pains; and other cases where they were not able to pick out the sugared wine from among mixed samples. But, as the Burgundian gentlemen told their minister, there is no difference whatever, except that among natural wines there occur many sour, flat, and undrinkable, which in the case of wines scientifically prepared is impossible. The opponents of methods for perfecting wine and making it plentiful, the monopolists or Puritans, are often at the trouble of citing authorities. After correctly understanding a subject I make very little of authorities. But I would call to the remembrance of these gentlemen, that not only Liebig, who, like all other chemists, is distrusted by them, has expressed himself for the admissibility of the method, but that even the most celebrated writers on wine — Mulder, Maumene, Von Babo, and Bronner — have warmly taken the process under their protection. These men, who have a deeper insight into the essence of wine than all the so-called producers taken together, and are moreover wholly free from self-interest, have recognized in the properly conducted method for perfecting wine, a step in advance and a gain for humanity. Now where rests the fancied wrongs of the proprietors of choice vineyards? Just here: that in bad years it is no longer they alone who can produce drinkable wine; that they can no longer obtain the ridiculous

prices they demand for the object of their monopoly; or, as they say themselves, they can compete no longer.

“On this confession rests the condemnation of their position. If they are inclined to pass over the valuable husks of their grapes to the still or the dungheap, why should their neighbors be compelled to imitate so senseless a procedure? Cannot the owners of estates which yield wines worth one thousand gulden the stück, obtain just as well from their residues a double or threefold amount of wine, the price of which may reach four hundred or five hundred gulden; and is there not remuneration for the somewhat lower market price in the increased production? Have they not also at command a means for ennobling their acid must in bad seasons? Experience has already shown that properly treated afterwines are uncommonly agreeable, drinkable, and permanent; that they are subject to scarcely any wine distempers, and, indeed, for the natural reason that their small amount of ferment is more completely separated.

“Maumene says, expressively, that ‘such wines seem more *présent à boire*’ (an expression equivalent to our word *söffig*) ‘here on the Moselle and Rhine.’

“Herr von Babo says, in a letter, ‘I began my experiments with slight confidence in their success, but soon convinced myself of the worth of the method by the brilliant results obtained, so that I recognized in it the means by which we are enabled to avert the misfortunes of bad seasons; especially the poor winter.’

“Herr Bronner, agricultural commissioner at Wiesloch, says, ‘I am myself a producer of, and dealer in, wine; but I do not hesitate, indeed, I hold myself in duty bound to stand forward publicly with the truth, because I can point to splendid evidence, which speaks in favor of the process. I have gone over the whole case, and consequently permit myself to pass judgment.’

“The dispute assumed a form peculiarly odious when the word adulteration was introduced. A gratuitous definition was first sought for the word, and this applied to the method. From this construction everything was exempt which they practised themselves. Selecting, pressing, racking, clarifying, sulphuring, all these were natural pro-

cesses, but the adding of pure sugar was adulteration. In this sense we adulterate our coffee with sugar, and our beer-wort with hops. The ridiculousness of such logic is plain enough.

‘Thou chain’st the spirit in one sounding word,
That, freed from fetters, marches on in wine.’

“This is not adulteration, when one adds in the purest form what is already present, but ought to be present in larger quantity. With as good reason one might say that by the use of too little sunlight Nature adulterates our grape juice with too much acid and too little sugar. That is the fact, call it what we may. Since the addition of sugar could neither be prohibited nor prevented, a law was called for which should bind makers, by a fine of one thousand thalers, or corresponding imprisonment, to declare on sale, whether their wine was natural or perfected.

“Such a law would be a stillborn child, if there are no tests by which perfected wine can be distinguished with certainty, and if these tests are not so plain that the judge can give judgment by their help. But a fine of one thousand thalers for an action not punishable, such as the adding of sugar to grape must, was quite too high; and so the joint directors of the Rheinpreussischen Agricultural Society, as well as the general assembly at Krewznach, laid their veto on the affair, and dismissed it from the order of the day. Bodily confinement for adding sugar to weak must, or for concealing the act!

“It was ill-natured enough, but stupid. If an action be not punishable, its concealment cannot be punished; and should the wine be in second or third hands, and should the buyer by sample be satisfied with the representations of the producer, there would be no further possibility of putting the law in force. The affair moves steadily on its way. The only way of protecting buyer, and seller, and consumer from injury, is the fullest instruction on the proper conduct of the process; and here we have the consolation, that the purer the materials employed, so much the better will be the wines produced. Everything agrees in this, that refined practice will lead to a result which will be beneficial to humanity, and to the vintner most of all, for his crop is, and will

remain, the basis of all methods for improving wine. If science ever so strays aside, that wines are made from sawdust or coal tar, then let these gentlemen meet again and lament over competition.

‘ But the sun in our far north land
Pours aslant his weakened rays;
Forest leaves may glow; our vineyards
Lack the ripe grape’s purple blaze.

‘ Yet the north will live, and ever
All who live to joys incline;
Let us, then, by skill and science,
Teach our grapes to yield us wine.’ ”

HOW TO KEEP FORKED TREES FROM SPLITTING DOWN.

THE best and most economical way to prevent forked trees from splitting is to select two branches in a proper position, and unite them by splice or tongue-grafting, as described in our last volume, p. 206. The large limbs should be secured together by a cord, or other temporary bond, until the grafts have united. If the work is well done, the union will be perfect, and will grow stronger every year. It is obvious that the higher up this bond is placed the stronger it will be, as the leverage, of whatever force, such as the wind or their own weight, tending to separate the limbs, will be less. Two or three such bonds might be formed, to provide for the failure of one.

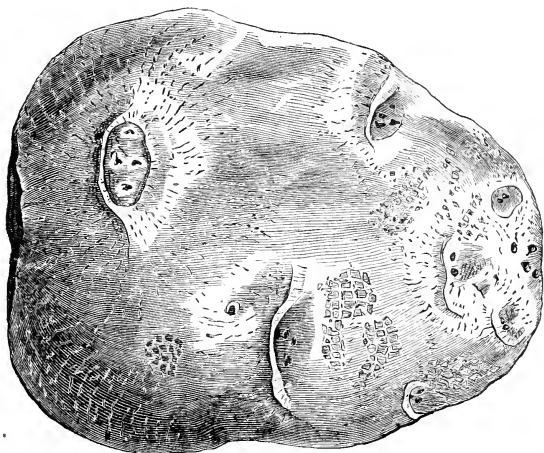
In large old trees, or those whose limbs have already begun to separate, the best thing is an iron bolt; and this should be fastened, not by rings around the limbs, which would soon girdle them, but should have a head on one end and a nut to screw on to the other, the bolt being put through a hole bored in each limb. If the bolt is of sufficient size, and the work well done, no fear need be entertained that the nut will give way.

But in this, and in many other things, an ounce of prevention is worth a pound of cure, and the best way of all is to so train the tree while young that there shall be no forks which will be in danger of splitting open.

THE PEERLESS POTATO (BRESEE'S No. 6).

IN common with the Early Rose, King of the Earlies, Prolific, and other valuable potatoes, this variety was originated by Mr. Albert Breeze, of Hubbardston, Vt. It is a seedling of the Garnet Chili, and was raised in 1862.

The plants grow erect, strong, and vigorous, with large, pale green leaves. The tubers are large and handsome, roundish or oval, a little



THE PEERLESS POTATO.

flattened, and very rarely rotten-hearted. The skin is white, but rusty-coated. The eyes are large, yet not so much depressed as to impair the general smoothness of the surface. The flesh is white, crisp, and brittle in its crude state; dry and floury when cooked, and singularly free from earthiness in taste and odor.

Nothing is claimed for the "Peerless" on the ground of its early maturity; but health, productiveness, and quality considered, it gives

promise of becoming one of the best of our standard potatoes, and may prove a rival of the Jackson White. In addition to other valuable properties, Mr. Bresee states that a large proportion of the tubers attain a marketable size — a fact of no small importance to cultivators.

It appears to be generally understood that this variety and the Early Rose were obtained from the same seed-ball. Such, however, is not the fact. The Early Rose was not only first introduced, but is really the older variety.

CARAGANA JUBATA.

WE have been delighted with this singular plant, now in beautiful bloom in our garden. Two years ago we imported a number of species of *Caragana*, including several of *C. jubata*. Two survived, and have made some growth, proving very hardy, and presenting a singular and unique appearance in the shrubbery. They were grafted about four feet high on *C. arborescens*. The stock is clean and straight, but is topped by a mass of thick, thorny, shaggy branches, covered with a whitish wool, and producing light-green pinnate leaves. In winter, it would be hard to find a plant looking more perfectly dead; in summer, the foliage looks as if it put on the thorns by mistake. Very curious, very singular, but not ornamental, was the general verdict.

Great was our surprise, a few days since, to find the whole plant a mass of large white pea-shaped flowers, much resembling a white lupin. A more interesting plant it would be hard to find, and now, May 20, full of flowers, it is very beautiful.

We had expected a few straggling yellow flowers — as that is the color given to the species in the new edition of Paxton — from our thorny, shaggy, mop-head; and the color surprised us even more than the size of the flower, which is three times as large as those of *C. Chamlagu*, which we had always considered the best of the family. Such surprises are charming little episodes of horticultural experience, and go far to make up for the inevitable disappointments we all so often experience in the first flowering of new plants. *Edw. S. Rand, Jr.*

CARE OF AN ORCHARD.

By "WOODMAN."

THE scarcity of fruits in many portions of our country is attributable to the want of proper care in the management of the orchard. There is no lack of care, perhaps, on any other part of the premises — the grasses, the grains, the barns and other out-buildings, all receive the most untiring care. The stock is all well fed, well housed, and sheltered from the wintry storms, and even the kitchen and flower gardens may show that the hand of man has been duly at work among them; but go to the orchard — see those "water-sprouts" clustered around the apple trees; see the long, bare, fruitless limbs of the peach trees, a stranger to the pruning-knife; look at the gum running from the base of their trunks, showing that the deadly borer is at his work; look at that square of once handsome young pear trees, with the leaf blight giving them the appearance of having been dug from a burned prairie. Behold the limbs of all the trees crossing over each other, sawing each other in twain by every breeze that blows. The bark we find scaled up — a nest for every species of bug, and a hatching-place for every moth and beetle on the place. The season of fruit comes around — the apples, and peaches, and plums, and cherries are worthless, by reason of the ravages of the curculio. The fruit is of medium size and poor quality. The peach trees, although only four or five years old, are dying. The pear trees have never borne; and our farmer or fruit raiser sits down in despair, and gravely pronounces "fruit raising a *failure*, especially in *his* part of the country." Have you not seen many such orchards — many such "fruit raisers"?

These men plant their corn from selected seed; prepare their ground *well*; sow in proper season; keep down weeds and other foreign growth; sucker, thin, and replant missing hills; knowing full well that only in this way can they hope to raise even a partial crop. The same care is bestowed upon all other crops, as care and labor are essential to success. But the orchard alone, of all places on his demesne, is left to

shift for itself. The weeds are as high, if not higher, than his young trees. No manure is ever spread around the trunks; the plough never enters its solemn and silent abode. The orchard is given up to the moles and the bats, the bug and the worm, and Nature is allowed undisputed sway. How *can* such a man expect to eat of luscious fruits from such an orchard? As well might he anticipate good results from his cornfield and his clover pastures, where no care and labor have been given. No, my careless friend, you can never hope to be blessed with the luscious fruits which a kind Providence has so lavishly bestowed upon our land, without at least as much labor and care are given to them as you are required to give in order to reap an average harvest of the ordinary productions of the farm. The pruning-knife and the plough, the manure heap and the hoe, must each be vigorously applied; and, when applied, you will receive, as the reward of your labors, the finest gifts within the realms of the orchard.

A FEW NOTES ON STRAWBERRIES.

THE mild weather of last winter was favorable to the strawberry plants, and the crop has been large, though owing, perhaps, to a week of dry weather early in the season, the berries have not averaged quite as large as some years. The fruit here has ripened unusually early, the President Wilder having been at least a week, if not ten days earlier than last year and the year before.

No variety has yet been found to compete with the *Wilson* as a market berry for the million. Others may be productive, and good carriers, but none *as* productive and firm as this. Among the strawberries it is what the Bartlett pear and the Concord grape are among their respective species. Its one fault is its disagreeable acidity; and though to the amateur this is everything, to the large majority of purchasers in the markets it appears to be of no consequence whatever, but a strawberry is a strawberry. This state of things is not what the pomologist desires and labors for; but it is not to be changed in a day—probably it

will not be changed to any considerable extent so long as Wilsons can be raised and sold as profitably as any other variety can be at a price fifty per cent. higher. But if we could once obtain a variety as hardy and productive, and therefore as profitable as the Wilson, so that it could be as extensively grown as that variety, and put into the market at the same price, but with the recommendation of first-rate flavor, purchasers would not be long in finding out the difference. Such a berry as this is the desideratum among strawberry growers, and they will not cease their efforts to obtain it until they are successful. Whether a variety possessing these properties, and at the same time adapted to all soils, and every part of the country, will ever be obtained, seems more doubtful. Yet the Wilson has this power of adaptation, and why should we not gain another variety possessing that along with the productiveness and firmness of the Wilson, but adding to all these characteristics the invaluable point of fine quality?

A seedling raised by Mr. W. J. Underwood, of Belmont, of which we have previously made mention, appears to possess the qualities of fine flavor and firm flesh in a high degree, but whether its other characteristics are such as to make it "the coming strawberry," further time will be necessary to determine.

As an early berry, the *Jenny Lind* is still unexcelled, both for market and amateur culture. It is an improvement on the Large Early Scarlet or Early Virginia, possessing the same brilliant color, and sprightly, sub-acid flavor, which, to our taste, is remarkably pleasant and refreshing, unlike the disagreeable acidity of the Wilson.

Jucunda continues to grow in favor. Under proper cultivation it is of the largest size, and by its fine appearance commands the highest price in the market, though, to our eye, the large yellow seeds, only slightly embedded, give it a *seedy* look, which detracts much from its beauty. It has, however, been suggested that these large seeds on the surface of the berry may aid in preventing it from bruising while carrying to market. In point of flavor it is inferior to many others, as was forcibly shown at the annual strawberry exhibition of the Massachusetts Horticultural Society, where it was the chief competitor against the *President Wilder*; but after every other point had been considered, that

of flavor came up, when the latter was found so much superior as at once to decide the committee in its favor. This new variety (the Wilder) has been tested the present season in other grounds than Mr. Wilder's. One gentleman, who has a considerable quantity, although somewhat disappointed with it the first of the season, soon found reason to change his opinion, and is now enthusiastic in his praises of it above all other strawberries, believing that it will prove as productive as the Wilson, but declaring that even though it produced only half as much, the crop, owing to its superior flavor, would sell at double the price of Wilson, and of course command just as much money, with the trouble of handling only half as many berries. It is not to be doubted, however, that it will produce a good deal more than half as much as Wilson.

Mr. J. D. Willard, of Hartford, Conn., exhibited (June 23) before the Massachusetts Horticultural Society a very handsome dish of a new strawberry raised by him, called the *Banana*, from its possessing a fragrance resembling that fruit. The size is large, and from the appearance of the trusses it is a productive variety; but we were not favorably impressed with the color or shape, nor did it appear to possess the firmness desirable even in an amateur's berry.

Triomphe de Gand continues to be appreciated as heretofore, requiring high culture, and amply rewarding it. Its distorted form is a great objection to it; but as compared with *Jucunda*, it is as much superior in flavor as it is inferior in shape.

La Constante, which is so highly prized by all who are willing to take pains to secure this excellent but difficult variety, has this year excelled itself, a dish exhibited by Mr. John C. Park, of Somerville, before the Massachusetts Horticultural Society, being conceded by all to be the handsomest strawberries ever shown at an exhibition of that society. We understand that these magnificent specimens were produced by thinning the fruit, which at best is but a moderate bearer, to a single berry on a plant.

Of the class of strawberries which may be called strictly amateur varieties, *Lennig's White* continues to be much admired for its fine flavor. Under high cultivation, the fruit attains a good size, and is as

productive as any of its class, while its color makes a pleasant variety in the dessert.

Walker's Seedling is still kept in cultivation by some amateurs, on account of its fine flavor, which is certainly very superior. It appears to us to be a seedling of the old Black Prince, which it resembles in its deep color, high flavor, and the extreme difficulty with which it separates from the hulls.

Fillmore, as well as Walker, is a very high-flavored variety, but larger, and better adapted for market.

Charles Downing. We wish, for the sake of the gentleman who originated it, and the eminent pomologist whose name it bears, that we could give a better report of this variety. While we hear it highly spoken of in other parts of the country, it has not commended itself to cultivators in this vicinity, the fruit being rather soft, and the habit of the plant slender.

Brighton Pine and *Hovey's Seedling* are still cultivated to some extent for market; but, however much we may regret it, it must be confessed that, though infinitely superior in point of flavor, they cannot compete with Wilson for profit, and consequently they are more and more superseded by it, though they will still continue to be cultivated and purchased by those who know the difference between a good strawberry and a poor one.

Boston Pine has no superior among all the new kinds as a fruit to be picked and eaten from the vines. To have it in perfection, it must be grown in hills, in a deep, rich soil.

Boyden's No. 30, Agriculturist, Green Prolific, Lady of the Lake, Cremont, Durand's Seedling, Nicanor, Burr's New Pine, French's Seedling, Rivers's Eliza, Austin, Buffalo Seedling, and Romeyn, all have their good points, and consequently find advocates; yet they have not attained to the popularity of some of the sorts previously mentioned.

VEGETABLES, THEIR HISTORY, VARIETIES, AND CULTIVATION.—I.

By ALEXANDER HYDE, Lee, Mass.

ASPARAGUS.

ASPARAGUS OFFICINALIS is a perennial plant, growing wild both in Europe and America. It specially delights in the alluvial banks of rivers near the sea. In its native state it is of dwarfish habit, and few, besides botanists, would recognize in the lean and hungry shoots of the wild plant the vegetable that furnishes the giant stalks in our gardens. The roots are abundant, of the size and shape of a clay pipe-stem, and send up numerous succulent and tender shoots, for the sake of which the plant has been cultivated for ages. Asparagus is hydra-headed, and when one shoot is cut off, others are ever ready to make their appearance. Coming, as it does, early in the spring, and universally relished, it is one of the few vegetables with which the market is seldom or never overstocked. Many prefer asparagus to green peas, and it is certainly no mean substitute for them. The medicinal virtues of asparagus are great, and for this cause, as well as for its productiveness and toothsome-ness, it deserves a place in every garden. It grows and regrows with such luxuriance in a congenial soil, that we question whether on a given rod of land any vegetable will yield a greater pecuniary value. A net profit of a thousand dollars is often reported from one acre.

VARIETIES.

Gardeners have generally considered that there are two varieties of asparagus — the purple-top and the green-top. Some few maintain that there is a large number of varieties, while Peter Henderson is of the opinion that there is only one, and that the dwarf can be converted into the giant by good cultivation, and the color is the effect of soil and climate. That the little one can become a giant by good culture, we have no doubt from our experience of thirty years in cultivating aspar-

agus, but that the color is the result of soil and climate we doubt. If such is the result, the cause must be long years in producing the effect, for we have known the purple and green growing side by side in the same soil.

Some half dozen years since Mr. S. B. Conover, of New York, imported a variety, which he calls Conover's Colossal, that sends up shoots three and even four inches in circumference; but neither this nor any other variety can be propagated from seed. Large stalks will furnish seed that will be more likely to produce large plants, but the only sure mode of raising giant asparagus is by a division of the roots, and even this mode will fail when the roots are transplanted into an ungenial soil.

SOIL.

This leads us to say that asparagus will grow in almost any soil. We have seen it struggling for existence among rocks, in hard clay, and light sand; but the soil it most affects is a deep, dry, rich, sandy loam. In such a soil the roots luxuriate, and send up shoots that grow with a rapidity that will surprise the novice in its cultivation, and furnish large and tender shoots, which are far preferable to those of slower growth and smaller size. In heavy clay land the shoots push their way with difficulty, and are often crooked, or otherwise deformed; and a stony or gravelly bed also cramps their genius. In such a soil it is difficult to harvest the crop, as the shoots must be cut two or three inches below the surface; and to do this with expedition, the soil must be such that a thin knife may be easily run down by the side of the shoot.

CULTIVATION.

When asparagus is cultivated in the family garden, it is usual to trench a bed four or five feet wide to the depth of two feet. The length of the bed can be made to correspond with the size of the family. A bed four feet by twenty, rightly cared for, will furnish all the asparagus a family of six will need from early in May till green peas are ready to take its place. As the bed will last for an indefinite num-

ber of years, it is well to prepare it thoroughly. In our grounds the same roots have furnished shoots for three generations, and we see no signs of feebleness arising from old age. Twice in the course of the last half century we have known them to have been transplanted, and this may have renewed their age. At the bottom of the trench we put a layer of bones, for the double purpose of making drainage and furnishing nutrition; over the bones a layer of horse manure, well trod down, and over the manure good surface soil, in which the roots were planted in three rows a foot apart, with ten inches distance between the plants, covering the crown with two or three inches of dirt. No further care need be taken of the bed during the first summer than merely to subdue the weeds. Some of the shoots may look large enough to eat, but the temptation to cut them must be resisted, as all the vitality of the plants for the first year should be expended in growth.

When the frosts of autumn have put an end to the circulation of sap, the haulm should be cut down and burned on the bed. If this is left to perish, the seed will fill the bed with innumerable roots, and many small shoots will be the result. After the haulm is burned, the bed should be furnished with a thick coverlet of manure to protect it during the rigors of winter, which can be forked in the next spring. This annual top-dressing in the autumn must never be omitted, and it is well to change the manure from year to year — covering the bed one year with night-soil, the next with horse manure, and the third year with compost from the hennery. This change is not absolutely necessary, but we have found that all crops, as well as all animals, like a variety of food, and do better when humored on this point. The kind of manure is not so essential as the quantity. It must ever be remembered that asparagus is a gross producer, and must therefore be a gross feeder. As the shoots often grow three or four inches a day, and a crop is harvested every day for six weeks, it is evident there must be power in the soil. An editor cannot furnish a fresh, racy article daily for his paper unless his mind is constantly replenished with new thoughts, and it is just as unreasonable to suppose that an asparagus bed can sustain so large annual drafts without equally large deposits.

SALT.

It is customary for most cultivators of asparagus to dress their beds every spring with salt; and most writers on gardening recommend this practice to those who live at a distance from the sea; but we question whether salt is a specific manure for this crop. Applied in the spring, it certainly retards the growth, for it makes the ground cold. So far as our observation extends, the great benefit of salt consists in keeping the ground moist and killing the weeds, and we prefer to apply it only after the weather has become decidedly warm. The analysis of the ash of asparagus shows only a slight excess of chloride of sodium beyond most plants; and we are confident, from the results of many years' observation, that by a liberal top-dressing annually, a sufficiency of salt is furnished for all the wants of this plant.

CROPPING.

The cropping of asparagus may be commenced the third summer after sowing the seed, or the second after setting out the roots; but the cultivator must let his moderation be known, and not make too large drafts on the vitality of his young plants. They are like colts, and may be over-worked, having more energy than constitutional vigor. Especially the cropping must not be continued too late in the season. All perennial vegetation requires that the sap should have an opportunity to be elaborated in the leaves, and descend to give new vigor to the roots.

PROPAGATION FROM SEED.

When it is desired to raise asparagus on a large scale, it is of course more economical to raise the plants from the seed, and in this case much care must be taken to select the seed from large, thrifty stalks, those that have been allowed to grow without being cut at all for the table are the best, as all the vigor of the roots has been allowed to centre in the seed, the production of which is the great end of all vege-

tation. Next to the care in selection of seed must be that in preparation of the seed-bed, which must be made deep, rich, and mellow, for in such a bed the plants will grow more in one year than in twice this time in ordinary soil carelessly spaded or ploughed without being enriched or made fine. The seed-drills can be twelve to fifteen inches apart, and with the seed put in early in the spring, in a bed properly prepared, the plants will be ready for transplanting to their permanent home in one year. A pound of seed will furnish three thousand plants, sufficient to plant a quarter of an acre. Only the most vigorous plants should be transplanted.

When cultivated for market, in large quantity, the rows of asparagus should be three or even four feet apart, so that the cultivation can be done by horse power. The cultivator should often be run between the rows, for the land cannot be made too mellow. Above all, it must ever be remembered that asparagus, whether in the garden or in the field, requires abundant feeding. It is not dainty about the kind. Guano, night-soil, and all nitrogenous manures are devoured with little discrimination, and no vegetable pays better for high cultivation.

April, 1870.



CRITIQUE ON THE JULY NUMBER.—*Successful Pear Culture.*—Here is another most interesting series of papers completed, and I am sure all your readers will feel under obligations to Mr. Martin for the experience recorded in them, and to Mr. Southwick for recording it. I don't know that they have revealed much that is new in pear culture, but they do most emphatically confirm the old lessons of careful selection and thorough preparation of the soil; generous, but not excessive manuring; planting only the best trees, and planting well; proper mulching; careful and thorough cultivation, and judicious pruning, first, to bring the young tree into proper shape, and then to produce fruitfulness; these are some of the most important lessons to be learned from Mr. Martin's "Successful Pear Culture." I suspect that there is something peculiarly favorable to the pear in his soil, though it seems to have been originally poor; but whoever will take these four articles and study them thoroughly, and practise accordingly on any good soil, cannot fail of success. But before leaving this subject, I must say that the point made by Mr. Southwick, that soil for pear trees must be well drained, either naturally or artificially, is a vital one. And I hope our nurserymen will take the hint given them, and have a stock of pear trees branched low, fit to form pyramids, on hand. Nine out of ten kinds of pears take this form naturally, and all they have got to do is to let them alone instead of trimming them up to clean stems, only occasionally shortening in a one-sided branch. I am surprised to know that they have not done this already.

Cultivation of Pelargoniums.—O, that we might see, in the greenhouses of florists and at our horticultural exhibitions, such magnificent specimen plants as we hear of at the London exhibitions! Mr. Peattie seems to think our long winters may prevent us from coming *quite* up to the London standard, but

let us try to come as near it as we may; and there could not be a better help to those who are striving to this end than Mr. Peattie's paper.

How to propagate Shrubs. — This paper of Mr. Parkman's, and the former one on the same subject, seem to me to contain quite as much information, if not more, than I know of anywhere else in the same compass. The curious fact which he states, about the seed of the Virginia fringe tree, is quite new to me, and if I had learned only that, I should have been richly repaid for a perusal of these articles. I have sown the seed in question, and supposed they never sprouted; but if I had known what Mr. Parkman has now told us, I might have had a nice lot of seedlings of this beautiful shrub, where now I have none.

The Senasqua Grape. — I have had the satisfaction of tasting this grape, and can confirm all that is said of its fine quality. I know of no grape possessing a more "winy" flavor, and it certainly will become a favorite among those who are fond of taking their wine "in the original packages." The only question is, whether it will adapt itself to a variety of soils and climates, and a few years will answer this. It is much to be wished that the answer may be in the affirmative.

The Chinese Azalea. — I wish I could have seen Mr. Buist's collection when in flower; but as that pleasure was denied me, I can only imagine, from the few fine specimens that I have seen, how gorgeous his hundreds and thousands of plants must have been, and congratulate you, Mr. Editor, and your readers that this veteran florist has been induced to tell you all how he grows this magnificent plant, for we know that every word he writes may be most implicitly relied on.

Raising Seedling Grapes. — There is a single point in the communication of Mr. Merrick whereon I wish he had given directions more in detail. I refer to the treatment bestowed on his young plants during the first winter. It may be that he meets with no difficulty at this period, but with me it has proved a rock on which my hopes have been too often wrecked. Between those thrown from the ground by the action of frost and those destroyed by the severity of the cold, the loss has generally been quite serious. As a substitute for direct planting out in the open ground in autumn, as recommended, might not a cold frame be used to advantage?

The Currant-worm. — Mr. Cruickshanks's communication on this subject, in which he states that after "a severe fight he had conquered the enemy," I notice bears date of June 3. Will Mr. Cruickshanks tell us what occurred in the four weeks following? Never plants looked more flourishing, or gave greater promise of an abundant crop, than did mine at the time he writes. I had made a few applications of dry, unleached ashes, and for nearly a week scarcely a worm could be found. But the enemy was not to be thus cheaply subdued, and the conclusion to which I had arrived, that "the enemy was conquered," proved altogether premature. I had reckoned without my host. The van of the army had been slightly disturbed, and this was all. The work of destruction that followed on the appearance of the main body was rapid and complete. The measure of defoliation effected in a single day could hardly be realized, and the leafless stems of my plants, laden with fruit exposed to the action of the scorching sun, now present a sorry spectacle.

I have little doubt as to the efficacy of most of the remedies advised, provided they are thoroughly and *frequently* applied. The liberal use of dry slaked lime, applied *daily*, while the leaves are moist with dew or rain, is a positive preventive, as the intact foliage of the plants in a neighboring garden now bears testimony.

One of our most distinguished ornithologists affirms that the currant-worms are eaten by the common chickadee. This may be the fact. I am satisfied, however, that the feathered tribe will aid but little in reducing their numbers, for the insect plainly belongs to that class which "neither young pheasants, partridges, nor wild ducks can be induced to eat, which sparrows and finches never touch, and which nearly all birds reject with evident dread and abhorrence."

Carter's First-crop Pea.—J. M. M.'s experience with this pea accords with my own. Dan O'Rourke was fully ten days later, though treated in all respects the same. The difference in the yield was not so marked.

Carter's First-crop is not yet an old pea, and more care is evidently exercised on the part of seed-growers with regard to the purity of the stock employed for propagation, as well as in that sent out for sale, than is probably bestowed in the culture and sale of the Dan O'Rourke. Further than this, I am convinced that the seeds of the Dan O'Rourke, as sometimes found in our markets, are either mixed or wholly spurious. Certain it is, that the seeds now sold under this name are neither so early nor so productive as formerly.

Report on Fruits.—The conclusion of Mr. Strong's most interesting paper reminds me that I meant to have said a word on that division of his subject under the head of "Markets and Prices," printed in your May number. Dealers "received, with scarcely any shrinkage, and for the mere trouble of weighing" the grapes, "exactly as much as the cultivator does for his months of toil" in raising them. Now, what possible justice is there in this? I do not know whether other markets are as bad as Boston market in this respect, but I do know enough of that to feel sure that Mr. Strong did not speak as he did on this point without occasion; and, unless I greatly mistake, there are other markets than Boston where the dealer gets the lion's share, and the producer puts up with what is left. What is wanted everywhere is to bring producer and dealer together as closely as possible. I don't think it is for the interest of the producer to attempt to sell his fruit directly to the consumer. I doubt whether it is possible for him to do so: a man may have the utmost skill in raising fruit, and none at all in selling. But so long as the state of things described by Mr. Strong continues, horticulturists may strive in vain to bring about the day when "fine fruit, in rich profusion, shall crown the table of every inhabitant of our beloved land;" and until they accomplish that, their ultimate object will never be attained. I know a gentleman who formerly raised hot-house grapes extensively, and who, when I asked him why he had discontinued, replied, that he was tired of working for the benefit of fruit dealers, who put in their pockets *more than half* the proceeds of their sales, and did it with an air as if the grower ought to go down on his knees in gratitude to them for condescending to take his fruit at all.

Bismarck.

CURRANT AND GOOSEBERRY WORMS.

SEVERAL persons having inquired of us in regard to the appearance of the "currant worm," we have condensed the following description from that most interesting and useful journal, the American Entomologist and Botanist.

There are three different insects to which the name of "currant worm" might be applied. All of them attack, almost indiscriminately, the red currant and the gooseberry, while they are none of them ever found upon our cultivated black currant, or, so far as known, upon our wild black currant. We begin with

I. THE GOOSEBERRY SPAN-WORM (*Ellopia* [*Abraxas*] *ribearia*, Fitch).

This may be at once distinguished from any other worm, found either on gooseberry or currant, by its being what is popularly called a "measuring worm," or span-worm. When full grown it measures about an inch, and is of a bright yellow color, with lateral white lines, and numerous black spots and round dots. The head is white, with two large black eye-like spots on the outer sides, above, and two smaller ones beneath. The six true legs are black, and the four prolegs yellow. It attains its growth about the middle of June, when it descends to the ground, and either burrows a little below the surface, or hides under any rubbish that may be lying there; but in neither case does it form any cocoon. Shortly after this it changes to a chrysalis of the usual shape, and shining mahogany brown color. After remaining in the pupa state about fourteen days, it bursts the pupa shell, and in the fore part of July appears as a moth of a pale nankin-yellow color, the wings shaded with faint, dusky, leaden-colored spots, arranged so as not to present any definite pattern. The sexes then couple, as usual, and the female lays her eggs on the branches and twigs of the bushes. Owing to this peculiarity, the species is frequently carried, in the egg state, upon transplanted bushes, from one neighborhood to another; which accounts for its sudden appearance in parts where it was before unknown. For there is but one brood of these insects in one year, and the eggs must consequently, like those of the tent-worm of the apple tree, be exposed, on the twigs and limbs to which they are attached, to all the heats of July and August without hatching out, and to all the frosts of December and January without freezing out. At length, when the proper time arrives, and the gooseberry and currant bushes are out in full leaf, so as to afford plenty of food, the tiny but tough little egg hatches out, about the latter end of May, and in a little more than three weeks the worms attain their full larval development. This is a native American insect, the larva, and especially the moth, being marked very differently from the *Abraxas grossulariata*, an allied European span-worm, with which it has been confounded. It shows a decided preference for the gooseberry, always attacking that plant first, when growing side by side with the currant.

II. THE IMPORTED CURRANT-WORM (*Nematus ventricosus*, Klug).

This is eminently "the currant-worm," and it is a bad eminence to which it has attained. It is only about a dozen years since this pernicious enemy to the

currant and gooseberry was introduced, from Europe into the United States. It is supposed to have been imported into Rochester, N. Y., along with some gooseberry bushes, though it seems also to have been introduced from Europe to one or two other points, and to have spread therefrom. Wherever introduced, it spreads with great rapidity, and as there are two broods every year, it soon multiplies so as to strip all the currant and gooseberry bushes bare, and utterly ruin the crop, besides eventually destroying the bushes, unless proper measures are taken to counteract it. Throughout the western part of New York the cultivation of currants and gooseberries has been almost given up, on account of the depredations of this seemingly insignificant little savage.

The imported currant-worm fly belongs to the saw-flies (*Tenthredo* Family), a group of the order of clear-winged Flies (*Hymenoptera*). Saw-fly larvæ may be readily distinguished from moth larvæ, in the majority of cases, by having either twenty-two, twenty, or eighteen legs; whereas the greatest number of legs that any moth larva has is sixteen. The species that we have now to do with comes out of the ground soon after the leaves of the currant bushes put forth in the spring, or from the latter part of April to the fore part of May. The sexes then couple, and the female proceeds to lay her eggs along the principal veins on the under side of the leaf. They are of whitish color, generally placed singly in the rows, but here and there double. When first deposited, the eggs are about one fortieth of an inch in length, but before being hatched they increase to double that size. From these proceed minute green, twenty-legged larvæ, which, at first, have black heads, and many black dots on their bodies, but after moulting for the last time, are entirely of a grass-green color, except the large, dark eye-spots on each side of the head, found in all larvæ belonging to this genus, and except that the joint next the head, and the two hindmost joints, are of a yellow color, as is also the case in the less mature larvæ, which bears so many black markings. When full grown the larvæ are about three quarters of an inch long, and, from their greatly increased size, make their presence readily known by the sudden disappearance of the leaves from the infested bushes. Shortly afterwards they burrow under ground, generally beneath the infested bushes; or, if there are many leaves lying on the ground, simply hide under those leaves. In either case they spin around themselves a thin, oval cocoon of brown silk, within which they assume the pupa state. Frequently, however, they spin their cocoons in the open air, upon the bushes, and, in some cases, the larvæ remains unchanged during the winter, and constructs the cocoon in the latter part of spring. About the last week in June, or the first part of July, or, occasionally, not until the beginning of August, the winged insect bursts forth from the cocoon, and emerges to the light of day, when the same process of coupling and laying eggs is repeated. The larvæ hatch out from this second laying of eggs as before, feed on the leaves as before, and spin their cocoons as before; but the perfect fly, from this second brood, does not come out of the cocoon till the following spring, when the same series of phenomena is repeated.

Of the female fly the general color of the body is bright honey-yellow. The head is black, with all the parts between and below the origin of the antennæ, except the tip of the mandibles, dull honey-yellow. Antennæ nine-jointed (in two

instances ten-jointed), brown-black, often tinged with brownish red above, except towards the base, and beneath, entirely dull reddish, except the two basal joints. Abdomen, with joints one and two, very rarely tipped at the edge with black. Legs bright honey-yellow; all the coxæ and trochanters whitish; the extreme tip of the hind shanks, and the whole of the hind tarsi, brown black. Wings glassy; veins and stigma brown-black, — the latter, as well as the costa obscurely marked with dull honey-yellow. Length, 0.22–0.28 inch. Front wing, 0.27–0.33 inch. Expanse of wings, 0.53–0.64.

Of the male, the general color of the body is black. Head, with the clypeus and the entire mouth, except the tip of the mandibles, dull honey-yellow. Antennæ nine-jointed, brown-black, often more or less tinged with brownish red beneath, except towards the base. Thorax, with the wing-scales and the entire collar, honey-yellow. Abdomen, with more or less of its sides, the extreme tip above, and its entire inferior surface, honey-yellow. Legs and wings as in the female. Length, 0.20–0.22 inch. Front wing, 0.23–0.25 inch. Expanse of wings, 0.44–0.51 inch.

The mode in which this currant-worm has been transmitted, first, from the European nursery to the American nursery, and afterwards, all over several states of the Union, can be easily explained. As has been stated, it usually passes the autumn and winter in the ground, under the bushes where it has fed, housed in a little oval cocoon, from one quarter to one third of an inch long. Hence, if, as often happens, infested bushes are taken up in the autumn, or early in the spring, with a little dirt adhering to their roots, and sent off to a distance, that dirt will likely enough enclose a cocoon or two. A single pair of cocoons, if they happen to contain individuals of opposite sexes, will be sufficient to start a new colony. The first, and probably the second year, the larvæ will not be noticed; but, increasing, as almost all insects do unless checked from some extraneous source, in a fearfully rapid geometrical progression, by the third or fourth year they will swarm, strip the bushes completely bare of their leaves, and ruin the prospect for a good crop of fruit. Of course, like other winged insects, they can fly from garden to garden, in search of a suitable spot whereon to deposit their eggs; so that any point where they have been once imported, becomes, in a few years, a new centre of distribution for the immediate neighborhood.

Nurserymen, and all others, importing gooseberry and currant bushes from a distance, should be particularly careful, before they plant them, *to wash the roots thoroughly in a tub of water, and burn or scald whatever comes off them.* Any cocoons, that may happen to be hidden among the dirt attached to the roots, will then be destroyed. By attending to this precaution, the dissemination of this mischievous little pest throughout the United States may be greatly retarded for many years to come.

For those who are already cursed with it, the same hellebore which we shall recommend at the end of this article, as universally efficient against all three kinds of gooseberry and currant-worms, is the best, the cheapest, and most available remedy. When this cannot be conveniently obtained, the imported currant-worm, owing to a peculiarity in its habits, can be pretty successfully fought, upon a sys-

tem which is inapplicable to the other two species. Unlike them, the imported currant worm, as has been stated, lays its eggs, in large groups, on the under side of the leaf, and upon the principal veins, instead of attaching them, in comparatively small patches, to the twigs and branches. Hence, when the eggs hatch out, the minute little larvæ can find plenty of food without wandering off; and they have the habit, when very young, of boring small holes through the leaf, and when they become a little older, holes that are a little larger. It is evident that such holes as these may be readily recognized, and the leaf be carried, larvæ and all, far away from any currant or gooseberry bushes, and left to wither there; or, to make assurance doubly sure, thrown into the fire. If, however, the young larvæ are removed a few rods away from any plant belonging to the botanical genus *Ribes* (currant and gooseberry), they will be sure to die of starvation. For they cannot feed on anything else, any more than the common locust-borer can live on the apple tree. As the eggs are laid in such large groups, there will be but a few leaves, bearing these newly-hatched larvæ, to remove from every bush.

Wherever this currant worm has been introduced, there has prevailed, from some cause or other, a popular superstition that the currants grown upon the infested bushes are poisonous. This is mere delusion. They may be, and very probably are, unwholesome, just as any other fruit would be, perhaps, more or less unwholesome, if grown under such unnatural conditions as to seriously affect the health of the tree; but we have the authority of Dr. Fitch, himself a physician, for believing that the common notion on this subject is entirely erroneous.

Four different parasites are mentioned as preying on the imported currant worm, but we have not room to notice them.

III. THE NATIVE CURRANT-WORM (*Pristiphora grossularia*, Walsh).

Like the imported currant worm, this worm produces a saw-fly, which, however, belongs to a different genus (*Pristiphora*), chiefly distinguishable from the other one (*Nematus*), by the front wing lacking what is technically termed the "first submarginal cross vein." Another remarkable point in which they differ is, that in the native currant-worm the sexes are almost exactly alike in their coloration, and with the exception of the legs of the male being a little more marked with black than those of the female, it would not be very easy to distinguish one from the other but by the usual sexual characters.

The larva of the Native Currant-worm Fly is of a uniform pale green color, without those black dottings which are always found, except after the last month, in the imported species. Before the last month, indeed, the head is of a uniform black color, though it afterwards has a good deal of green in front; but the body remains throughout of the same immaculate green shade. It differs also, in its habits, from the imported species, never, so far as we can find out, going under ground to spin its cocoon, but always spinning that cocoon among the twigs and leaves of the bushes upon which it feeds.

This species agrees with the other one, in being double-brooded, the first brood of larvæ appearing about the end of June and the beginning of July, and the second brood from the middle of August to the fore part of September. But instead of the larvæ of the second brood lying under ground in their cocoons all

winter, they burst forth in the fly state from the beginning to the middle of September. Hence the female fly is compelled to lay her eggs upon the twigs instead of on the leaves; for if she laid them upon the leaves, as is the habit of the imported species, the second laying of eggs, which has to pass the winter in that state, would fall to the ground along with the leaves, in the autumn, and the young larvæ would starve when they hatched out next spring, before they could find their appropriate food. Consequently, in the case of this species, we cannot apply the method of counterworking the other species which has been already referred to. For we have particularly remarked, that the very young larvæ were not gathered in great numbers upon one particular leaf, as with the imported species, but were distributed pretty evenly over the whole bush. Neither did they bore the singular holes through the leaf which render the other species so easy of detection when young.

Besides the differences already noticed, the native species is only about two thirds the size of the other, in all its states. Like that, it infests both currant and gooseberry, but appears rather to prefer the gooseberry.

REMEDIES.

For the three worms here treated of, there is a single remedy, which, like Dr. Cureall's Never-failing Pills, is a universal specific. That remedy is powdered white hellebore, which can be bought at any drug store, at quite a low price. All that is required is to dust it lightly over the infested bushes, taking care to stand to windward during the operation, as, if taken into the nostrils, it excites violent sneezing. For this purpose, the best plan is to put the powder into a common tin cup, tying a piece of very fine muslin over the mouth of the cup; or the powder may be simply enclosed in a bag of muslin of convenient size. In either case the apparatus must be fastened to the end of a short stick, so as to avoid coming to too close quarters with it. It is best to select a moderately still day for the operation, as the powder is so exceedingly fine that, on a windy day, it is apt to be wasted.

To test the genuineness of the article a small pinch of it should be applied to the nose. If it is good, and has not lost its strength by keeping too long, it will immediately produce a tingling sensation in the nostrils; if it does not produce this effect it is worthless, and should not be used. There is every reason to believe that in those cases where men have used white hellebore to kill currant-worms without any perceptible effect, they have been deceived into buying an adulterated or worthless drug. Although, like almost all our medicines, hellebore in large doses is poisonous, yet in minute doses there is no reason to be afraid of it; for, according to Dr. Fitch, it has long been in use as the basis of those snuffs which are designed to excite violent and continued sneezing.

LARGE GRAPE VINE IN CALIFORNIA.—The *Alta Californian* says that many grape vines in that state grow to a great size. One at Montecito, Santa Barbara county, now seventy-four years old, and nineteen inches thick in the trunk, yields from six thousand to eight thousand pounds of grapes annually.

DETERIORATION OF THE APPLE CROP. — We received, some time ago, from M. B. Bateham, Esq., Secretary of the Ohio Horticultural Society, a report on the above subject. We intended to notice it at an earlier day; but as we were prevented from doing so, the importance of the subject induces us to recur to it now.

It appears that the total number of acres of orchards in the state was, in 1868, 342,512; bushels of apples produced, 11,637,515; bushels of peaches, 599,499; bushels of pears, 66,712; the aggregate value of which is estimated at over seven millions of dollars. "But the figures also show the remarkable fact that the average product of the orchards of the state, in 1867, was only thirty bushels per acre, and for 1868, only thirty-six bushels per acre! This is so far below what is known to be the average product of healthy orchards, in favorable circumstances, that we are forced to regard the statistics as strongly confirmatory of the opinion held by a majority of the members of this society, that the apple crops have been gradually deteriorating, in most parts of the state, for the past ten years or more.

The deterioration in *quality* is, in many sections, even greater than in *quantity*; so that, in our opinion, the commercial value of the fruit is not, on an average, more than one half as great as in former years, and the loss to the state is millions of dollars greater than the statistics of production alone show. In many orchards that we have seen, the fruit has been so wormy and scabby that not one quarter of the crop was of fair marketable quality. This, too, is the general tenor of the reports we have received from nearly all parts of the state; so that we deem it a very moderate statement to say that the market value of our orchard products is diminished one half, or more than three millions of dollars, per year."

Much the same state of things exists in all the states of the same latitude, fungous diseases prevailing most towards the south and insects in the north. Young orchards, and those in isolated positions, are less affected than others.

A circular, addressed to every county in the state, has been the means of eliciting much valuable information on several points. As respects the trees, the testimony is to the effect that in most parts of the state no perceptible disease, or what may be called "premature decay," is visible, excepting such as may be accounted for by local or accidental causes.

In regard to the fruit: "Increase of insect enemies is assigned as the chief cause of the deterioration of orchard crops in nearly all parts of the state. First among these is the codlin moth, or 'apple-worm,' as the larva is commonly called. Several of the letters received recommend, as very beneficial, the keeping of hogs or sheep in the orchards during the summer, until the fruit begins to ripen. Other remedies are contained in the horticultural books and periodicals, but the majority of our farmers need much urging to induce them to read and practise them."

The curculio is given the second place on the list of pests of the orchard. Caterpillars and canker-worms are mentioned as in some places causing serious damage to the foliage, and thereby to the crops; but these are only local and occasional visitations, and can be combated by a little well-directed industry. "Eternal vigilance" is the price of fruit as well as of liberty.

Aphides and bark lice are also mentioned as serious evils in a few localities of the southern parts of the state—generally, we believe, in the river valleys, and where the trees are more or less unhealthy, from fungus on the leaves, or other disease. All these, with the “borer,” have gradually increased in our orchards, until the amount of mischief they commit, or the loss they occasion to the orchardists, may be estimated at millions of dollars annually.

A letter from a very intelligent gentleman of Marietta says, “For several years past, at the time of blossoming and for some days after, the trees have been infested with a small kind of fly, about the size of the wheat midge, the wings more of a greenish color, which seem to have a poisonous influence upon the blossoms and leaves. They are more active in flight than the aphid tribe, and may be seen in countless millions on the wing about the trees towards sunset of a fine evening. The effect of this insect, as I believe, is to cause the blossoms to fall prematurely, and many of the young leaves to turn brown and fall off, so that the crop of fruit is lessened thereby.”

A fruit grower in Mahoning County writes, in reply to the circular, “I have two orchards of sixty trees each; one I let my stock hogs run in from spring till the early apples ripen, and never take a crop of any kind from the soil. This never fails of giving a full or fair crop of apples. The other is kept in grass, which is mowed annually, and no stock allowed to run, as this cannot well be done; the result is, the orchard is not worth anything for fruit, and very little for hay.”

“*Fungous Diseases — Rust, Smut, Scab, etc.*—This class of diseases, though wide-spread and often very injurious, if not destructive, to the fruit crops, is so little understood as yet by people generally, that it could not be expected we should obtain very intelligent replies to our inquiries under this head. Enough is contained, however, in the letters we have received, together with our own observations, to make it quite evident that in a considerable portion of our state, especially in the more southern counties, and among the oldest orchards, the greatest damage, amounting almost to perpetual failure, is attributable to this class of diseases, affecting both the foliage and the fruit.

“In Lawrence County, a correspondent states, ‘The leaf fungus has become so prevalent as almost to destroy the crops for several years past. It causes the leaves to die and fall off early in summer, or before the ripening of the fruit. If the early part of summer is wet, the fungus will destroy the first, second, and even the third set of leaves, and render the trees destitute of healthy foliage for the entire summer, so that no healthy young wood or fruit buds are formed. If the season is dry, but little of the disease appears. Orchards located immediately on the banks of the Ohio River are less subject to the disease than those a mile or two back; and those surrounded by high hills or by forests, which prevent a free circulation of air, suffer most of all. I hope some one or more of your committee will visit us in midsummer, next year, and investigate this malady.’

“Bitter rot in the fruit is another form of fungus that affects seriously the crop, in these southern counties, some seasons, but has not been as bad for the past two or three years as in some previous years, perhaps owing to the increase of the disease of the foliage.

“Smut and scab on the fruit are also forms of fungus, and very injurious to the apple crops in nearly all parts of the state, but especially in the southern counties and the valley regions, where the lands are the most fertile, but not the best adapted for orchards, and where pruning and cultivation have been neglected.

“Dr. Hull, of Alton, Illinois, a very extensive cultivator, and the horticultural editor of the *Prairie Farmer*, states that, from careful examination the past season, he has become convinced that the scab fungus on the fruit is caused by the apple louse (*aphis*) puncturing the skin while in its young and tender state—the fungus spores taking lodgment and starting the growth of the black scabs from these punctures. This is in accordance with the idea held by many, that fungus rarely, if ever, begins where there is no injury or previous disease to invite its attack.

“One of our correspondents speaks of the good effect of ploughing his orchard and sowing it with turnips, after a dressing of manure, as a means of preventing the leaf fungus. Another found more benefit from sowing with oats, and letting his hogs gather the crop. Another found a dressing of salt and lime beneficial.

“The use of manures, and of lime, ashes, plaster, &c., was the subject of one of the inquiries of our circular, and the replies are of considerable interest. Full three fourths of the writers state that good results have followed from the use of manures. About one fourth have either not tried them, or believe them of doubtful utility.

“The cases of most benefit, especially from stable manure, are in the central and northern parts of the state, and where the soil is dry and rather poor, and the trees, from want of culture and other sources, are not growing thriftily. Ashes are also found highly beneficial, in such cases, especially if the soil is sandy. On clayey soils, the benefit is not so obvious.

“On level and dark-colored soils, the use of manures is thought to be sometimes injurious, in causing the trees to make too rapid and succulent growth, rendering them liable to injury by the winter.”

The conclusion of the committee is, that a better understanding of the whole subject, and especially the obscure point of fungus growth and influence, is necessary to any measures which shall be generally effective in arresting the deterioration of this most valuable fruit; and they close with the remark that “we are conscious of only having just entered upon the important investigation which the magnitude of the interests at stake demands.”

In consequence of this report of its committee, the society have memorialized the legislature for an appropriation for the employment by the society of a competent person or persons to investigate the insects and diseases injuriously affecting fruit trees and their crops, and to diffuse the information thus gained among fruit growers, and awaken them to the necessity of acting upon it.

THE PEACH CROP at Centralia, Illinois, promises to be the largest ever raised there. Three years ago, three hundred thousand boxes were shipped from that region, and it is estimated that the sum total will reach as high as four hundred thousand this year.

Journal of Agriculture.

CANNING AND PRESERVING FRUIT.

As the season for canning and preserving fruit has again arrived, we reprint, from an earlier volume of the *Journal*, some excellent receipts for these operations, which, having been placed among the "special notices," have probably not been preserved by the majority of our readers, and which, we think, will, in any case, be of interest to later subscribers. We have also added one or two new receipts for pickles.

TO CAN PEACHES. — Take large and ripe fruit, — not over-ripe — halve them, and pare them carefully; lay them on a large meat-dish, as they are done. To a three-peck basket of fruit allow three or four pounds of sifted sugar; sprinkle this over the fruit as it is placed on a dish. When the whole are pared, set them in a cool place to remain over night. Next day they will have run considerable sirup; drain this, handling the fruit as little as possible: it is best done by taking each piece of fruit, and placing it at once in the jar, fitting them nicely in, with as little juice adhering to them as may be. When all the fruit is in the jars, or cans, put the sirup in a preserving kettle, and set it on the fire. Have also another kettle, with a flat bottom, filled with cold water; set this on the fire, and place the jars full of fruit close together in the water, taking the precaution to put something in the bottom of the kettle to keep the glass jars from cracking. When tin is used, there is, of course, no danger. Let the water heat gradually around them until it boils, while you are preparing the sirup. When all is well heated, fill up the jars with the sirup, being careful to let the bubbles of the air escape (they will be seen rising to the top; and if any are seen in the lower part of the jar, they will rush upward on the insertion of a fork). When all are full, begin to seal up in the following manner: Have ready pieces of strong muslin, cut large enough to tie over the mouths of the jars; also strong twine. A cement should be ready prepared, of one pound rosin to two ounces mutton-suet, well mixed and melted. Now take one of the muslin covers, and, with a spoon, spread over a thick coat of cement (having the muslin laid on a board at the time); take up the cover quickly, and put it on the jar, with the cement side downward, pressing it down closely over the sides. If the muslin is not very thick, it will be well to spread a little more cement over this cover, and put on a second one; then tie down with the twine, and finish with a good coat of cement over the whole. This will not apply when the improved self-sealing cans, or jars, are used, which are much better than any others. A large pan of hot water standing by will be useful to set the finished ones in, where they can cool gradually. On no account leave them out of the hot water to cool, as the jars would crack. Tin cans will require the aid of a tinman to solder on the lids. When all are cold, the tops will be found quite sunken: this is an evidence that the air has been effectually excluded. Fruit done in this way will rarely spoil, the main thing being to expel the air. Common glass jars, with wide mouths, will answer to use as described; but the regular fruit-jars, made for the purpose, with tightly-fitting lids, are preferable: they need no muslin, and, when the rubber ring is used, no cement.

Another way of proceeding, which some cooks prefer to the above, is to place the fruit, with the same proportion of sugar, in the preserving kettle, as soon as it is prepared, and set the whole over a gentle fire. Have ready the jars and the cement; and as soon as the fruit arrives at boiling heat, begin to fill up with fruit and sirup together. Two persons are required; so that, as soon as the first jar is filled, the second hand may proceed at once to seal it up, while the first goes on filling the next one. This latter process is more expeditious than the former; but the fruit is apt to be softer, and more like cooked preserves, than when it is put in the jars without being placed over the fire.

The following recipe has been sent to us from Delaware, as better than the above:—

“Make a sirup of a pound of the best white sugar to a pint of water (flavoring with twenty-four pounded kernels to a gallon), being careful that it does not scorch. Strain when cold.

“Pare, stone, and halve the peaches (using a silver or ivory knife), and drop the pieces immediately into the sirup, to prevent discoloring by exposure to the air. When a suitable quantity is ready, pack them closely in the cans or jars, filling up with sirup.

“Place the cans or jars, having their lids loosely in place, in a boiler of cold water, allowing the surface to reach nearly to the top of the cans. Heat gradually to the boiling point. Remove the cans from the water, and adjust the lids firmly.

“If the soldered cans are used, they *may be* closed as soon as filled; but, as the expansion of the confined air severely tries the strength of the can, a very small aperture should be made in the lid, and closed with a drop of solder, after being heated. Tin may be placed in contact with the bottom of the boiler, but glass should not. *E. T.*”

BLACKBERRIBS, cherries, and other small fruits, may be prepared by slightly stewing, or heating to a boiling degree, with a sufficient quantity of sugar to make them palatable, then filling and sealing the jars, as described.

PEAR MARMALADE.—Peel the pears, quarter them, and take out the seeds; throw them into a little fresh water, and place them on the fire; when they are sufficiently soft, mash them with a wooden spoon; then add the sugar, with the juice and grated rinds of several lemons; mix well, and replace the whole on the fire; stir it, while boiling, until it is of sufficient consistency, then pour it into pots. In the same way, apple marmalade can be made. For both, the following proportions are required: fruit, three and a half, sugar, two pounds.

QUINCE MARMALADE.—Take ripe quinces, pare and cut them in small pieces; stew them in sufficient water to cover them, until they can be mashed with a wooden spoon; when well mashed up in the water, put in the sugar (having weighed the fruit before beginning to cook it), allowing three fourths of a pound of sugar to a pound of fruit; as it cooks, it will assume a bright-red color, and will be quite thick and solid when cold.

TO PRESERVE PINEAPPLES.— Pare the fruit and remove the tops ; then slice and weigh it. Allow equal quantities of powdered sugar and fruit. Place the fruit in a deep dish, and sprinkle the whole of the sugar over it and between the slices, letting it remain over night ; in the morning drain off the sirup, put it in the kettle, and when hot, put in the fruit. Let it cook slowly until the slices look clear, when they may be put in jars ; then boil the sirup until it grows thick, when it must be poured over the fruit until the jars are entirely full.

QUINCE JELLY.— Quarter and core half a peck of ripe quinces, cover them with water, and boil them until they are well done, which may be determined by running a fork through them. Strain the liquor through a flannel bag, and measure it, allowing a pound of white sugar to each pint of juice ; place the whole on the fire, in a preserving kettle, and watch it closely lest it boil over. Try it occasionally on a saucer ; and when it begins to jelly, or grow solid, it is done.

JELLY OF FRUIT JUICE.— Boil grape juice for an hour, if it has not been cooked, and add one part of farina to ten parts of juice. This tastes something like currant jelly.

DOMESTIC WINES.— *Currant Wine.*— Take ripe currants ; mash them well, then strain the juice through a strong bag. Have your cask measured, and allow one third of its contents to be pure juice. As soon as the juice is measured, put it into the cask, which must now be placed in a firm position in the cellar, with spigot provided, so that it may be drawn off without having to move the cask. For every gallon that the cask will hold, allow three pounds of brown sugar, and dissolve it in a bucket of water, stirring well ; then pour this into the cask, and add more water to the sugar remaining in the bucket, until all of it is in the cask ; then fill up with water to the bung, and leave it open for *ten* days to ferment. On the tenth day, remove from around the bung-hole all the froth that has collected, using the little finger to reach that inside ; then add to a six-gallon cask, a half tea-cupful of good brandy, and immediately put in the bung pretty tightly. In a day or two pound it in securely, and let the cask remain undisturbed until the first of January, when it may be quietly racked off, and will be found perfectly clear until the sediment in the bottom is reached. Like all other wine, it improves with age ; and although, when first drawn, it is of light-red color, it will soon acquire a rich wine tint. In making all kinds of wine, care must be taken to have the cask perfectly sweet, or the wine will be likely to sour. If it should smell sour or doubtful, it will be best to have it soaked, for a few days beforehand, with a little washing soda dissolved in water, rinsing it well before using ; then, before the wine is put in, to rinse the barrels out with brandy or rum. Old casks are more desirable than new ones, as the first time they are used the wine is likely to taste of the wood.

Blackberry Wine.— This is made precisely as the currant wine.

Gooseberry Wine.— Take the fruit when ripe, place it over the fire with a little water, and let it coddle : this will promote the flow of juice. Keep washing them with a wooden spoon or masher until the skins are all well softened ; then squeeze, and proceed as in currant wine.

Elderberry Wine. — Bruise a bushel of picked elderberries ; dilute the mass with ten gallons of water ; and, having boiled it a few minutes, strain out the juice, and squeeze out the husks. Measure the whole, and to every quart put three quarters of a pound of sugar ; then add, while warm, half a pint of yeast, and fill up the cask with some of the reserved liquor ; let it ferment for ten days, and then cork up. In three months the wine may be drawn off the lees, and bottled for use.

Strawberry and Raspberry Wine. — Made like currant wine.

Rhubarb Wine. — Take the large, juicy stalks of the rhubarb, or pie-plant, cut them up into pieces about an inch long, cover them with water, and stew them until perfectly soft ; then cool them and strain the juice ; after which, proceed as for currant wine.

None of the above would be considered good wines by the best judges, but answer a variety of purposes in the family when better wines cannot be had.

RECIPE FOR BLACKBERRY, CURRANT, RASPBERRY, OR CHERRY WINE. — This recipe has been in use for fifty years in England, and makes a strong, fine wine for drinking.

Mash the fruit well, either by hand, in a tub, with potato masher, and strain through a coarse linen cloth ; or grind in a patent mill, and press in a presser. Have a *strong*, clean barrel, and fill it *scarcely two thirds full* of juice and water, in equal quantities ; then to every gallon of liquid put three and a half pounds of good brown sugar ; then bung it up *at once* and seal it, and tack a piece of tin over the bung ; fill it where it is to stand in the cellar, and let it remain one year perfectly still ; then bottle it, being careful not to disturb the bottom. *If the cask is made too full, it will burst*, as the force of the fermentation is tremendous.

PICKLED CUCUMBERS. — Take three hundred cucumbers, and cover them with a brine made of coarse salt, allowing one quart to a pailful of cold water. Let them stand three days, then scald the brine and pour over hot. Let them stand three days, or until a thick scum rises, and scald again. In three days more drain them nicely, and pack in the pot. They must be washed carefully, each time, in the brine. Take *pure cider vinegar*, and let it boil up once, and pour over the pickles. Keep in a warm place three or four days. Make a bag, and put into it one ounce whole cloves, one ounce whole allspice, one ounce whole cinnamon, a little piece of ginger root, one small teaspoonful celery seed, twelve peppercorns, two tablespoonfuls mustard-seed. Boil the spice-bag in the vinegar, also a piece of alum as big as a walnut, and place on top of the pickles, with two small onions, and a small piece of horse-radish.

CITOW CHOW. — Chop one half bushel of green tomatoes, sprinkle fine salt over them, and let them stand twenty-four hours ; then pour off all the water you can from them. Chop three large cabbages ; break up twelve large cauliflowers. Boil all in vinegar fifteen or twenty minutes, or until they are tender. Throw away the vinegar they are boiled in. Then add eight chopped peppers, a handful of salt, about half a pound of white mustard-seed, one handful of whole cloves, same of allspice, cinnamon, and celery-seed ; mix well, taste, and if not flavored enough, add more. Pack in pots, and cover with cold vinegar.

EARLY RASPBERRIES. — Saturday, June 25, was the closing day of the strawberry season in our neighborhood. The crop has been a good one, but on account of the hot, dry weather, the season was extremely short. As the strawberries became scarce, we began to examine the next berry of the season, namely, the raspberry; and by the 20th we were quite certain that there would be no interval between the latest of the former and the earliest of the latter, and our expectations have been fully realized; for, on the 24th, a dish of the old Purple Cane raspberry was gathered, and one or two other sorts were showing many ripe berries. To-day, June 27, we have been looking over the various kinds in our grounds, and note their condition as follows: —

Purple Cane. — Ripe berries abundant, and of good quality; rather soft for market, but an excellent old hardy sort for home use.

Ellisdale. — Somewhat similar to the last, but later; scarcely a ripe berry to be found.

Thompson's Seedling, Hildreth, and Catawissa. — All nearly related to the Purple Cane, but much later this season; no ripe berries yet.

Of the crimson or scarlet colored native sorts, we find the Kirtland a little the farthest advanced; but the Elm City, Allen, Imperial, Susqueco, Pearl, and Parry's Seedling are not more than a day or two behind. Parry's Seedling is the largest of the native sorts that we have grown, and with us it is a valuable berry, although the originator, Mr. William Parry, says that it did not do well on his grounds, and he discarded it.

The *Red Queen*, which has of late been sold by a few nurserymen under the name of Franconia, is also showing a considerable number of ripe berries.

Among the more recently introduced foreign varieties, a few appear to be quite early. Van Turk's New Red, Vorster's Grosse, and New, or Surpasse Fastloff, are the most promising at present.

Several varieties of the Black Cap raspberries are also ripe. Davison's Thornless takes the lead, as in former years. It is a handsome and valuable variety, although not as rank a grower as some of the later sorts. Fay's Thornless ripens about the same time, and is very similar to the Davison, although sufficiently distinct, in leaf and stem, to be readily recognized as a variety. Doolittle, Ohio Everbearing, Woodside, and Gardiner show a few ripe berries, not sufficient, however, to gather for market. The Gardiner is one of the very largest, if not the largest, black raspberry known; but the dwarf habit of the plant is a serious objection to this otherwise unique and handsome sort.

Hearth and Home.

THE MOST NORTHERN BERRY-BEARING PLANT is a species of *Vaccinium*, a kind of whortleberry, found on the north-west shore of Greenland, at a latitude of seventy-six degrees north, and a longitude of sixty-six degrees west.

EVERGREEN EPIDEMIC. — This season has been especially marked throughout Central Illinois by a fatality among the evergreens. In the vicinity of Normal about seven per cent. have been destroyed, the mortality being confined, almost exclusively, to the arbor vitæ, white pine, and balsam fir.

Journal of Agriculture.

STRAWBERRY EXHIBITION. — The strawberry exhibition at Messrs. Bliss & Son's new seed warehouse, 23 Park Place, New York, on the 15th and 16th, was much smaller than expected. The wet weather of the preceding week damaged the fruit so much that many growers were unable to make a creditable display, and so abandoned the attempt, and the show was a little too early for sections west and east.

Reisig & Hexamer, of Newcastle, N. Y., were the principal exhibitors, contributing fifty varieties on plates, and twenty-five in pots. John Crane, of Union, N. J., contributed seven varieties, and E. W. Durand, of Irvington, N. J., about the same number of seedlings. The above, with perhaps a dozen varieties from other parties, comprised the collection. The awards were as follows: —

Best collection, fifty varieties, to Reisig & Hexamer, Newcastle, N. Y., fifty dollars.

Best twelve varieties, to Reisig & Hexamer, fifteen dollars.

Best New Seedling, perfect flower, never before exhibited, and in the opinion of the judges worthy of cultivation as a market variety, to E. W. Durand, Irvington, N. J., for his Late Prolific, twenty dollars.

Also to the same, for his Black Defiance, three dollars.

Best quart Charles Downing, J. Crane, Union, N. J., three dollars.

Best quart Seth Boyden (No. 30), John Crane, three dollars.

Second best, do. do., Frank E. Hedden, East Orange, N. J., two dollars.

Best quart Lennig's White, George Herbert, Peekskill, N. Y., three dollars.

Best quart Triomphe de Gand, George Herbert, three dollars.

Best quart Russell's Prolific (special), George Herbert, two dollars.

Best quart Wilson's Albany, O. J. Tillson, Highland, N. Y., three dollars.

Among the collection, we noticed Downer's Prolific, under the name of *Schenck's Excelsior, Globe, Market*, etc.; Green Prolific, as *Harrison*, and one or two other synonymes, and several other varieties incorrectly named, showing that strawberries, as well as some other things, are "slightly mixed."

Among the varieties of recent introduction we noticed Peak's Emperor, which, as far as the eye could judge, is *Agriculturist*, and this conclusion was corroborated by the testimony of the grower. The *Colfax*, as shown, was about on a par with that notorious swindle of three or four years ago, known as *Metcalf Early*.

The seedlings, of which there was a goodly number, were large, — to the inexperienced remarkably so, — and their quality only confirmed our previous convictions, that flavor is sacrificed to size in most of the efforts in this direction. We certainly have berries enough of sufficient size to satisfy any ordinary open countenance, and if experimenters would now turn their attention to the other qualities of flavor, solidity, etc., we should hope for some decided improvements in this first small fruit of the season.

Country Gentleman.

MASSACHUSETTS HORTICULTURAL SOCIETY. — We make a note of the most interesting matters exhibited the present season.

January 22. Several samples of fruits, including peaches, plums, and tomatoes, were shown, which had been preserved with a powder and liquid, made by

the American Fruit Preserving Company, which were thought by the committee to be deserving of a certificate of merit. The powder was certified by Dr. James R. Nichols, chemist, to be principally boracic acid, and the liquid a mixture of sulphate of iron; neither of them harmful when used in quantities such as will meet family wants.

March 5. From Hovey & Co., *Camellia Japonica*, Mrs. Anna Hovey, beautifully variegated. A grafted plant was exhibited, showing the variegations to be retained when worked.

From Mrs. T. Ward, a fine specimen of *Bougainvillea spectabilis*.

March 12, and the two ensuing weeks, James Comley showed fine specimens of the Prince of Wales Rhubarb, with stalks of a beautiful scarlet color, and well adapted for forcing.

March 19. Four very finely-grown Heaths, in pots, were exhibited by O. H. Peck, Melrose. These were the finest specimens ever presented at the hall.

April 2. Mr. F. L. Harris, gardener to H. H. Hunnewell, exhibited the following new and beautiful flowers: *Bougainvillea spectabilis*, *Franciscea confertifolia*, *Begonia nigra peltatum*, *Tacsonia van Volxemii*. Roses, Fisher Holmes, M'lle Marie Rady, Jean Gonjon, Chas. Rouillard, Rose de la Reine, Duc de Caze.

Azaleas, Semi-duplex maculata, Admiration, Stella, Comet, Orpheus, Alexander Second, and several seedling varieties.

From W. C. Strong, Carnation Gibbonsii, a new and fine variety, originated by Wm. Cairns.

April 23. The first exhibition of native flowers was made to-day by Miss M. E. Carter. These exhibitions have been continued by Miss Carter, E. Hitchings, Mrs. W. S. Horner, and the Botany classes of Dean Academy and Bradford Academy, adding greatly to the interest of the weekly shows, and diffusing a knowledge of our beautiful native plants.

May 7. From E. W. Wood, *Burchellia capensis* and *Medinilla speciosa* — the latter with beautiful waxen flowers.

From Francis Parkman, twenty species and varieties of early perennials, including *Pulmonaria virginica*, Guinea Hen Flower, Epimediums, Trilliums, Primroses, Uvularias, etc.

From Barnard, Hunnewell, & Severance, corn, Lima beans, peas, squashes, cabbages, potatoes, and other vegetables in pots, intended for early garden planting.

May 14. Mr. James Cruickshanks showed fine seedling Auriculas and Pansies, and Mr. Parkman early perennials in great variety.

James Comley exhibited *Lyonia fasciculata* and seedling Zonale and Tricolor Geraniums.

May 21. Mr. Parkman had a magnificent stand of Tea Roses, and another of herbaceous flowers, the latter receiving the first prize. He also exhibited a Double Wistaria, from Japan, which is not known to be introduced in Europe. It was darker colored than the common *W. sinensis*, but thought not to be equal in beauty to it.

J. B. Moore showed very fine Asparagus.

June 2. The opening exhibition was held to-day. The display of fruits and vegetables was not large, the great attraction being the plants in pots, of which many rare and beautiful specimens were on exhibition. J. H. Bell received the first prize for Rhubarb (Victoria), and also the first prize for Tennis-ball Lettuce, and Walter Russell the first prize for Radishes. R. H. Allen & Co., New York, exhibited Conover's Colossal Asparagus. The first prize for asparagus was awarded to J. B. Moore.

On entering the upper hall, the first thing that met the eye was a most beautiful collection of Calceolarias, from Mrs. T. W. Ward, excelling in the growth of the plants and the beauty of the flowers any we have ever seen. To it the first prize was justly awarded. Mrs. Ward also sent Azaleas, Cinerarias, *Statice Holfordi*, Rhododendrons, Geraniums, etc., which, like all that comes from her houses, were of the highest excellence.

Miss C. S. Wood exhibited a fine plant of *Medinilla speciosa*.

The first prize, for the best specimen plant, was awarded to *Dracæna Regina*, and the second to *Croton longifolium variegatum*, both exhibited by H. H. Hunnewell. An Ivy-leaved Geranium, from C. M. Atkinson, received the third prize, and *Clerodendron Thomsonii* a gratuity, as a specimen plant.

The first prize for Coleus was awarded to H. H. Hunnewell, for Queen Victoria, *Bauseii*, Princess Royal, *Aurea marginata*, Duke of Edinburgh, and Albert Victor. Mr. Hunnewell also exhibited fourteen varieties of seedling Coleus, which received the society's silver medal, — a plant of *Berkleyii* grafted with Albert Victor, Princess Royal, *Verschaffeltii*, and *Marshallii*, six varieties of green-house Azaleas, and a splendid display of Hardy Rhododendrons and Azaleas and *Magnolia purpurea*.

From M. P. Wilder, a magnificent display of Tree Pæonies, receiving the first prize. Also eight varieties of Hybrid Coleus, which took the second prize.

Hovey & Co. sent a fine collection of rare and beautiful plants, including *Dracæna striata*, *Anthurium Scherzerianum*, *Eurya latifolia variegata*, *Peperoma argyrea*, *Hydrangea rose alba*, *Pandanus variegatus*, *Richardia maculata*, *Statice Holfordi*, *Phormium tenax*, *Panicum variegatum*, Fuchsias, Rose of Castile and Lusto, Azalea Brilliant, Tree Box, *Leptospermum fruticosum*.

Messrs. Hovey & Co. also made a fine display of Tulips and other cut flowers, receiving the second prize for Tree Pæonies.

From C. M. Atkinson, *Stephanotus floribundus*, *Imantophyllum variegatum*, *Azalea variegata*, and *Rhyncospermum jasminioides*, etc.

From E. S. Rand, Jr., twenty-four varieties of Hardy Azaleas, which took the first prize. Also a large collection of Rhododendrons, and specimens of *Andromeda Catesbæii*, *Scilla Fraseri*, *Ledum palustre*, *Oxalis violacea*, *Cypripedium candidum*, *parviflorum*, and *pubescens*.

Mr. Parkman made his usual fine display of cut flowers; and Wardian cases of plants, baskets of flowers, etc., were exhibited by contributors whose names our space will not permit us to mention.

HORTICULTURAL EXHIBITION OF THE ESSEX INSTITUTE.— This association, at Salem, Mass., so well known throughout the country for its energetic labors for the advancement of natural history, has also a horticultural department, whose exhibitions once rivalled those of the Massachusetts Horticultural Society. Their shows, which have for a few years past been suspended, have this season been resumed by some of the younger members of the Institute, the first having been held June 21, with a result which promises to renew the former interest in this department. Fine specimens of pot plants, cut flowers, bouquets, Wardian cases, etc., were exhibited, the principal contributors being Messrs. Bosson & Glover, David M. Balch, Mrs. E. D. Kimball, Charles H. Higbee, John Robinson, Mrs. Jewett, Mrs. Merrill, Mrs. Symmonds, H. K. Oliver, Mrs. Mary Ames, Miss A. S. Osgood, L. B. Harrington, E. S. Rogers, W. A. Garland, Wm. Mack, and others.

A large number of visitors attended the exhibition, and expressed great pleasure and satisfaction. It is intended to continue the shows monthly.

ANOTHER HORTICULTURAL TRIP.— Our correspondent, Hon. Marshall P. Wilder, whose interesting account of his southern horticultural trip, in the Journal for March, 1869, will be remembered by our readers, started again, on the 11th of June, on a similar trip to California, being accompanied by Mr. Charles Downing of Newburgh, and Messrs. Ellwanger & Barry of Rochester. On the 15th of June they visited the first exhibition of the Nebraska State Horticultural Society, where Colonel Wilder made a brief speech, complimenting the society, especially on its exhibition of vegetables, which he said was superior to that made at the first meeting of the Massachusetts Horticultural Society. The party reached San Francisco on the evening of the 20th of June, having been met on the Summit by a committee of welcome of the San Francisco Horticultural Society. We hope to again have the pleasure of presenting to our readers some account, from Mr. Wilder's pen, of the interesting horticultural observations which will be made by the party.

SEVERE HAIL STORM.— On Monday, the 20th of June, Boston and the vicinity was visited by the severest hail storm known for many years, accompanied, also, by thunder and lightning of terrible fury, and torrents of rain. If possible, it was more severe at the Highlands than elsewhere, the hailstones being very large, — four, five, and even six inches in circumference. Some were picked up that weighed four ounces. Nearly every pane of glass in every skylight in the southerly part of the city was broken. In Dorchester and Roxbury the destruction of green-houses and the damage to growing crops was immense. The strawberry growers, whose crops were just ready to pick, suffered especially. The thunder and lightning, as well as the heavy fall of rain, extended throughout New England, but the hail was chiefly confined to Boston. Cultivators here will now be able to sympathize with their brethren in Philadelphia, who were visited with an equally severe hail storm early in May.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

THE WHITE HOOP-PETTICOAT. — This rare and beautiful hardy early-flowering bulb is the *Narcissus monophyllus* of botanists, and bears the synonymes of *Narcissus Megacodium*, *Narcissus Clusii*, and *Corbularia monophylla*. It is a native of Algiers, where it occurs both on the coast and inland. Our figure was derived from plants which bloomed in January last in the Royal Gardens at Kew.



THE WHITE HOOP PETTICOAT.

The bulbs are small and ovate, and usually produce a solitary leaf, though sometimes two or three leaves are developed. These leaves are filiform, very slender, longer than the scape, which is cylindrical and shortly vaginate; and the flowers are nearly sessile, creamy white, with a crenulate corona of the same color, an inch in length. The stamens are curved or declinate, and the style is exerted or projecting. The color of its blossoms, and their fragrance, will certainly render the plant a favorite in gardens, where it will contrast admirably

with the deep yellow of the common Hoop-Petticoat and its allies, which are too seldom seen in cultivation.

These plants constitute the genus *Corbularia* of Haworth, a group of *Narcissi* in which the habit of the plant is dwarf and slender, the divisions of the perinth remarkably narrow, and the tubular corona comparatively large and very prominent. They are all floral gems. *M., in Florist and Pomologist.*

USEFUL AND ORNAMENTAL GOURDS. — When gardener at West Hill House, Highgate, I grew gourds very largely, and, at the first of the Guildhall flower shows, exhibited five hundred sorts. They made a grand display, and filled one of the council chambers. The great diversity of form and color of the fruit is something wonderful; some are like huge clubs; others, again, like a Turkish turban; and some bear a close resemblance to gigantic cucumbers. All are not, however, of colossal proportion; indeed, some are no larger than oranges; but all are more or less richly colored with shades of crimson, orange, and scarlet. Therefore, apart from their usefulness in the kitchen, they are grand for the winter decoration of entrance-halls and other indoor apartments.

The cultivation of ornamental gourds cannot be too largely recommended, possessing, as they do, the material for decoration in a multiplicity of ways, both in a growing and ripe state. As ornamental plants, they can be most effectively employed even in the best kept garden; their application is even more marked in most neglected parts, — on old stumps of trees, banks, arbors, rockeries, rooteries, and similar situations, — whilst the assistance they lend to the landscape, where judiciously employed, gives them a claim to great consideration. Visitors to the sub-tropical garden in Battersea Park, during the last two or three summers, will not readily forget the fine effect produced by them on the bank on the right hand side of the enclosure as the visitor enters by the walk leading from the refreshment department. Here they are planted amongst the shrubs, and the brilliantly-colored fruit peeping from amid the huge foliage, forming graceful festoons down the bank, heightens the tropical-like aspect of the scene in a wonderful degree. Again, some of the most ornamental and medium-sized section come in most exquisitely for such situations as trellis-work, verandas, and similar situations, whilst those of the miniature section have a charming effect planted in window-boxes, and trained up the sides of windows, or growing gracefully in festoons from the same, with their miniature, curiously formed, and many-colored fruit relieving the foliage — altogether beautiful. If employed for this purpose, some attention must be paid with regard to a supply of water; but where planted in the open ground, little care will be required in this matter.

To amateurs they present an opportunity for beautifying any old fence, wall, or unsightly object, and, at the same time, give a very liberal return for a very little trouble and small outlay. A few years since I saw a very fine collection growing up strings against a wall, and very remarkable they looked when in fruit, consisting as they did, of a multiplicity of forms and colors. Since then I have seen a collection growing over an old stoke-hole, and up the chimney, so luxuriantly as to completely hide the roof. The fruits of nearly all gourds

adapted for cultivation in the open air in England possess the advantage of being eatable in a young state, in the same way as the vegetable marrow is generally used ; but this is only one method out of many in which they are adapted for cooking. Some, for instance, make excellent soups, marmalade, tarts, and pies ; and others may be used as vegetables during the winter months. Few persons have any idea of the usefulness of this excellent vegetable. Then, again, the ripe fruits form fine objects for the decoration of the cottage or gentleman's hall, for vases, baskets, corners, or cupboards, the mantel-piece or window-sill. Then, again, most of the medium and large varieties are recommended as food for cattle ; but these remarks are more especially written for the purpose of bringing them under notice as ornamental plants, and a useful vegetable or fruit for the amateur's and cottager's kitchen.

The seed can be sown in pots, and the plants put out when strong enough, and all danger from frost is past, or it can be sown about the middle of May, where the plants are to remain. This matter can, however, be safely left to the discretion of the cultivator.

The best of the edible gourds are Chinese Green, Golden Punchbowl, Portmanteau du Roi, Japanese, Turk's Cap, Ohio Squash, and Zebra ; but, to obtain the greatest variety in a small space, procure a packet of mixed seed, and, in ordering it, state whether large or small sorts are wanted, and also whether required for use or ornament. For using in a young state the vegetable marrows are the most suitable ; and the best of these, in my opinion, is Hibberd's Prolific Early Marrow. Immediately after being planted out, it produces an abundance of small fruits of an oval form, which are fit for cooking when the size of a turkey's egg. The fruit of this variety is far better in flavor, and decidedly more handsome in appearance when on the table, than that of the varieties usually grown. It can, I apprehend, be obtained in the ordinary course of trade, but I know it can be had of Messrs. Barr & Sugden, who deal largely in gourds.

William Young, in Floral World.

THE THERMO-PLASTIC PUTTY, manufactured by Sir W. Rose & Co., has been used in the renewal of the roof at King's Cross Station. This putty, it is said, is peculiarly adapted for fixing the glass in roofs of railway stations, greenhouses, and other buildings where plate glass and iron or wood sash-bars are used. It hardens in a few hours after being used, but will, when exposed to solar heat, sufficient to cause expansion of the glass and metal, become plastic, and, on cooling, again returns to its original firmness, thus preventing the loss occasioned by fractures and leakage.

Florist and Pomologist.

AUSTRALIAN APRICOTS. — In Dilke's "Greater Britain," we often find him giving his opinion on fruits. In vol. ii. he writes from Echure, on his way to the Murray River, "The week before my visit, some ripe oats had been cut down to stubble by the hot wind. On the other hand, the Victorian Apricots, shrivelled by the hot wind, are so many lumps of crystallized nectar, when you pierce their thick outer coats." This description reminds me of orchard-house apricots, which, when their skins are shrivelled, are the most delicious of fruits.

REMOVING PLANTS OUT OF POTS INTO THE OPEN GROUND. — This, like almost everything else, is wonderfully easy and simple after it is learnt. But it is by no means so simple a matter for those who have never done it. Let the plants be thoroughly soaked with water the day previous. Enough must be given to saturate every nook and cranny, every root and atom of soil within the area of the pot. It is also a good plan to use manure water or house sewage for this final watering in pots. Thus the entire contents will be enriched as well as moistened — food and drink being provided together. This thorough watering also facilitates the removal of the plant from the pot. The moisture acts like grease to the side of the ball ; it makes it slip out, and it slips all the better when it has had ten or twelve hours to saturate the pot, as well as to find its way through the network of roots and soil that it contains.

Having thus carefully lubricated both ball and pot with water, clean or foul, and allowed it sufficient time for the excess to pass away and the remainder to do its proper work, proceed to lay hold of a pot with the right hand, and turn it topsy-turvy, — upside down, — placing the left hand under it to receive the ball on the open palm. In doing so, the fingers of the left hand must be spread out so as to allow the stem of the plant to pass through between any two of them. Thus the top will escape being bruised or broken, and the portion of the soil that formed the surface of the roots while the plant remained in the pot will lay flatly and firmly in the hand. A simple inversion of the plant, however, will seldom suffice to remove it ; therefore the planting trowel should be placed firmly in the ground, and the rim of the pot, the while inverted, be struck smartly a few times on the handle of the trowel. A spade, or the toe of the boot or shoe, will do equally well. But bricks or stones must be avoided, as, although pots will bear a good deal of tapping on such elastic buffers as wood or leather, they resent, and show their resentment by breaking at once, if knocked against bricks, or stones, or iron. But, unless the plants have been allowed to stand too long, and their roots have got too firm a hold on the bottom or sides of the pots, or, as it is technically called, become matted, there will be no difficulty in turning them out.

The villa gardener may probably find the next step in the matter more troublesome. It is no enviable position to be left with a plant in the open palm, its head sprawling through the fingers towards the earth, and its roots in the air. What shall we do with it ? This, first of all : with the fingers of the right hand pick out the bit or bits of broken pots, or bricks, or charcoal that has formed the drainage over the hole of the pot, and carefully disentangle the roots ; that is, unravel and spread them up, without, however, removing more than an inch from the bottom of the soil. Then, if the roots have been closely crammed together through the substance and along the outside of the ball, proceed with the fingers, or, better still, a sharp-pointed stick about nine inches long, to untwine them slightly. This operation requires great caution and much patience, as many of the roots are easily broken. Fig. 1 is a rough sketch of the plant when it is taken out of the pot. Fig. 2 shows the same plant with its roots disentangled and spread out, as recommended above. Supposing the plant to be left in the state shown in fig. 1, the roots would have to unwind themselves, or fresh

ones to be formed before they could lay hold of the earth ; whereas, in fig. 2, the growing ends are placed in readiness to take instant advantage, and make immediate use of their new larder, the rich earth. We thus help the plants to help themselves ; and we do even more than this, we start them in the right way of doing so. Habit is second nature in vegetable as in mental life. Make the roots of plants run in circles in pots, and they will continue to do so for a considerable time after their removal into the open ground. The roots repeat by rote, as it were, their treadmill round. By disentangling them we break the circular spell, and thus extend the area of their foraging ground. And hereby hangs another practice of the utmost importance.

The next point in the process of planting is, to get the roots under ground. For this purpose, a hole must be made of sufficient depth to bury the entire ball, with its network of projecting roots, an inch or two deeper than it was in the pot. More than this might kill the plants, less will hardly do justice to the roots. Nevertheless, it is safer to plant such plants as choice silver and golden tricolor pelargoniums, just level with the depth their stems occupied in pots. It



Fig. 1.



Fig. 2.

is almost as dangerous to bury their stems deeper than this, as it is to bury the bole of a tree. But such plants as verbenas and calceolarias, that root up the stem, may safely be buried two inches deeper than the pot surface. But the proper width of the hole is of even greater moment. It must be as broad as the disentangled roots, when stretched out to their full length. When not spread out, the hole is seldom made larger than the ball, as seen in fig. 1. But fig. 2 requires a hole of double or treble this area. This is an immense advantage to the plant. It puts within its reach, at once, a larger and better feeding ground. These holes are best made with a semicircular planting trowel. Grasp this firmly in the right hand, and throw out the earth. When the hole is large enough, carefully insert the plant, by taking hold of the ball with the right hand, and place it, by the ball, into its new home. Some people seize the plant roughly by the top. This is a bad plan, and frequently ends in the breaking away of the loosened ball. It seems almost like nursing a baby by the hair of its head. The plant should be tenderly, lovingly handled by the ball, not the top. When it is

placed in the hole, fill in the earth with the right hand, and keep the chief roots in a horizontal position.

The filling up proceeds, with constant fingering with the hand. For want of attention to this, nearly all the advantages of spreading out the roots are often thrown away.

An immense deal of the success of flower growing in the open air depends on a good start. Hence the importance of attention to such minute details. The late Mr. Loudon never said a truer thing, than that "Gardening was attention to trifles."

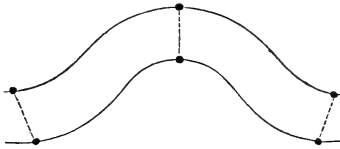
Another trifle or two demand attention before leaving the plants to take care of themselves. The first is, to press down the soil firmly around the roots, with the trowel or fingers; and the second is, to finish the planting by washing the soil closely down around the roots.

Much may be done to quicken growth on poor soils, by placing a trowel full of rotten dung in the bottom of each plant-hole, and another or two among the roots as the planting proceeds. This helps the start, and gives the plants more power to cater for themselves afterwards.

Novices need some system to make the selection of the proper places for the plants easy. When a bed or border is fairly smothered over with beauty, it matters not how the plants are distributed. But the smothered season is often long in coming, and in villas especially it may never arrive. Besides, it is always best to have everything pleasing to the eye at first. Order is Heaven's first law, and nothing conveys the idea of order in a garden more than regular heights and proper distances. The highest plants should always be placed farthest from the eye, and all plants should be inserted at regular distances. This applies to what is termed the grouping system, and not to the irregular mixtures, where all kinds of capricious arrangements are in place. But suppose a bed is arranged in hues of color, the first line should be at the same distance from the grass or gravel all the way, and the plants be placed at equal distances from each other. The next row might be closer or farther apart, according to the plants used; but it should be the same distance from the first throughout its entire length, and the plants in it be likewise equally distributed. For instance, if the first line were *Lobelia speciosa*, and a foot from the edge, and the plants six inches apart, these distances should be maintained throughout. A foot farther back *Lady Cullum pelargonium*, nine inches apart, might follow suit. But the charm would be destroyed were eighteen inches put either from the lobelias, or between the plants to be substituted, here and there, for the foot or nine inches respectively.

The easiest way to manage all this without trouble is to line out the entire bed before planting. No plan of doing so is so simple as a two feet length of garden line tied to two sharp pointed sticks about two feet long. Taking a stick in each hand, and rolling up or extending the line at pleasure, run one stick round the outside edge, and draw a second line the desired distance from it. Then use this line as the drawing line for the second, the second for the third, and so on, until the whole are finished. The chief points are to keep the outer stick firmly pressed against the outside edge, to keep the line tightly strained, and to have the two sticks always parallel to each other, see dotted lines. After

the first line is drawn it forms the guide for the second, and so on. Then the distances between the plants can be marked on the lines, and the plants look orderly, and as if they were planted with skill at once. There is yet another advantage in lining out the ground. Where the earth is hard, and much planting to be done, a spade instead of a trowel may be used to remove the earth along the line to a depth of eight or ten inches. If this is done and ended, in any case it is best to begin planting in the centre of the bed, and then there is no treading upon the planted portion. In irregular figures the centre lines have to be arranged on a compromise. Proceeding inwards from the sides the lines



may meet and intercross in the centre. Practically there is little difficulty in setting the plants in their right places. The centre may just be planted thicker than the sides, so as to hide at once any confusion that may arise there, and then the regular lines will hug the centre ones in regular form all round. I forgot to say that the ground ought to be raked fine before it is lined out. It is impossible to give an idea on paper of the advantages of system in all such matters. Lines of men in a battle are hardly more necessary to success than system, order, and sure and certain plans in all matters horticultural. They impart confidence, save time, and insure success.

D. T. Fish, in Country Gentleman's Magazine.

THE CHANGE OF COLOR IN LEAVES. — The Athenæum says, "Experiment has confirmed the conclusion that leaves turn red at the end of the season, through the action of an acid, since one of the elements producing the green color must be a vegetable blue. Autumnal leaves, placed under a receiver, with the vapor of ammonia, in nearly every instance lost the red color, and renewed their green. In some, such as blackberry and maple, the change was rapid, and could be watched by the eye; while others, particularly certain oaks, turned gradually brown, without showing any appearance of green."

BLACK MONUKKA GRAPE. — Mr. Tillery has recently drawn deserved attention to the Black Monukka Grape, an old variety not very well known, which he regards as the *bonne-bouche* of all the race hitherto raised; its seedless long narrow berries are crisp, juicy, and refreshing, with a sweet, agreeable flavor, and may be eaten skins and all, with the greatest gusto. It is likewise one of the very best black grapes for using in jellies, its very long, small-shouldered bunches yielding an immense supply when clipped off in small clusters for that purpose.

Florist and Pomologist.

SUNFLOWER AS A PREVENTIVE OF INTERMITTENT FEVER. — In consequence of experiments long since made in America, and of the publicity recently given to the statements made by M. Martin, before the *Société Thérapeutique* of France, on the admirable results obtained by planting the sunflower as a disinfectant of the miasma causing intermittent fever, the Minister of Agriculture and the head of the Sanitary Bureau in the Department of Interior in Italy have been actively engaged in promoting measures to secure the like desirable results in the most fever-stricken districts in that kingdom.

Floral World.

NAMING NEW PLANTS. — Could not a board of horticulturists be instituted for the purpose of naming new varieties of plants? Whoever is it that gives such names to plants as *Pyrethrum* "*Tchihatchewii*?" It seems to me that the only way to pronounce this word properly, is to give a good sneeze, and of that sort of thing I am sure most of us have had quite enough during the last two or three months. Another charmer is *Solanum* "*Warscewiczoides*." Talk about societies for the prevention of cruelty to animals! I think we want one for the prevention of cruelty to human beings, in giving them such jaw-breaking words to pronounce. It would be a nice calculation for a medical student to find out how many sets of muscles are brought into action in order to pronounce this word of sixteen letters. Can you do anything in the matter? *J. F. C., in Eng. Jour. of Hort.*

TREES FOR THE SEA-COAST. — Amongst the trees and shrubs which have been recently observed to do well by the seaside, notably on the Kentish coast, occur — Austrian Pines; *Euonymus japonicus*, which is in some cases covered with fruits; Evergreen Oaks, Common Bays; *Veronica Andersoni*, in bloom; *Lavatera arborea*; Tamarisk, and Gorse, these all being green and fresh as if there were no such things as "nor'-easters" or "sou'-westers." *Atriplex Halimus* is commonly planted on the Dorset coast.

Florist and Pomologist.



THE Editors of Tilton's Journal of Horticulture cordially invite all interested in horticulture and pomology, in their 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 horticulture.

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.

WE are picking the early-ripening specimens of Carolina Red June, and about all those of Early Harvest, to-day. This is the earliest commencement but one in the last fifteen years, and is the result of drought. Apples are pretty free from scab this year. Last year these two varieties were about all spoiled.

W. C. F.

MR. EDITOR: Accompanying I send grape leaves, upon which are feeding slug-like worms, which have caused much injury to my vines, both last season and the present. They begin to eat soon after the vines begin to grow, and continue nearly through the month of June. They are now much less numerous than a few days ago, when from a dozen to twenty could be seen upon a single leaf. They eat both leaves and buds. I would like to learn through the Journal what the insect is, and the most practicable method of destroying it.

I send also leaves of the Hartford vine, having spots of blight upon them. This blight has affected my vines of that variety for the last three or four years, sometimes seriously injuring them. When worst, the whole leaf becomes dry and crisp. It is confined entirely to this variety, though several other kinds are in close proximity and similarly treated. Sometimes the vines have been nearly defoliated by it. I would be glad to know the cause and cure.

Yours respectfully,

W. D.

EAST MEDWAY, MASS., June 21, 1870.

Suspecting that the spots on the grape leaves might be caused by fungous growth, we submitted them to a friend who is thoroughly versed in the knowledge of that class of vegetation, and who has favored us with the following notes, both on the spots and the worms. The latter, we may add, were from a quarter to three eighths of an inch in length, and of a dark, purplish brown or chocolate color: —

The "slug-like" worms are the grubs or larvæ of the *Haltica chalybea*, an insect with brilliant-colored wing-cases, and which appears as a grub about the first of June, and a second time at the end of July. A solution of whale-oil or carbolic acid soap, or some one of the many popular washes used to kill the rose-slug, pear-slug, or the currant-worm, liberally applied by a syringe, would be most likely to remove this evil.

The leaves of the Hartford grape are covered more or less with dead spots, the origin of which is uncertain; but it is probably due to something in the soil. The little gray pustules, arranged in consecutive lines upon these spots, are the *perithecia*, or spore cases, of a fungus called the *Depazea frondicola*. The disease will be likely to increase yearly should the foliage as it falls be suffered to remain on the ground. All such diseased leaves should be removed and burned. A wash of sulphur, or the dusting of flour of sulphur, will generally destroy these parasitical fungi.

J. L. R.

THE SHALLOT. — We are under obligations to a lady correspondent at Clear Creek, Galveston County, Texas, for the following reply to a query touching shallots in our January number, and also for the addition of some interesting notes in regard to her cultivation of verbenas in that Southern climate.

In Texas the shallot is cultivated by almost every family. The White Silver-skin is the most popular variety, growing quite large if planted in January or February. Two other varieties are cultivated with success — the red, similar to the white, and an evergreen variety, which bears sets on the top, which are taken off and planted. Onions grow well in Texas; but they are difficult to

keep. They often commence rotting before they are matured or gathered. The shallot is smaller, but a more sure crop, at least for family use. Taken up, and laid up in an airy, dry place, they keep well for use, planting, etc.

Verbenas I cultivate either as an edging or entire bed. When I plant them as an edge, I take a sharp spade, and cut off when it has reached the walk ; also the line on the bed, confining them to a limited space. Verbenas commence blooming out of doors here in February. The first of April I commence collecting seed ; each morning the seed will be found ripe, but falls out by noon. After the season of seed-gathering has passed, I clip off the ends all neatly with scissors. The plants grow again with renewed vigor, and bloom a number of times during the season. I only gather the first crop of seed, after which I keep them trimmed off.

I had the finest *Dianthus Caryophyllus* and *Dianthus chinensis* at the Texas State Fair in May.

S. E. B.

June 23, 1870.

QUERIST. — The best hardy Rhododendron, where only one variety can be planted, taking every point into consideration, is the *Everestianum*.

MR. EDITOR : In the Journal for December, 1869, you remark, in reply to an inquiry from a correspondent, that you have never known the *Cydonia japonica* grafted on quince or pear. I have a friend who has collected a great variety of flowering shrubs, and is very skilful in their cultivation, who has grafted the Japan quince on the common quince, finding it to grow more vigorously, and to make a better tree, free from the suckers which are invariably sent up by it as commonly propagated.

I have never heard of its being worked on the pear ; but if it can be done, it would have the advantage of being free from the borer, as well as making a larger and handsomer tree. The same advantages would accrue from working the ornamental varieties of hawthorn on the pear ; and I think there can be no doubt that this would succeed, as it is well known that the pear grows freely on the hawthorn.

R. J. N.

A CORRESPONDENT writes that he has not time to prune his fruit trees, and asks our advice as to whether he shall allow an incompetent person to do the best he can with them, or what course to pursue. We reply that we would much rather leave our trees untouched than to have them pruned unskilfully or to have them pruned too much, and we should advise others to do the same.

We have received from our correspondent, Charles E. Brown, Esq., of Yarmouth, Nova Scotia, a specimen of the Wilson strawberry, as grown by him ; and in reply to his inquiry as to how they compare with Massachusetts strawberries, we must say that they are fully equal, if not superior, to the best of that variety grown here. Mr. Brown, in a note accompanying the strawberries, dated July 9, remarks that "our strawberry crop is beginning only to ripen, — Boston Pine, Wilson's Albany, Brooklyn Scarlet, and other early varieties. Knox's 700 (or Jucunda) and Triomphe de Gand are not ripe yet."

H. K. O. — The pale, bluish-green worm which devours the foliage of the upright and twining honeysuckles is the larvæ of the *Abia caprifolia*, or Honey-suckle saw-fly. We think the same insect also eats the leaves of the *Cornus sanguinea*. The female appears early in June, and lays its eggs probably in the twigs of the shrub. They spin their pale, yellowish, silken cocoons about half an inch long in summer, but do not finish their transformations until late in the next spring. A full account of it is given by Dr. A. S. Packard, in his "Guide to the Study of Insects," and also in a paper by him on "New or little known injurious Insects," in the Report of the Secretary of the Massachusetts Board of Agriculture for 1869-70. We are unable to suggest any other remedy than brushing or picking off and crushing them, which is the method we have adopted.

N. S. N. — In answer to your inquiry whether the rose-bug attacks grass, we make the following quotation from Harris's Treatise on Insects: "For some time after they were first noticed rose-bugs appeared to be confined to their favorite, the blossoms of the rose; but within forty years they have prodigiously increased in numbers, have attacked at random various kinds of plants in swarms, and have become notorious for their extensive and deplorable ravages. The grape vine in particular, the cherry, plum, and apple trees, have annually suffered by their depredations; many other fruit trees and shrubs, garden vegetables and corn, and even the trees of the forest and the grass of the fields, have been laid under contribution by these indiscriminate feeders, by whom leaves, flowers, and fruits are alike consumed." For the best method of destroying them see our vol. v., p. 317.

A. S., Adrian, Mich. — From your statement we think there is no doubt that your vines were injured by bearing too heavy a crop of grapes last year. Nothing is more susceptible of injury from this cause, and the vines are often years in recovering from it. As the vine does not possess the power of throwing off surplus fruit as other fruit trees do, it must be thinned; and when any doubt exists as to whether a crop has been sufficiently thinned, it is always best to give the vine the benefit of the doubt, and thin till you are certain there is not too much left on.



NOTES OF A HORTICULTURAL VISIT TO CALIFORNIA. I.

By MARSHALL P. WILDER, CHARLES DOWNING, GEORGE ELLWANGER, and P. BARRY.

HAVING recently made a brief visit to California, chiefly with a view to examine the orchards, vineyards, and gardens, as well as the more important native trees and plants of that state, and believing that it may be interesting as well as useful to make public the results of our investigations, the following notes are submitted:—

FRUIT CULTURE.

We begin with this, being the most important. We arrived at San Francisco on the 20th of June. On visiting the markets the next morning, we found an abundant supply of all the early fruits; of strawberries, the first crop had passed, the second was just coming in; apricots, early sorts abundant and beautiful; cherries, in their prime—large, beautiful, and excellent; currants, plentiful and very large; early pears, chiefly Doyenné d'Été and Madeleine; apples, mostly Red Astrachan; figs, gooseberries, and early plums. From all this we came to the conclusion that the period of our visit was more favorable for the objects we had in view than we had expected, and

perhaps, as favorable as any period of the year, as we afterwards found it to be. Thus we had the opportunity of witnessing the harvest, at its height, in the great agricultural districts.

We took immediate steps to ascertain in what localities we should find the best examples, in the several departments of culture and within easy reach of us, and ascertained that the valleys of Santa Clara, Napa, Sonoma, Sacramento, and San Joaquin contained some of the largest and best conducted orchards and vineyards in the state.

SANTA CLARA VALLEY.

Here we visited the large orchard of Mr. L. A. Gould. It consists of three thousand pear trees, four thousand apple trees, thirty-five acres of strawberries, ten acres of grapes; in all seventy-three acres. Grapes are planted among the pears. The orchard was planted in 1855. The pear trees are set at sixteen feet apart, with a grape between every two trees, and two rows of grapes between every two rows of pear trees, thus covering every foot of the ground. The strawberries are grown in rows three and a half feet apart by one and a half feet in the row. The plants in one plot were said to be six years old, grown in hills which were full eighteen inches across, and were bearing ripe and green fruit and blossoms.

Here the strawberry bears two main crops in the year, one commencing in April and one in September; but in fact, it bears the whole year when irrigated as it is here. Mr. Gould has three artesian wells on his premises, varying in depth from three hundred and twenty to three hundred and forty feet, and giving a constant flow of water during the dry season. The strawberries are irrigated by carrying the water along the headlands in wooden flumes about eighteen inches square; stoppers are inserted opposite the spaces between the rows, and then the water is distributed and shut off at pleasure. Mr. Gould had on his grounds a mile and a half of these flumes. The Longworth's Prolific, here and in many other places, was spoken of as the most profitable, and appeared to us to constitute the bulk of this fruit on the market.

The later cherries were in perfection, and were extraordinary for size and beauty, surpassing, as we thought, any we had ever seen in

any country — Napoleon Bigarreau and Black Tartarian especially. The former of these is much cultivated, and sold under the name of “Royal Ann.”

The pear orchard is composed of many of the leading well-known sorts; the trees remarkable for health, vigor of growth, and productiveness. The oldest are about twelve years, and some of these we estimated at thirty feet in height, and a foot in diameter of trunk at the ground. The crop we regarded as too heavy for the future welfare of the trees, and we suggested the thinning of the fruit; but Mr. G. said the low prices of fruit would not justify the expense. We shall speak of prices hereafter. Doyenné d'Été and Madeleine were being picked, and compared favorably with those grown at the east. All other varieties seemed to be in advance of ours in the same proportion. All varieties seemed to do well; many were already, though not half grown, highly colored. Mr. Gould expressed the opinion that the later sorts, such as Winter Nelis, now being extensively planted, Beurré Clairgeau, Doyenné d'Alençon, and Glout Morceau are likely to be their most profitable market sorts in the future.

The apple orchard is less promising than the pear, we thought owing to the ground being too wet at a certain period of the year. Newtown Pippin was said to be the most profitable, and next to that Smith's Cider, White Pearmain, and Winesap.

English walnuts thrive and bear well here, and Mr. Gould has some fine rows or avenues of young bearing trees, and is planting more. We were much pleased with the general good condition and management of this establishment.

We passed from this to the grounds of Mr. B. F. Watkins, adjoining. He has a fruit plantation of thirty-five acres, every part of which is kept in the best possible order. He has seven acres of Longworth's Prolific Strawberry and several acres of Black Hamburg Grapes, grown for the table. Apples, pears, plums, and peaches are all grown successfully. The plums, especially, were heavily laden with fruit. No curculio in California. Here we saw the practice of mulching carried out extensively; and Mr. Watkins, as well as other good cultivators with whom we met, regards it as very beneficial in that dry, summer climate.

Our next call was at the elegant grounds of Jas. P. Pierce, Esq. All the fruits are well grown; but the chief feature is a vineyard of twenty-six acres, composed mainly of Sweet Water, White Muscat of Alexandria, and "Rose of Peru," which latter is much cultivated. As the fruit was not ripe, we were unable to identify it with any variety known to us. The fruits here are grown for market, and last year realized, on an average, about four cents per pound.

A remarkable feature of these grounds was a grape arbor three fourths of a mile in length, thirty feet in width, and twelve feet high, covered with grapes trained in the most elaborate and artistic manner. Part of this arbor is used as a drive, in which carriages may pass.

SAN MATEO.

On Wednesday, the 22d day of June, through the politeness of W. C. Ralston, Esq., of whose princely hospitality we shall speak hereafter, we were taken to the residence of F. D. Atherton, Esq., of Fair Oaks, San Mateo Co., about twenty-five miles from San Francisco.

Mr. Atherton has a charming place. Besides his ornamental grounds, he has an orchard and vineyard of nine acres, to which he gives great attention, and which he keeps in the most perfect order. The ground among the trees and vines had been cultivated thoroughly, not a weed was to be seen, and the surface was rolled as smooth as a floor.

The pear portion of the orchard seemed to have received special attention, and contained a large collection, including the newer sorts. Mr. Atherton's experience with varieties corresponds, in the main, with ours. Joséphine de Malines is one of the best pears, and several trees had been grafted over with it. Grapes looked very well. Muscat of Alexandria showed large, well-formed bunches.

Figs, olives, and walnuts were all in bearing, and looked well. Lawton blackberries heavily laden with fruit just beginning to color, and elegantly trained to a wire trellis. This was the first fruit garden we visited, and we were all delighted with it. It raised our expectations with regard to the future, and they were fully realized.

In the same neighborhood we called at the country residence of Hon. J. H. Selby, Mayor of San Francisco. The grounds are well

planted. In the fruit garden we saw a fine collection of apples trained as pyramids, with stems about two feet in height. Other fruits were all carefully pruned and trained, and the walks were lined with fig trees. We next visited the elegant grounds of Messrs. Barron and Bell, Manor Park, but night prevented further notes.

SAN LORENZO.

June 28, we visited the plantation of Mr. E. D. Lewelling, of San Lorenzo, some miles from San José. Mr. L. has one hundred and twenty-five acres in fruits, grown for market, and is one of the earliest, most experienced, and successful fruit growers in California. On our arrival we found him in his extensive and well-arranged fruit-packing house, preparing apricots, cherries, early plums, pears, and currants for market. All were remarkably fine of their respective kinds. He had sent cherries, that morning, to San Francisco, that measured three and three quarters inches in circumference, and weighed thirty-six to the pound. We thought we never saw such cherries. He sells, annually, about sixty-five thousand pounds of cherries, at from ten cents to forty cents per pound, though some had reached as high as seventy-five cents. All fruits are sold, in California, by weight. The Black Tartarian commands the highest price.

He has forty acres of Cherry currants, and the sight of this plantation will convince any one that the Cherry currant is not unproductive; indeed, the bushes were covered with masses of fruit of enormous size. He has sold one hundred and forty thousand pounds in one year, at from nine to eleven cents per pound. Both cherries and currants are put up in boxes of ten pounds each, and twelve boxes in a case. Plums are profitably grown, and are packed in twenty pound boxes.

Of blackberries he has eight or ten acres, all Lawton. The crop is not more than fair. These are packed in five pound boxes. Generally the blackberry does not succeed so well as at the east, though we met with occasional exceptions, which we will refer to hereafter.

Pears are packed in fifty pound boxes, and apples in sixty pound. This orchard was planted fifteen years ago. Pears succeed well; and in regard to varieties, we might repeat what we said in speaking of

Mr. Gould. Mr. Lewelling has produced the Pound, or Uvedale's St. Germain pear, weighing four pounds and three ounces.

Almonds are successfully grown — the soft-shell varieties — Languedoc and Lewelling's Standard, a seedling of his own. We saw one tree, fourteen years old, fifteen inches in diameter, that has yielded three bushels, and were sold at twenty-eight cents per pound. He has two thousand almond trees planted. The English walnut is also grown extensively, and some of the trees are already large enough to produce some two bushels of nuts each.

Mr. Lewelling prefers the peach and apricot for plum stocks, as they produce no suckers, whilst the plum is troublesome in that respect. It may be well to state here that the currants are trained in bush form, on single stems, and the branches are carefully shortened during the growing season, to keep them compact and prevent breaking down. While speaking of currants, we may as well add that a company has been organized for the purpose of manufacturing beet sugar, and the same company will manufacture currant jelly, which is now prepared extensively in San Francisco.

The sugar beet is produced here with great success. It attains fully twice the size and weight that it does with us in one season. We were informed of single ones weighing over one hundred pounds. An enterprise of this kind, well managed, can scarcely fail of success. We were much pleased with the arrangement and management of this extensive establishment, every part of which is accessible, through broad avenues thirty-two feet wide, the whole enclosed with fine hedges of Osage Orange and *Cerasus illicifolia*, called the California Holly. Some objects in the way of ornamental trees worthy of note, we shall refer to hereafter.

A short distance from Mr. Lewelling's, we visited the orchard and vineyard of Mr. E. T. Crane. He has thirty-two acres, including a large plantation of Cherry currants in great perfection. The balance of his orchard was made up of cherries, pears, apples, etc., besides a small vineyard. This place is well managed, and was very satisfactory. Mr. Crane's experience with varieties is the same as Mr. Lewelling's. The Newtown Pippin is the most profitable apple.

SAN JOSE.

At San José we visited the extensive orchard and nurseries of Mr. B. F. Fox. Unfortunately Mr. Fox was not at home, but his foreman conducted us over a part of his grounds. Mr. Fox is one of the pioneer orchardists of that region, and a large portion of his trees are well advanced in growth. The fruit was generally good. Early apricots and pears were going to market. Both apricot and nectarine trees were heavily laden with large and beautiful fruit.

Here, too, we made a call at the fine grounds of General Henry M. Naglee, where we found a large and well-managed vineyard, the fruit of which is wholly used in the manufacture of brandy, in which the general is said to excel. We found here many ornamental trees of interest, to be spoken of hereafter. Had our time permitted we should have visited many other orchards and vineyards in this rich and beautiful valley. The Valley of Santa Clara, in its agricultural as well as horticultural aspect, is exceedingly interesting; and our visit there will long be remembered by our party as one of the most agreeable and instructive incidents of their travels.

NAPA VALLEY.

On June 29 we visited the orchards of Mr. Simpson Thompson, at Suscol, in the Napa Valley. Mr. Thompson has one hundred acres under fruit culture, besides a large farm. Here we found one of the largest and best apple orchards we had seen. The Early Harvest and Red Astrachan were fit to gather. Williams's Favorite was largely planted, and looked remarkably well. The following sorts were named as the most profitable: Williams's Favorite, Early Strawberry, Summer Rose, Red Astrachan, Early Harvest, Winesap, Rawle's Janet, Newtown Pippin, White Pearmain, Roxbury Russet, Rhode Island Greening, Yellow Bellflower, and Smith's Cider. Northern Spy and Baldwin failed, and had been grafted over with Yellow Bellflower and other sorts. Newtown Pippin did best of all.

Mr. Thompson was one of the earliest fruit cultivators in the state, since the discovery of gold. He informed us, that when he commenced he planted peach stones, and in eighteen months from the

planting gathered fruit from the trees, and sold them in San Francisco at enormous prices. The Duke cherries are extensively grown here, being found more profitable than the other classes.

From Mr. Thompson's we proceeded to "Oak Knoll," the residence of R. B. Woodward, Esq., some four miles from Napa, in the heart of the beautiful Napa Valley. Mr. Woodward has one hundred and twenty-five acres in fruit, all in the finest state of cultivation, the only defect being that the trees stand too close together. The oldest trees are twelve years planted, and many of them are eighteen inches to two feet in diameter of trunk, and twenty-five to thirty feet in height; we should think more than twice the size they would attain with us in the same time. Of the one hundred and twenty-five acres, twenty-five are in grapes, fifty in apples, and the balance in pears, cherries, etc. All the trees are models of health, vigor, and productiveness.

The pears consist of all the leading sorts. Of apples, the following were named as the most profitable: Early Harvest, Red Astrachan, Fall Pippin, Fallawater, Yellow Bellflower, Smith's Cider, White Winter Pearmain.

The vineyard contains some twenty to thirty of the best varieties of foreign grapes, including the Muscat of Alexandria, Black Hamburg, etc. The grounds of Mr. Woodward are very extensive, the whole estate containing some twenty-three hundred acres. The grain-fields, seen from the lawn, were grand, and near the residence is a fine, well-planted lawn. This establishment itself, and the beauty of the surrounding scenery, gave us great pleasure.

On an adjoining estate, Mr. Woodward took us to see a steam threshing machine in operation, in the centre of a great wheat-field. The force employed was a twelve-horse power engine, twelve men, and five horses. The quantity of grain threshed was eight hundred to one thousand sacks, of one hundred pounds each, per day. Two-horse power forks were employed in feeding the machine.

SONOMA VALLEY.

On Thursday, June 30, we visited Sonoma, a place famous for its vineyards. We went from Napa by carriage. The ride over the finely-

wooded hills, through a rich farming district, was delightful. As we came in view of the valley, with its broad vineyards — more than one thousand acres — and fields of grain, with the richly-wooded hills beyond, the scene was enchanting.

Our chief point of destination was the vineyards of the Buena Vista Vinicultural Company. The President, William Blanding, Esq., had kindly invited us, and agreed to meet us there. In approaching this establishment, we left the main road, and passed through several vineyards.

At that of Mr. Louis Tichnor we made a brief halt, and visited his cellars. He kindly presented samples of his wines — Reisling, from the famous German Reisling grape; another, from Reisling and Chasselas combined, and a red wine of Burgundy character, made from the Zinfindal; and Muscatel, from the Muscat of Alexandria, which is used in flavoring other wines. Mr. Tichnor's vineyards cover one hundred and forty acres, and he makes forty thousand to fifty thousand gallons of wine annually. One of his cellars contains one hundred thousand gallons, and another one hundred and fifty thousand. Our party were well pleased with these wines. The cellars and all their appointments were of the most complete character.

The Buena Vista Company's vineyard was commenced some fifteen years ago, and contains now, according to their annual report of last year, four hundred and forty-one acres, — one hundred and twenty-seven acres in full bearing, one hundred and sixteen and a half acres in half bearing, one hundred and twenty acres partly in bearing, seventy-one and a half acres planted in 1867, 8, 9; in all, nearly three hundred thousand vines. The product of 1869 was fifty-eight thousand four hundred and thirty-five gallons, said to be not more than half as much as the year previous, partly owing to the heavy crop of 1868, and partly to unfavorable weather during the ripening of the grape. The principal wines made by them are the White and Red Sonoma and Sparkling. The grape used is chiefly the "Mission," as it is known here. The price of the still wines is fifty cents per gallon, and the sparkling ten dollars and a half per case of a dozen. The cellars are cut out of the solid rock, are very extensive, well arranged, and kept in perfect order.

The vines are grown in tree form, without stake or trellis; the stems from two to three feet in height. Some of the oldest are fully six inches in diameter. No summer pruning is practised farther than the removal of superfluous shoots early in the season. The bearing canes are allowed to run their full length, spreading over the ground, which is kept clear and well cultivated. They are planted eight feet apart. The cost of cultivating is estimated at twenty-five dollars per acre, but others put it higher than this. The average product per vine is about ten pounds. Twelve to fifteen pounds give a gallon of must. The Mission grape is most productive, and frequently yields forty to fifty pounds to a vine; the Reising not over four or five pounds. The soil and situation of this company's vineyard are both highly favorable for the business.

Mr. Blanding, the president of the Society, is also president of the California Silk Company, at Davisville, in Yolo County. The company has there three hundred and fifty acres in trees — one hundred acres in mulberry, for feeding the silk-worm; ten thousand Languedoc soft shell almond, the fruit of which sells readily at twenty-five cents per pound; and the balance in cherries, figs, grapes, etc.

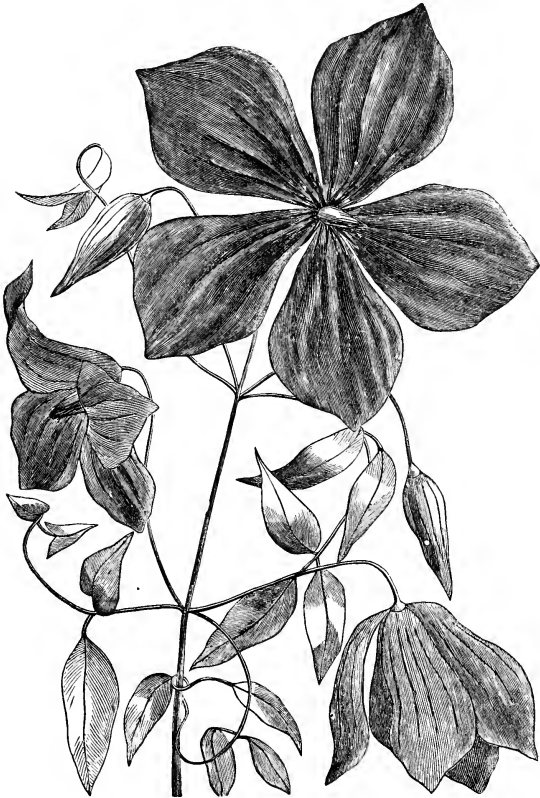
A short distance from the Buena Vista Company's grounds, we visited the vineyard of S. A. Shaw, Esq., president of the Fruit Grower's Society of Sonoma. His vineyard covers sixteen acres, and is composed of Muscat of Alexandria, Black Hamburg, Rose of Peru, and a few other sorts, planted in 1858 and 1859, and grown in the same way as those of the Buena Vista Company. The stems of the oldest vines are four to six inches in diameter, set eight feet apart. The fruit is all sold for the table, and usually averages ten cents per pound. This vineyard is in fine condition, and was inspected by our party with much pleasure. The proprietor, Mr. Shaw, and his brother, who has a vineyard adjoining, accompanied us very kindly, and gave us much information in regard to the culture of that neighborhood.

We could have spent another day, or even two, very profitably, in that district; but our engagements, made beforehand, at other places hurried us along.

CLEMATIS JACKMANI.

By FRANCIS PARKMAN, Jamaica Plain, Mass.

ONE of the luckiest hits on record in the hybridizing of flowers was



CLEMATIS JACKMANI.

that made some years ago by the Messrs. Jackman, nurserymen at

Woking, England. They fertilized the pistils of *Clematis lanuginosa* with the pollen of several deep-colored varieties of *C. viticella*. The former species is a rampant grower, not perfectly hardy, with a very large, light-blue, star-shaped flower, of great beauty, but more suited to the green-house than to the open air. *Clematis viticella* has a much smaller flower, shaped like a Maltese cross, and is among the hardiest of the genus. Some of its varieties are extremely vigorous in growth, but *C. viticella Hendersoni*, one of those used in the experiment of the Jackmans, does not exceed six or seven feet in height.

The seedlings first bloomed in 1862, and at once made a sensation among horticulturists. The most remarkable among them, and the one which may serve as a type of the whole, is that which bears the name of the originators. It grows with extreme vigor, and bears a profusion of flowers, of a deep purplish blue, usually with four petals, after the male parent, but occasionally with five or six, like the female. It is entirely hardy, and easily cultivated in any rich, light, well-drained soil. A liberal supply of manure is indispensable, if it is expected to do itself justice. The bloom begins about the end of June, and continues through most of the season. As it does not bloom on the old wood, — or wood of the preceding season's growth, — but on the new, it should be pruned back every spring to within a foot and a half of the ground. It then begins at once to throw out its long shoots on all sides. These may be allowed to trail on the ground, pegging them down, to keep the wind from blowing them about, or they may be tied up to a wall or a pillar. The Messrs. Jackman recommend growing it in hills, like hops, planting three tall stakes to support the shoots. It will then, they say, present, towards the close of summer, the appearance of a pyramid of lustrous green, almost hidden beneath hundreds of flowers of vivid blue. We must say, however, that we have never seen it, in this country, equal to their glowing description, or to the engraving with which they illustrate it in their catalogues. We believe, nevertheless, that in a highly enriched, light, calcareous soil, it would justify all that has been said in its praise.

Chalk or lime rubbish would be an excellent addition to the soil in which it is planted, supplying the calcareous element, in which, like all

the clematis, it delights. Early in autumn it should be mulched with a liberal quantity of manure, which should be dug in around it in the following spring.

GRAPES AND GRAPE CULTURE.

By GEORGE W. CAMPBELL, Delaware, Ohio.

IN my last article upon this subject, I proposed to consider a class of grapes among which are found our finest varieties; namely, those which partially succeed in most localities, but only give their best results where their special needs are supplied.

The most perfect type of this class is the *Delaware*. In quality, when well ripened and in good condition, it has no superior among American grapes; and I doubt if any one of the newer introductions would be regarded by any considerable number of intelligent horticulturists as its equal. Its hardiness I have proved by twenty years' experience to be perfect — enduring, as it has repeatedly, twenty-five degrees, and, in one instance, twenty-seven degrees below zero, without injury. I believe that, when healthy, and with the wood well ripened, the Delaware will endure the winter unprotected, wherever its fruit can be matured.

As to productiveness, its only fault is its tendency to overbear; and this, combined as it is in some localities with an unfortunate liability to *oidium*, or mildew, is exhaustive of the energies of the vine to a degree often involving its destruction.

This liability to mildew of the foliage, in many locations, is the only hinderance to the successful cultivation of the Delaware on the most extensive scale; and, although I believe much might be done to remedy this evil, it certainly must be admitted to exist to a degree which threatens in many regions the exclusion of this admirable grape, and the substitution of inferior varieties, with coarser and heavier foliage, better adapted to resist its attacks.

At present, selection of congenial soil, good cultivation, judicious

pruning, thinning of the fruit, and the application of sulphur to the foliage early and during the growing season, seem the most important, if not indispensable requisitions to its successful culture. With these I believe reasonable success may be had in nearly all sections at all suited to grape growing.

Some slight artificial protection to the foliage of the Delaware, either from the intense heat of the summer sun, or from extremes of temperature, seems to enable it to withstand the attacks of mildew, even without the use of sulphur. I have had Delaware vines in bearing upon the south and west stone walls of my house, partially overhung by projecting eaves, without a single failure for fifteen years, the foliage remaining healthy and the fruit always ripening. I have noticed equally good results on north and east stone or brick walls, all which I attribute to the protection and equalizing influences of the walls upon which the vines are trained. I have also observed that, where the canes of Delaware vines, which are planted near some pear trees in my garden, have run among the branches and foliage of the trees, the leaves of the vines have remained green and healthy, and their growth has been strong and vigorous, even in unfavorable seasons, and when vines not thus protected have mildewed badly, and made only weak and imperfect growth.

This suggests an idea which may be worthy of consideration and adoption. In planting Delawares in vineyard, where trellis is used, let every other vine be a Concord, Martha, or other strong-growing variety, with abundant and mildew-resisting foliage. Train the Delawares upon the lower wires of the trellis, and the others upon the upper wires immediately above them. I have reason to believe the partial shade and protection afforded by this means will enable the Delaware to escape the attacks of mildew, and ripen its fruit in cases where it would fail if fully exposed.

Now, as to the pernicious effects of over-bearing, I have little doubt that thousands upon thousands of Delaware vines are either killed outright, or so weakened and impaired by excessive over-bearing in their first season's fruiting, that they are diseased and worthless ever after, and that a large proportion of the failures to grow Delawares successfully are mainly, if not wholly, due to this cause.

Injudicious and excessive summer pruning I believe to be another frequent and serious cause of weakness and liability to disease in all vines, but more especially with those of moderate growth and delicate foliage, like the Delaware. Hence the only summer pruning which I consider useful consists in pinching out upon their first appearance all superfluous shoots not needed as fruiting canes for the ensuing year, and in checking, by pinching off the ends of the strongest fruiting shoots at two or three joints beyond the last cluster, leaving the weaker branches to run, and, as a rule, leaving these weaker ones with but one bunch of fruit. This, with pinching out from time to time the laterals from the fruit canes for next season's bearing, at one joint from the main cane, constitutes all the summer pruning that I can regard as necessary in any case. By this means the growth of the vine may be guided and equalized, and its energies directed wholly to the production of fruit and perfectly ripened wood for future bearing, and without any excessive or severe pruning at any time during its period of growth. By observing the above suggestions, I have no doubt Delawares may be grown successfully in many places where they have with ordinary treatment or neglect usually failed.

The *Creveling* is another grape to which many of the preceding remarks are equally applicable. It is of somewhat stronger growth than the Delaware, has also heavier foliage, which resists the attacks of mildew rather better; but it requires a rich and congenial soil, without which it gives no satisfaction. It is, when favorably situated, quite hardy, a good grower, and productive; but its natural habit seems to be to produce a large proportion of straggling and uneven bunches, loose and irregular, with very few that can be called handsome. It ripens early, however, and is certainly among the best, if not the best, in quality of any of the black grapes that have been at all extensively introduced.

The *Adirondac* is perhaps nearest it in quality; but this variety has the misfortune to be in most places a poor grower, and very liable to be winter-killed without the most careful protection.

The *Israella* is hardier than the *Adirondac*, and a better grower; has also, usually, compact and handsome bunches, but has been with

me always inferior in quality, and in this region not a desirable variety.

The *Eumelan* grape seems to have many good points ; among which are, earliness in ripening, productiveness, and good quality. It is, to my taste, among the best flavored of our black grapes. The vine is also vigorous in growth, and although the berry is small, the clusters are of fair size, compact, and well-formed. I regret to say, however, it has shown a most unfortunate tendency to mildew of the foliage in this locality ; young vines in the same ground suffering more in this respect than Delaware, Allen's Hybrid, or even Diana Hamburg. I have not tested the *Eumelan* sufficiently to warrant me in recommending it for general or vineyard culture ; but I consider it at least worthy the attention of amateurs, and of a fair trial in all favorably situated grape growing districts.

The "celebrated *Walter*" may possibly, upon further trial, be also found worthy of attention ; but I regret to say my experience with it has been singularly unfortunate. No plant of it has ever yet made a respectable growth here ; and last season, notwithstanding every care, accompanied with repeated applications of sulphur, it mildewed absolutely to death. The present season it is, in common with nearly all others, free from mildew, but in growth and habit it is weak and unsatisfactory.

NOTES ON STRAWBERRIES AT THE WEST.

By B. HATHAWAY, Little Prairie Ronde, Michigan.

THE season just closed, for this fruit, has been one of marked character throughout the west, and one from which growers may take a lesson to their advantage.

Last winter was very severe on all small fruit plants not fully protected ; not because of any great degree of cold, but from long-continued freezing and thawing ; so that, when the spring opened, many plantations, that looked promising in the fall, were so badly damaged

as to give small hopes of a paying crop, and some were given over to the plough.

The weather, however, in most sections, was favorable for the development and bringing to maturity what fruit germs remained uninjured; and the growers who had given their plants good culture, and even a slight protection, have generally had a fair and often a fine crop of splendid berries, and have realized good prices.

True, the drought in some regions, especially farther south, came in to finish the work of destruction the winter had so well begun. But even there the advantages of a thorough preparation of the ground, good culture, and winter protection have been so obvious, that intelligent growers will not be likely to misread the facts.

The Wilson. — Of the varieties grown, this old standard sort still takes the lead, though the manifest disposition among growers to give others a trial would imply that it is not altogether satisfactory. The past season's experience will not be likely to lessen the feeling, as it has proved, at least, that we have other kinds of greater hardihood, if not possessing all the valuable characteristics of this.

Nicanor. — This sort has some points of merit, and, while we are waiting for something better, will do to plant for its earliness, as it ripens some days in advance of the Wilson. The berry is not as large as is desirable, but there are few very small ones; and, though the plant is not as vigorous as one could wish, it is, under good culture, quite productive, and the fruit of good flavor.

Agriculturist. — I am led to infer, from my experience and observation, that this variety has been successful only in a few localities at the west.

I have retained it for the few very large berries I get, and because it has done better on the whole than such sorts as the Tribune berries and the Russel. I am led to think that this failure is due, in part at least, to a want of proper fertilization. Some recent facts confirm this view.

A few plants were set by mistake in hills of the Michigan, — a sort marked by very strong sexual characteristics, — and the result was so remarkable in the production of large, well-developed

berries, that it was greatly suggestive of further experiment in this direction.

Charles Downing.—This has proved with me a large, showy berry, of fine flavor, but rather soft, and not sufficiently productive to entitle it to any large space on the grounds of the general grower, unless in the immediate vicinity of a market that will sustain a fancy price. It will, perhaps, be a favorite of the amateur, though, like its parent, the foliage is not entirely healthy.

Colfax.—This variety has probably given more dissatisfaction than any other sort sent out with blare of trumpets for many years, excepting, possibly, the Mexican Everbearing. And, as with that, it is very unfortunate for the best interests of horticulture that it was ever sent out at all, whatever may be the result to the disseminators. If it was supposed that its great vigor of plant and its habit of productiveness would sustain such faults as diminutive size, insipidity of flavor, softness, and a tendency to quick decay, it was a most egregious blunder.

Henceforth every new fruit, however worthy, will be likely to be received by a more cautious public at the same discount from its assumed value.

The Emperor.—This would scarcely require a notice but for its connection with the foregoing in its dissemination. Whatever may be claimed for its origin, that it is simply the Agriculturist is the testimony of every intelligent observer.

Out of all the thousands of seedlings that I have raised in the past fifteen years, I have never found one (except in the Alpine class) that was just like its parent in any *one* particular, — size, form, flavor, habit of plant, vigor, or productiveness, — while this sort is the Agriculturist in *all* particulars. Let some one calculate the chances for this being a new variety.

Napoleon III.—This variety has been quite persistent in obtruding itself upon our notice through the papers for several years; and the fruit should be abundant in the market by this time, if half the claim put forth by its disseminators, in regard to its value, is true. With me it is worthless, scarcely giving me fruit enough to pay for picking.

Barnes's Mammoth.—Not so good as Charles Downing, nor as

productive. At the west it is a failure, I think ; on my grounds it is, at least.

Jucunda. — I confess that all my condemnation of other sorts should be moderated when I come to speak of this variety. There is but one other that has proved its equal in the failure to establish any claim for value, and that is the Durand. I have kept these on my place while discarding more valuable sorts, — such as the Tribune berries and Russel, — simply to have a standard of worthlessness. They will not, under the best culture, give me one tenth of the fruit that I get from either of a half dozen other sorts.

The Michigan. — As this variety was originated and sent out by me, modesty would perhaps dictate passing it over in silence. But as it is fairly gone out, and in the hands of many leading growers, both east and west, whatever I may say in its praise can hardly be counted or construed into an advertisement, except so far as its good qualities may be confirmed by the experience of other cultivators, under other conditions.

I have about one half acre of this variety, from which I picked, this rather unfavorable season, nearly or quite two thousand quarts, planted two by four feet.

As it is a week later than the Wilson, I find a paying home market after that variety is gone. My plantation had no winter protection, and gave a crop as above, while rows of Wilson, Jucunda, etc., were nearly ruined. As it makes few runners and large hills, I find it but little labor, comparatively, to keep down weeds and grass.

It may only serve to show more clearly the local adaptation of most of our strawberries ; but there is no sort I have ever tried that will give me so much fruit from the same ground or the same labor as this berry.

President Wilder. — I have not had this long enough on trial to enable me to speak with any degree of certainty as to its value for the west, and can only report a healthy growth of plant.

GRAPE CULTURE AND WINE-MAKING IN SOUTH CAROLINA.

By EDWARD F. UNDERHILL, BROCTON, N. Y.

FOUR months passed this year in South Carolina afforded me an opportunity to observe the progress made in vineyard culture in that southern state. The territory is diversified. The coast country is flat, and away from the sea view is uninteresting, though rich and productive. The middle country is gently undulating, and the upper country is mountainous. In the lower counties the wide and extended swamps on either side of the numerous rivers induce a humidity of atmosphere which makes success in planting vineyards doubtful. The luxuriant growth of hanging mosses, suspended in rich and beautiful festoons from the oaks and pines, tell the story of constant moisture in the air; and market gardeners around Charleston have informed me that their attempts to cultivate the grape vine have never proved profitable. But in the middle country the atmospheric conditions are different, and wild grape vines of rank growth are to be found in nearly every wood. It was here that the Catawba was found wild, more than a half century since, to be transplanted to a less congenial clime in the north, and there, by careful culture, to obtain a fame coextensive with the nation. The Herbemont, too, had its origin in this region, and elsewhere it is gaining a wide-spread popularity, by reason of its excellent qualities for the table and for wine. The Scuppernong (of which more anon) grows rampant, and gives, each season, an immense yield of fruit; and Muscadines are found wild in nearly every forest.

But grape growing in this state is in its infancy, and is characterized by crudeness of method and carelessness in culture. Well-trained vines and carefully-cultivated vineyards are the very rare exception to the general rule. Even the taste of the people, as applied to grapes, is very primitive; and to-day intelligent South Carolinians will speak in terms of enthusiastic admiration of the Scuppernong, both for des-

sert and for wine! Vineyards are planted with it, to run, almost unchecked, over rude arbors; and, with weeds in abundance below, the vines scarce ever fail to bear heavy crops of fruit, in spite of careless culture, or, oftener than otherwise, no culture at all. It is more popular than the Catawba, of which but few of the people of South Carolina have ever tasted, though it was born on their soil. And as to the Herbemont, only a few vines are to be found in the state, and scarce any of the people are aware that in Missouri, and other states on the same parallel, it is cultivated in large vineyards. The result is, that very few southern grapes ever find a northern market, and they the Catawba only.

Southern people cannot comprehend the indifference, not to say repugnance, of residents from the north to the Scuppernong grape. When told that it is deficient in sugar, they insist that it is one of the sweetest of grapes; and to the taste it has an insipid sweetness, only apparent because of its utter want of character, occasioned by a lack of the proper elements of acidity. The must scale is the touchstone which dispels the illusion of the supposed sweetness of grapes, and proves that the seemingly sour Clinton has vastly more sugar than many of our most popular grapes even at the north. Indeed, the admirers of the Scuppernong confess judgment, when they admit that from a pound and a half to two pounds of sugar must be added to the expressed juice of their favorite, in order to make a white wine that will be drank at all. But the addition of this amount of sugar generally fails to satisfy the tastes of the consumers of southern wines. Like many of our rural population in the north, they have no fondness for wines akin to those of Bordeaux and the Rhine, but must needs have more sugar added, until the character of the product is lost in what is nauseating sweetness to the connoisseur. In nearly every instance when I was shown southern wines, I was informed in advance of their excellent qualities. Corks were drawn with a seeming conscious pride in exhibiting the production. A taste was sufficient to satisfy my immediate longings for wine, and I was forced to compromise with a vinous thirst, by accepting the fashionable beverage of the

garden of Eden. But sugar is not all that some southern palates require to make wine acceptable. Another ingredient is added — the grand climax as set forth in the quatrain recipe for making punch: —

“A little sugar to make it sweet,
A little lemon to make it sour,
A little water to make it weak,
A little *whiskey* to give it power.”

So whiskey is added, as a quicker mode of adding alcoholic strength to wine than the slow process of vinous fermentation. I did not taste a glass of dry Catawba even, except that which was made in the north, from the product of northern vineyards. A few hundred, or, at the most, a very few thousand gallons of wine, is the greatest amount produced by any one manufacturer in the south, and, having an eye to profit, he makes what the people will buy. But in Charleston and Columbia, the two principal cities, where something like a correct taste in reference to wines has been acquired, I found the wines of Bogen, of Cincinnati, and Ryckman, Day & Co., of Brocton, on sale, and both gaining a just popularity.

The only palatable southern wine I tasted was made by Mr. H. Riggs, of Orangeburg, who manufactures it annually from the grapes of a small vineyard. It was made of the Scuppernong, and to bring it up to the saccharine standard for a light, dry wine, he added two pounds of sugar to the gallon of juice expressed from ripe grapes. At two years old, it had obtained a smoothness and pleasant flavor not unlike some of the lighter German wines. Mr. F. W. Briggman, of the same place, has a fine vineyard in bearing, planted mainly with the Catawba and Black July. With the thoroughness of the German, Mr. Briggman has made his vineyard a model of neat culture and careful training, and already it is a source of profit. He has made wine for several years, and is trying to create a local demand for dry wines. His Catawba I could not judge of in comparison with the wine made in northern cellars, because it was mixed with the product of other grapes. Samples of the Black July I found to be in flavor not unlike some of the cheaper Spanish wines, but without the brandy added by

Spanish vintners to suit the perverted English and American taste. Mr. Legaré, also of Orangeburg, has a fine vineyard of several acres, mainly Clinton and Scuppernong. The former is a favorite with him, but he is testing other and newer varieties. Dr. Vampil, of Mullin's Station, near the North Carolina line, has a large vineyard in bearing, and he makes, each year, a considerable quantity of wine. He prefers the Scuppernong, and by the addition of considerable sugar he has produced a wine possessing some of the characteristics of Madeira. But to a person accustomed to good wines, either native or foreign, it is far from pleasant to the taste.

Some of the finest and most extensive vineyards in the state are at Aikin. There the grape attains perfection by reason of the admirable conditions of soil and climate. The surface is a light sand, but underlying it is a red ferruginous clay, and the whole is so porous that water never remains on the surface. The air is so dry and wholesome, that hundreds of consumptives from the north go there, and remain until the heat of the dog-days at home will permit them to venture north. Mr. J. C. Derby, formerly of New York city, has there an extensive vineyard, planted largely with Catawbas. It is cultivated with care and profit. Last year he shipped a large quantity of Catawbas to New York, the shipment being the first arrival of that variety. As an indication of the behind-the-age characteristics of the south in the matter of manufactures, I will mention that Mr. Derby, with forests of pine all about him, was compelled to send to Fairchild Brothers, of Hammondsport, N. Y., for his grape boxes, and have them transported over a thousand miles, by rail and water, to be shipped back again to New York city. Another extensive vineyard near Aikin, formerly owned by M. de Carraduc, has recently passed into the possession of Captain Ruxton, an intelligent Englishman, who has already accomplished much in bringing the property under good cultivation. Last year, both he and Mr. Derby made a considerable portion of their crop into wine.

A gentleman who has been for several years engaged in extensive experiments to insure the success of grape culture in the south, is Dr. Wylie, of Chester, S. C. Experience having shown that most of

our standard varieties in the north are not adapted to the south, he has seen the necessity of developing new varieties, which shall possess intrinsic merit in the quality of the fruit, and, at the same time, be certain of successful vineyard culture.

The Scuppernong has a freedom from disease, and, as already stated, is wonderfully productive; and Dr. Wylie has aimed, through hybridizing it with other varieties of known excellence, to produce new grapes which shall combine the superior qualities of both parent stocks. He has been assiduous in his efforts, and I am told that his new grapes give every promise of excellence in the quality of the fruit, and productiveness and healthiness of the vines. If experience shall show that he has succeeded, he will have done much to advance grape culture in the south.

South Carolina presents a fine field for grape growing and wine making. Good grape lands, which have been planted with other crops for years, and in desirable localities, can be had in abundance at prices varying from three to ten dollars per acre. Indeed, planters have told me that they would give any practical grape grower as much land as he wanted to plant a vineyard. The growing season is long. The buds burst during the last days of March or the first days of April, and the autumn frosts do not come until the middle of November, and often later. Catawbas are ripe for market early in September. The only difficulty in entering that branch of industry, is to determine what varieties to plant. The Isabella does not succeed. The Delaware is not adapted to that latitude. The Catawba has been more or less affected with disease. The Concord has been guilty of irregularities which lead men to doubt the expediency of planting it there. Hence vineyard culture in the south must be largely experimental for a few years to come; but that extensive tracts of its territory will, ere long, attain a just reputation for its wine-producing qualities, I cannot doubt.

July 10, 1870.

A WORD FOR FLOWERS.

By A LADY.

THE cultivation of flowers, and the improvement of stray patches of ground, is becoming much more general than it was a few years since. It gives us more respect for the inmates of a humble dwelling to see a pot of flowers in the window ; and many people, with an eye for the beautiful, but small means of gratifying it, are not aware how much can be done in this way with very little expense. It is an easy thing for the man of wealth and taste to have beautiful grounds ; but to turn practical things to prettinesses, and accomplish something that shall rival the Frenchman's soup made of a chip, is not so easy. We propose showing, however, that it may be attempted.

Many despised things that grow at our very doors are capable of great beauty, if properly managed ; and in this connection we do not hesitate to say that the common morning glory has never been half appreciated. It is generally regarded as the coarse parent of a beautiful family ; the rich convolvulus, the delicate ipomœa, are of the same nature, but they are the pet and pride of the cultivated gardener, while the morning glory is often thrust aside as a worthless weed. And yet far more can be done with the despised vine in the way of ornament than with the delicate favorites.

A tangled mass of morning glories in full bloom is really a beautiful sight, and a most effective screen for ugly fences and dilapidated buildings. Mrs. Stowe writes of a woman whose inward longings and outward surroundings were quite inharmonious, and whose eye for the beautiful was constantly tortured by an unsightly hogshead that was her only hope of rain water. In a moment of inspiration, morning glories flashed into her mind ; the ugly hogshead was immediately encircled by a border of seeds, and strings prepared for the accommodation of the young vines. In six weeks from the time of planting the object that had once distressed her was the admiration of every passer-by, and the delight of its proprietor.

Morning glories can be grown in winter in a sunny window, and

trained over the wood-work, forming a brilliant natural curtain. The green leaves of the morning glory are beautiful, even without blossoms; and they soon form so dense a mass that they are invaluable as a covering.

Another winter ornament for windows is the nasturtium or tropæolum, with its brilliantly colored varieties; a piece of this broken from the plant, and placed in a bottle of water, will soon take root. A string can be tied to the neck of the bottle, and then fastened to a nail in the wood-work at the side of the window; if the bottle is kept carefully filled with water, and the situation is neither too warm nor too cold, the plant will climb and bloom in the depth of winter.

A rockery arranged with taste is ornamental to the humblest grounds, and a simple one is easily made. Stones are not difficult to obtain; and, after marking out the size of the circle to be covered, place a layer of these and a layer of dirt, graduated towards the top, in succession, until the structure is high enough. It is pretty to have the top level, and filled with some creeping plant like the portulaca. A few large shells add to the beauty of the rockery; and small plants like the lobelia, dwarf nasturtium, anagallis, gentiana, portulaca, etc., are especially desirable for this purpose. Many pretty things, such as wild strawberry, small ferns, and mosses, can be brought from the woods, and made to flourish in the rockery.

Another beautiful ornament for rustic grounds is the stump of an old tree, hollowed out and filled with earth — or, what looks like it, a half barrel sunk in the earth, and covered with strips of bark nailed on. Petunias, phloxes, verbenas, scarlet geraniums, and anything bright, that is not too tall, look well in these novel flower-pots. Small boxes can be covered with bark, and placed on the railing of the veranda; these, filled with lobelia, or various colored maurandias, have a very pretty effect.

Hanging baskets are always graceful, in doors or out; and these can be made of so many simple, inexpensive things, that none need be without them. A basket can be cut of pasteboard and sewed together, then lichens of various colors glued on the outside; inside, a common bowl or flower-pot filled with earth; strings to suspend it, and your basket is complete. Another very pretty one is made of pasteboard,

with small cones, grains of coffee, etc., glued on and varnished. The cup part of a goblet, with bright scarlet worsted crocheted over it, and scarlet cord to fasten it, makes a small and pretty basket. The contents of these baskets are as various as the baskets themselves. Almost any low plant, anything that trails, or anything that is likely to bloom in winter, is desirable. These suspended plants impart a look of cheerful refinement to the plainest room; and, when snow and sleet are raging without, their bright green leaves seem to whisper of coming summer.

There is usually one room, at least, in every house, where a few pot plants can be cultivated to advantage. The great mistake is to give them too much heat, and too little sun; but roses, geraniums, and heliotropes, sometimes smile out at us in the depth of winter from very humble quarters. The ivy geranium is a great favorite for this sort of culture, as its beautiful leaves are ornamental without blossoms. The English ivy is easily trained over doors and windows, and grows almost anywhere, forming beautiful festoons of dark green leaves, and clinging to the slightest support. It is beautifully trained in masses by planting it in a large pot, and twisting it around small hoops.

Almost any ingenious person can make original flower-stands, pot-covers, hanging baskets, and various things in which plants can be suspended, twined, or otherwise arranged, to the adornment of a room. Some one once said that an open fire was the handsomest piece of furniture that could be put in a room; next to this we would place flowers. A single pot of violets is worth more than some showy ornament; and frequently people who say that "they cannot afford to buy flowers," waste money on things that are positively hurtful.

Not a square foot of ground should be allowed to run to waste; those portions that lack sun can be filled with pansies and other shade-loving plants; and a little taste and labor will soon make the most unpromising spot a thing of beauty that is a joy forever. It is more health-giving and more lasting to make living flowers where all can see them, than to embroider dead ones on garments that seldom meet the eye. A rake or hoe, in place of a needle, is a most desirable exchange; and the bright flowers, that some one has aptly called "God's smiles," will fill the mind with beautiful thoughts, and raise the heart to that bright clime where storms never come to wither the blossoms.

SOME TALK ABOUT SUMMER PEARS.

THE two earliest pears, the *Amire Joannet* and the *Petit Muscat*, are seldom seen now, and, compared with the large, fine sorts which come later in the season, they certainly are not of much value. Yet we confess to a liking for them; partly perhaps for old association's sake, and partly because they surprise us so early in the season, with the promise of the cornucopia of pears which September pours out at our feet. We would not give them a place to the exclusion of better kinds, but if we had sufficient room we would certainly plant at least a dwarf tree of each, if it were only for the pleasure of seeing the branches so thickly covered with the clusters of pretty little red and yellow pears, as soon as the cherries are gone.

The *Amire Joannet* is a little the earlier and the better of the two. Though among the oldest varieties in cultivation, unlike many other ancient kinds, they show no signs of decay. Both are vigorous growers, with spreading, open tops; and we have known more than one instance where the *Petit Muscat* has been grafted over, even a second time, with newer kinds which have died out, when strong shoots of the original kind have sprung out in all their pristine vigor.

Next to these come the *Madeleine* and *Doyenné d'Eté*, both ripening at the same time — about the last of July here. The former is an old sort, the tree making an open top with long limbs, and the fruit somewhat apt to rot on the tree; but when in perfection it is very juicy and refreshing. The *Doyenné d'Eté* is a new variety, said to have been raised by Van Mons, and makes a vigorous, fruitful tree, of upright growth. In quality it is free from the astringency which the *Madeleine* is apt to have, and has greatly the advantage in beauty, being one of the most brilliant colored pears. If we had plenty of room we should plant a tree of each; but if we could plant but one, it would be a *Doyenné d'Eté*.

Next to these, and greatly their superior in size and quality, comes the *Bloodgood*, ripening here during the first half of August. It is rather a hard tree to get up in the nursery, being at best but a moderate

and not a handsome grower. It is not a handsome fruit, and if not fully ripe there is a taste in the skin which always reminds us of a raw string bean pod. We consider the Bloodgood the first really good pear to ripen, and it deserves a place in every garden.

Beurré Giffard. — This has become one of the most popular summer pears, and well deserves to be. The tree, which is strongly marked by its dark reddish, almost purple, shoots, is only of moderate growth, and requires higher cultivation than many other kinds. The fruit is of medium size, pyriform, yellow, with a red cheek when exposed to the sun, melting and juicy, with a rich, spirited flavor. Ripe about the middle of August.

Rostiezer. — This variety, which was imported from Messrs. Baumann, of Bolwiller, in 1835, seems to have been since then scarcely known in Europe, except as received back from this country. We were entirely ignorant of its origin, until informed by Leroy that it was obtained from seed by Messrs. Baumann about 1830; though this date must refer to the time when it first produced fruit rather than when the seed was sown. Both in the tree and fruit it shows its kindred to the Rousselet family, and, like them, is best when ripened on the tree. The tree is vigorous, but apt to send out a few strong shoots on one side, and requires a free use of the pruning-knife while young to produce a symmetrical tree. The fruit is not showy, being mostly covered with russet, which approaches yellow when fully ripe, with a brownish red cheek towards the sun, so that a basket of well-grown and ripened specimens presents a very rich appearance. The flavor is extremely sweet and rich, to our taste resembling that of a fine green-fleshed melon. It is very productive, and ripens from the middle to the last of August.

The *Tyson* ripens with Rostiezer, and is, like it, one of the best of its season. The tree has much of the habit of the Seckel, but is of taller growth, and comes rather late into bearing. The fruit has something about it, both in appearance and flavor, which reminds one of the Early Rousselet, but is far superior. When well grown it is fully up to medium size, pyriform, skin yellow, thinly russeted, with a fine brownish red cheek. The flesh is fine grained, juicy, and melting, very sweet and fine flavored.

Ott. — A seedling from the Seckel, and, to our taste, approaching its parent more nearly than any other kind. Indeed, we think it fully equal to the Seckel in the spicy aroma for which that variety is well known to be unexcelled. The tree is quite vigorous and productive. In appearance it strongly resembles its parent; slightly more round, skin a trifle yellower, and stem decidedly longer. Ripens from middle to last of August.

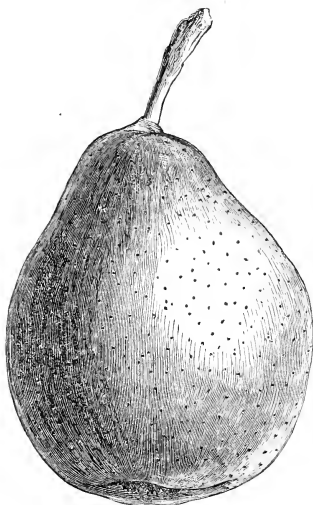
The *Supreme de Quimper*, though introduced quite a number of years ago, is not as well known nor as widely cultivated as it deserves to be. It is one of the most desirable kinds either for market or family use. We therefore give a full description and illustration of it.

Medium size; form variable, but generally inclining to the doyné type, tapering towards the stem with concave lines, sometimes turbinate, and at others nearly pyriform; often with a shoulder on one or both sides of the stem; stem five eighths to three quarters of an inch in length, of medium thickness, sometimes in a slight depression, but more often without, and in pyriform specimens on the apex, but always with more or less wrinkles and fleshy excrescences around the base; more in obovate and fewer in pyriform specimens. Calyx of medium or large size, generally irregular, open, in a small, slightly uneven basin; skin smooth, pale yellow, with many greenish dots. In the sun the dots change to red, and, where fully exposed, the cheek is bright red, with light brown dots. Towards the stem the red is streaked and clouded, with a very thin bloom over the whole. Flesh white, fine-grained, baxtery, and very juicy, sweet and rich, with a high and pleasant perfume; seeds medium size, dark brown or black, plump, filling the cells. It matures about the middle of August. The fruit should always be ripened in the house. Tree of tall, straight habit; quite as upright as the Buffum; wood brownish yellow. It grows vigorously in the nursery, but seems to require more time to recover from transplanting than most kinds, but ultimately makes a beautiful, hardy, and durable tree, and is very productive. It succeeds well upon the quince.

It is rather singular that we have no accurate information as to the history of this variety. Downing remarks that it is of Belgian origin; but if the name is any indication, it must be French, Quimper being a

town in the north-west of France. Leroy, who gives a full history of all the varieties described in his *Dictionnaire de Pomologie*, makes no mention whatever of this.

Manning's Elizabeth is one of the very best early pears. Tree of moderate growth, very productive; fruit very handsome; flesh a little coarse, but juicy, melting, and sweet, with a fine spicy flavor. Though rather small for market, its brilliant color makes it eagerly sought after. When about half grown, the blossom end of the fruit is



SUPREME DE QUIMPER.

sometimes covered with russet, as distinctly defined as if a line had been drawn around it. This and the two preceding are ripe from the middle to the end of August.

The *Pinneo* or *Boston* pear is one of the best summer pears, ripening the last of August and first of September. The tree is healthy and vigorous, and when of sufficient age very productive, but does not come into bearing so early as some kinds. The fruit is hardly up to medium size; yellow, variegated with russet, and when well exposed

to the sun, has a handsome red cheek. Flesh juicy, melting, and sprightly.

Brandywine. — Tree of very vigorous, upright growth, hardy, and productive. Fruit of medium size; generally pyriform. Flesh juicy and melting, and of fine vinous flavor. Those who are fond of a pear of this character can find nothing better in its season, which is the last of August and first of September.

The *Clapp's Favorite*, which is undoubtedly a cross between the Bartlett and Flemish Beauty, partakes of the good qualities of both, but is earlier than either. Of large size, handsome shape and color, and fine quality, it is altogether such a prize in the lottery of seedlings as is not often gained. The tree partakes most of the character of the Flemish Beauty, and is all that can be wished in a pear tree. The original tree, which is still young and vigorous, is one of the handsomest pear trees we have ever seen — it is a “beauty, a delight, and a desire.” By beginning to gather the fruit the middle of August the season may be extended over a month.

The *Bartlett*. Little attention is now paid to the ancient classes of pears, such as Bergamots and Bonchretiens, which are now much blended with each other; but the Bartlett, originally known as Williams's Bonchretien, is of the true Bonchretien type. Taking the world over, it is no doubt the most popular of pears. The musky flavor which it possesses in excess we do not admire more than any one else; but it affords a fine subject for youthful pomologists to expatiate on, and to show their wisdom by informing astonished sceptics that they know of vastly better pears than the Bartlett. It is true that they who regard the Bartlett as the ideal of flavor have but begun to educate their taste for pears. But we would like to ask those who are so fond of decrying the Bartlett, where they will find another pear which can be relied on so certainly for early, abundant, uniform productiveness in all seasons and every place, and adding to these points large size, and *as good* flavor as the Bartlett, always melting and juicy, and affording a good, generous bite. We know of none; and the fact that there is none is sufficient not only to account for, but to justify, the world-wide popularity of the Bartlett.



CRITIQUE ON THE AUGUST NUMBER. — *The New Pyrethrums.* — Have you seen them? They are not very common as yet, and very likely many readers of the Journal have never met with them; but all who have, or who have met with one of the beautiful colored engravings in the Floral Magazine or other English Journals, will bear witness that Mr. Parkman has not one whit over-rated their merits.

Destructive Fungi. — I like to read the enthusiastic professor's articles, for he is enthusiastic in his hates as well as his loves, and always pitches into his aversions with hearty good will. But more than this, we always gain some information, interesting, at least, if not useful, and generally both, when he communicates the result of his patient researches among fungi and spore dust; and what can be more gratifying than to learn that the wretched beetle, which in one form comes flying impudently into our faces, and in another form eats up the roots of our grasses so as to destroy them by the acre, and is equally destructive to our strawberry plants, if we have been so imprudent as to plant them on land just broken up, — I say, what can be more gratifying than to know that he is in his turn liable to be destroyed by a fungus with such a formidable name as *Cordyceps melolontha*? You could not inform us, Mr. Editor — could you? — whether the professor thinks it probable that the May beetle will soon be exterminated by this fungus?

The Bocconia Japonica. — Mr. Hovey has got the right idea. I never thought of it before; but as soon as he tells us of it, we all see it at once. As in architecture and landscape gardening, we want terraces, fountains, and vases, to form a gradual introduction from the elaborate dwelling to the natural beauties of the

pleasure ground, so in ornamental gardening we want something which shall bridge over the step between the trees and shrubs and the bedding plants of low growth planted on our lawns. Of all the sub-tropical and other plants used for this purpose, there is none more ornamental, if as much so, as this *Bocconia*, with its beautifully cut foliage and feathery flowers; and moreover it possesses the great advantage over others of being perfectly hardy.

Huckleberries and Blueberries. — I wish it were possible to domesticate these fruits in our gardens; but there seems to be a prevailing impression that, like the red men, who found in them one of the few luxuries which their barbarous life afforded, they do not take kindly to civilization. There are some flowers which have thus far resisted all attempts to introduce them into our gardens — such are the delicate little Purple *Gerardia* and the beautiful *Sabbatia chloroides*, which, by the most tender care and coaxing, cannot be induced to domesticate themselves with us. Now, it may be that the huckleberry and blueberry are of the same untamable nature; but I don't think it is time to come to that conclusion yet. If a single bush, even, can be grown successfully as a specimen in a botanic garden, why cannot more be grown for their fruit in other gardens? Don't give it up, but let us all sow the seed of the most promising varieties, in the hope not only of gaining an improved form, but some which, being partly artificial productions, shall take kindly to garden culture. And choose seed from bushes which are not only productive, and give large, handsome fruit, but that of fine quality; for not long since, while gathering blueberries, I was struck, as I never had been before, with the great difference in the quality of those growing on different bushes.

Concerning Wine. — Dr. Mohr's arguments seem to be good, and his conclusions will suit Mr. Husmann, the able editor of the *Grape Culturist*, exactly; but, so far as I have tasted wines that have been Gallized, which I believe is the method most generally adopted in this country by those who advocate such measures for improving wines, — though my experience is not extensive, — they have been decidedly inferior to wines made of the same varieties of grapes, but not Gallized. I think, Mr. Editor, you are likely to hear from the opponents of this practice what can be said on the other side of the question. Let us have it. Full, fair, free discussion is what we want to get at the truth.

Currant and Gooseberry Worms. — The thanks of your readers are due, Mr. Editor, to the *Entomologist*, which is truly a most valuable journal, for so full a description of these three currant worms, and to you for your excellent summary of it. The *Entomologist* complains that people keep on talking about *the* currant worm, after it has taken so much pains to explain that there are several species justly entitled to that name, and from a scientific point of view no doubt its complaint is just. Yet we can't expect everybody to use scientific language always, and the imported currant worm is so preëminently destructive, that I don't see how anybody can fail to understand what is meant when he hears about *the* currant worm. We cannot doubt what we are told as to the certainty with which these insects are destroyed by hellebore, and perhaps we ought not to doubt what Dr. Fitch tells us of its harmlessness to those who use it to save their currants from the currant worm. I don't doubt it; and yet I confess I

should eat my currants with a better relish if we could find some remedy for the worms that does not come under the head of poison to human beings. Let us all set our wits to work, and see if we can't discover some such remedy.

Deterioration of the Apple Crop.—A most important subject; and I am glad to see that some of the leading horticultural societies, among them that of Ohio, whose report you notice, and the Illinois Society, have commenced the investigation of it. It will be one great step when we understand distinctly wherein this deterioration consists, and another when we can make up our minds as to the causes of it. There are those who boldly deny any deterioration other than that caused by failure to cultivate properly, and who insist that where this is attended to, apples are raised just as easily as ever. I cannot agree with them; I wish I could; and the great majority of those with whom I have conversed on the subject—and I have embraced every opportunity to ascertain the views of the best cultivators—do not agree with them, but are of the opinion that, while apples can be grown as good as ever they could, it requires far more care to do it than it once did. And this deterioration, it seems, is not confined to the older parts of the country, such as New England, where apples have been cultivated for two hundred years, but extends to Ohio, and even to Illinois.

Useful and Ornamental Gourds.—Five hundred sorts! I must admire the painstaking and patience which are requisite to the cultivation of such a collection. I, for one, had no idea of the existence of such an immense number of varieties. We occasionally see at our horticultural exhibitions half a dozen or a dozen kinds, which always attract a good deal of attention, especially those divided into two hemispheres of gold and green; but who will show us, if not five hundred varieties, at least such a collection as will give us some idea of what five hundred varieties would be? They are certainly very easy of cultivation, and I can fully believe what is said of the value both of the plants and the ripe fruit for ornament. But the idea of edible gourds was quite new to me. Does any one know whether they are at all equal in excellence, as a vegetable, to our marrow squash? or are they only the best substitute for it that the climate of England will afford? Or does the writer include the different varieties of squashes among his eatable gourds? For my part, I confess to almost complete ignorance of this whole subject, and I shall feel under great obligations to any one who will give me light on it.

Bismarck.

MULCHING TREES.—The past spring I set out one hundred apple trees, part of which I mulched with about four inches of coarse hay and straw, and the rest, in pursuance of an article in the *Country Gentleman*, kept nicely hoed. Of the one hundred all are living except *one*; but those *not* mulched have made the best growth, over a foot, notwithstanding the drought.

A near neighbor, who set last year, has lost nearly half of his trees this summer; but then he had the pleasure of harvesting a *poor crop of oats*, sowed close up to the trees. "A word to the wise," etc.

J. S. W., in Country Gentleman.

PEAR GROWING AT NORFOLK, VA. — Fine specimens of Duchesse d'Angoulême and Louise Bonne of Jersey were exhibited at the rooms of the Massachusetts Horticultural Society last autumn by Mr. G. F. B. Leighton, President of the Norfolk (Va.) Pomological Society, and the present season fine Bartletts, Louise Bonnes, and Seckels were shown as early as August 13 from the same gentleman. The whole number of Mr. Leighton's trees is about six thousand two hundred, consisting mainly of the above-named varieties, with the addition of Clapp's Favorite. From a note from Mr. Leighton, and from some remarks by him before the society of which he is president, we derive the following information as to his methods of cultivation.

Draining. — Mr. Leighton's soil is clay, running from three to seven feet in depth, underlaid with sand. The deeper the clay the stiffer it is; and a small portion is so retentive, that holes dug within four feet of a ditch have shown only three inches per week of percolation and evaporation. Mr. Leighton has varied in part from the usual practice in draining, being unwilling to trust to the usual under-drainage, and has partially substituted therefor direct drainage under the trees by boring with a post-hole auger through to the sand, filling said holes with oyster shells. He digs his holes three and a half feet square on top, and two feet deep, and removes one cubic foot from the centre and bottom of the hole, making the centre three feet in depth. Where the under-drainage requires greater depth, the post-hole auger is brought into requisition, as before described.

We regard Mr. Leighton's plan of boring through the clay to the sand as an excellent one, and worthy of imitation in ground similar to his; but we cannot approve his practice of making his holes a foot deeper in the centre than elsewhere as a good one in ground at all retentive, as it would certainly cause water to settle under the trees.

Distances. — Mr. Leighton has planted his dwarf trees twelve and a half feet apart each way, but from observation of trees planted out several years in that region, thinks that two or three feet greater distance might prove more satisfactory, as the trees there tend more to wood than in many other localities. He thinks eighteen by twenty feet may answer for standards; though, where land can be well spared, two feet each way may be added to advantage.

Fertilizers. — Mr. Leighton uses only muck from the head of tide ravines, composted with wood mould and lime. He deposits in the bottom of the holes the refuse of the land clearings, such as finely-chopped bushes, small roots, etc., keeping the surface in good condition by growing the black pea, except immediately around the tree, where he mulches with pine straw, or other material. The black pea has a vine of great luxuriance, drawing largely from the atmosphere, with a root extending deeply in the ground, and acts on the ground similarly to clover, accomplishing in a single season what two seasons are required for with clover. It grows luxuriantly in Eastern Virginia and North Carolina. It shades the ground, and but for its tendency to run, would do well about the pear trees. They are usually sown broadcast about the first of June.

Thinning. — The present season has been so propitious for the setting of apples and pears that much thinning was required; and on this subject Mr.

Leighton refers to the article by Mr. Wilder in the April number of the Journal.

Cultivation. — Mr. Leighton works the ground about six times through the season, unless sown in black peas, when cultivation is unnecessary after the first of June. The trees having strawberries planted between the rows have not made equal growth with those where no vegetables have been cultivated, though treated equally well in other respects, and no strawberry vines allowed within four feet of the trees.

The standard Bartletts on Mr. Leighton's soil have come into bearing earlier than the dwarfs.

CRAB APPLES FOR THE NORTH. — The Prairie Farmer replies to the inquiries of a subscriber at Minneapolis, Minn., on the above subject, as follows: —

“We have seen several of the improved Crabs, and do not know of a variety among them which we could recommend you to plant in preference to some of the hardy and improved apples. It is probably not true that when varieties from the Crab become so improved as to equal the best cultivated varieties, they will then retain the hardihood of the small and compact Crab. Last year, on inspecting a tree and the fruit of one of these improved Crabs, so called, we found, as we thought, evidence that the slight change wrought had so enlarged the fruit germs that they were even less hardy than Duchess of Oldenburg, growing in the same neighborhood.

“What you need at the north is not Crabs to supplant improved apples, but such varieties of the best apples as would annually mature their wood growth. If we were a resident of your state, we should make the best selection we could out of the varieties which have proved most hardy at the north, and would plant them in ground not over rich. Each year we would cultivate the trees highly, and at the same time force them to develop their crown or terminal buds on the leading shoots at least six weeks before growth would be arrested by frost. In this way we should feel sure of obtaining as matured a growth as would be required to resist the most trying northern winter. We do not contend that varieties which naturally make strong succulent shoots could, without great labor and care, ever be grown with satisfactory results in high latitudes. But were varieties selected instead which naturally mature their wood early, and the growth they naturally make limited one half or more, we doubt not that trees so managed would be quite as hardy and fruitful as could be desired.”

BAMBOOS, ETC., IN CALIFORNIA. — Specimens of Chinese bamboo and Japanese plums, grown from imported roots, have been exhibited in Los Angeles, California, and are attracting much attention. The next Institute exhibition in San Francisco will contain a large list of new agricultural products for California.

MULBERRY TREES IN CALIFORNIA. — The growing mulberry trees for silkworms' food, in southern California, are estimated at five hundred thousand.

THE VIRGINIA CREEPER. — A full description of this handsome creeper, in your Letter-Box, would very much oblige at least one of your readers.

I have read in several of my horticultural papers and magazines that the distinguishing characteristic of the Virginia creeper was, that it had "*five leaves in a cluster*," while the poison vine has only *three*. This cannot be true, and, if false, may be the means of poisoning many persons, who, if they act upon that statement, will surely be poisoned. Near my place a vine is growing which has the five leaf cluster, and is, in other respects, very much like the Virginia creeper — clusters of fruit, habits of growth, size and shape of berries and leaves; yet I *know* this vine is poisoned.

Therefore the difference between the Virginia creeper and the poison one is not as represented. I find, however, a marked difference between the two, and one which can be seen by any one who has eyes, viz.: the vine of the poison creeper, especially the main branches and trunk, are much more thickly set with "feet," or "claws," by which they clamber, and have a rough appearance; while the non-poisonous creeper is smoother, and has much more the appearance of a Catawba grape vine — is about that color, while the poison vine is more of an ashen hue. I would send you some of the latter for inspection, but fear to handle it or to send it to you, without first warning you that it was coming, to enable you to be on your guard. If you say so, however, I will send you a specimen, marked "poisonous." Meantime, please give your readers an accurate description of each of these vines; and say whether or not, in your opinion, the "five leaf cluster" is an infallible indication that the vine is not poisonous.

H. T. H.

We handed the above note to a friend, whose authority in all botanical matters is the very highest, and who has favored us with the following interesting remarks, which we think will fully convince "H. T. H." of his mistake: —

We yield to the solicitation of your correspondent, though it seems singular to horticulturists that any one who has eyes to see could mistake these two plants, or call them by each other's name. But we are aware that having eyes does not imply the power or faculty of sight, and that in the minds of many (and the multitude are neither horticulturists nor florists) the Virginia creeper is regarded as a poisonous plant. We have sometimes thought that the number of those who appreciate any beauty in plants is the exception, and few in comparison with the many who think everything a weed which is not good for the table, good to eat, or good for medicine. And as weeds are to be despised and disregarded, it were waste of time to study them sufficiently to ascertain whether they are harmless or dangerous. One would not like to be stung by a nettle; yet the mechanism of its stinging hairs is worth while to investigate. And the pearly bloom on the leaves of the pigweed has raised the admiration of many of our acquaintances who have seen it for the first time. A weed is, however, "a plant out of place," and the most valuable garden vegetables out of place would be nothing but weeds. Trees, which are always striking objects of beauty, are overgrown weeds if they are planted where they cannot develop their natu-

ral forms and graces. And the Virginia creeper may become a noisome weed if not properly trained, and, though in no sense poisonous, could become as troublesome as the poison creeper, which, if unmolested and in its place, is a highly ornamental vine.

The Virginia creeper is called by the botanists *Ampelopsis quinquefolia*, or five-leaved woodbine or American ivy. Its name is suggestive of the habit of the plant, and through a Greek compound signifies "looking like a vine," that is, like the grape vine. Its flowers are in similar clusters, small; it has tendrils to climb up trees, walls, and rocks, at the extremities of which are curious spread-out suckers or disks, by which it clings with great tenacity to crevices, and to the mortar of the brick walls of houses. Its berries are small, round, and blackish, on little crimson stems. The leaves are digitate, — that is, with five divisions, like fingers, — blunt at the tips, of a rich deep green in summer, and turning to a magnificent crimson and purple in the autumn. As a rapid growing creeper it is much prized in England and on the continent of Europe, and employed as it is in this country to cover walls or to climb old trees, festooning itself with elegant freedom from branch to branch. It is called American *Ivy*, because it is to American woods and gardens what the English ivy is to that country, and by some writers on ornamental plants thought preferable to that well-known and classic plant, the *Hedera helix*. But neither the *Ampelopsis* nor the *Hedera* can be called poisonous, though unfit for food, either in the leaves or berries. The tendency to admire and cultivate foreign plants, and to prefer them to native or wild ones, has caused the feeling that the English ivy vine, though tender, and hardly bearing our northern winters, is preferable as an ornamental plant. But said a florist of much taste, "Why do you want a finer plant than your Virginia creeper — so rapid in growth, so hardy, so luxuriant in leaves and berries, and so magnificent in autumn? Not a finer creeper can be found in the world combining so many excellences."

The poison creeper is an entirely different affair. It is a hardy northern species, of a group of tropical plants of known virulence and poisonous qualities — the Cashew nut family. So poisonous are some of these tropical trees that the juice dropped on the skin makes ulcerous sores, and swellings succeed the accidental sleeping or reclining in the shade of them. Many produce valuable varnishes, which affect seriously some people who employ them in the arts, the heat necessary in their preparation not destroying all the poisonous properties. But the poison creeper is also called the poison *ivy*; and perhaps the misnomer or wrongly applied name has something to do with the confusion of the two plants. In some parts of the country it is also called *marcury*, a corruption of mercury, a term implying poison, and supposed to act on the human system somewhat as the mineral medicine of that name, or calomel in over doses, does. Its leaves are ternate, or with three egg-shaped, smooth, or a little downy, shining leaflets; the flowers small, and greenish white, of two sorts on the same plant. the one dropping off, the other succeeded by greenish white berries. The plant itself is liable to variation; sometimes it grows in the form of a low bush, especially if near the sea; its leaves then become notched and lobed like oak leaves, when the plant is called poison oak; but its usual habit is to creep over

stones, loving the rich soil lodged under walls, or climbing the bare trunks of trees, clinging with great strength by burying its rootlets and thick gray-colored fibres, which issue from the bark, deep into the bark of the tree on which it climbs, becoming a sort of parasite, and finally being the only green and living part. It is in this condition best known as the poison ivy; and so poisonous that it cannot be handled, or even so much as touched, by some people, while we have known of others who not only have handled, but cut and chewed it with impunity. Its juice imparts a permanent black stain to linen, as much so as indelible ink. Closely related to it is the poison dogwood or poison sumac — a neat, handsome, clean-looking bush, with straight branches, gray bark, and with leaves having from seven to thirteen blunt leaflets, and bunches of smooth, shining, white berries, conspicuous in winter especially; a plant considered the most poisonous of native shrubs, the effluvia from its blossoms seriously affecting some persons, and the handling of a broken or cut branch causing cutaneous eruptions, which periodically appear for several years.

The dying foliage in the autumn of the *Rhus*, in its different species, is of a gorgeous scarlet, and incautiously gathered, for winter bouquets, from the poison kinds, causes much inconvenience by the still active poison. The sumacs, to which group of plants both the poison creeper and the dogwood or poison sumac belong, have an abundant milky juice, which distinguishes them from the Virginia creeper, even if ignorantly gathered. And, as we have a deep respect for all sorts of organized beings, exempting snakes, toads, and newts from injury and unnecessary pain, not being prejudiced by the ill-favored countenances or repulsive habits, so we have often admired some grand old specimen of the poison creeper (*Rhus radicans*), which has covered the decaying rails of a long-disused and useless fence, or climbed, like "ambition, which o'ervaults itself," to the very top of a red cedar, and hugged its victim to death, reminding us of tropical lianos, those living vegetable ropes and cordage which travellers tell us of in the forest solitudes of the torrid zone.

We will spare your correspondent the trouble and risk of sending specimens, as our familiarity with both plants (if we have apprehended his remarks) dates back to early childhood, and our appreciation of them in their place as plants, not weeds, is according to their merits and desert; but we cannot recall any instance of the poison creeper with a "five-leaved cluster," which, according to the character of *Rhus*, would be two pairs of leaflets and a terminal odd one, and not a digitate leaf.

J. L. R.

WEIGHT OF RAIN. — An inch of rain falling on an acre of land weighs one hundred tons.

ILLINOIS STATE ENTOMOLOGIST. — Governor Palmer has appointed William Le Baron to fill the vacancy occasioned by the death of Benjamin D. Walsh.

A CRANBERRY MEADOW. — There is in Washington Territory an immense cranberry marsh, yielding one hundred thousand bushels in a single crop.

STRAWBERRIES. — We take from the Rural New Yorker the following remarks, by Dr. Hexamer, of Newcastle, N. Y., one of the best cultivators in the country, on the different varieties of strawberries.

The Wilson is the berry for the people. True, it is sour; but other varieties greatly praised and sold at five dollars per dozen are sourer. It grows everywhere, under any culture, and sells well. Its chief demerit as a market fruit is, that it turns dark colored and dingy after it has been picked a while and exposed. But if market men would turn it out of one basket into another, inverting the berries after they are discolored, they will find them to look as bright as if freshly picked. Discoloring does not affect their quality, only their looks. But for this characteristic it would be a perfect berry for market.

Triomphe de Gand on our heavy soil is more profitable than the *Wilson*, because in this (New York) market it brings three or four times the price of the latter on account of its looks alone. When the *Wilson* sells at twenty-five cents the basket, the *Triomphe* will bring seventy-five cents. We have contracted our whole crop of *Triomphe*s at forty cents per quart net—no freight nor commissions to come out. We have been able to make such arrangements by being *honest*. It is difficult to get a good reputation in market, and it is more difficult to keep it, because of the temptation to neglect after reputation is once made. We have a demand for three times the fruit we can supply. The *Triomphe* is the most solid berry we know of, and is, therefore, the most profitable. No fruit is lost. Rains do not soften it as they do the *Wilson*. We often pick it Saturday and keep it until Monday before putting it on the market. It goes there as a fresh berry and is fresh. Dr. Hexamer exhibited *Romeyn* with *Triomphe*. Said if the club could distinguish between them he could not. The foliage, habit of growth, fruit, time of ripening, and productiveness are too nearly alike to distinguish between them. If it is a seedling, it is so nearly like its parent that it has no claim to distinction as a variety.

Jucunda is not of so good a quality as the *Triomphe*. It is softer; keeps about as well as the *Wilson*. It is showy, sells as well as *Triomphe*, and furnishes a larger proportion of large berries the season through than any other variety. About three fourths of its crop is large, marketable fruit, while only about one half of the *Triomphe* is first-class as to size. If it was as hard as *Triomphe*, it would be more valuable for market. *Triomphe* is more profitable if the season is wet and unfavorable; but in a dry season the *Jucunda* is ahead. It costs about fifteen cents per quart (including interest on the land, labor, freights, etc.) to raise and put the *Jucunda* and *Triomphe* on the market.

Other varieties. — For an early variety for home use none is superior to the *Brooklyn Scarlet*. It will not do for market, but it is early and of good quality, not prolific. *Boston Pine* is a little later, but more prolific; soft, but hardy everywhere. *French's Seedling* is prolific, nearly hard enough for market, but has no flavor. *Downer* is an excellent, prolific, early fruit. *Nicanor* is valuable; it ripens just before the *Wilson*. It promises this year to become a profitable variety. The first year we grew it we were not favorably impressed with it, which goes to show that one season's test is no test at all; for weather has much to do with the productiveness of any fruit. If, just at the height of

the blossoming season, a cold, heavy rain sets in, the pollen does not form, and will not fly, and fruit does not fructify. It is with strawberries, in this respect, as with apples. A series of years is required to establish the merits, in any locality, of any fruit. The *Ida* is an early, prolific variety, but we cannot recommend it for cultivation. *Lady of the Lake* changes color, like the *Wilson*, after being picked a day. We are not favorably impressed with *Barnes's Mammoth* the present season. *Agriculturist* is not worth talking about. *Boyden's No. 30* is too much like the *Agriculturist* to be of much value; has too long a neck and is too soft for market. It is better flavored than the *Agriculturist*, and more prolific. The *Charles Downing* is one of the most valuable varieties we have — good flavor and shape, hardy and productive. The *Lady's Finger* is excellent for drying and preserving. It retains its form preserved. *Green Prolific* is too soft. *Lennig's White* is an excellent berry, high flavored, and if it were a little more prolific it would be very desirable. If grown in hills, it produces very well. *Colfax* is the meanest and poorest berry we ever had. Paid twenty dollars for plants a year ago, and would gladly sell the whole lot for twenty-five cents, notwithstanding the great sound of trumpet with which it was ushered upon the pomological world. We cannot sell the fruit; it is not worth selling. Can hardly get boys to pick it to take home. It is the very meanest of mean varieties.

CARBOLIC SOAP FOR INSECTS. — I am experimenting with *Buchan's Carbolic Soap*, as a preventive for injurious insects, and am so well pleased with the results thus far, that I wish to stimulate other horticulturists to try some experiments with the article.

For cut worms, I made the soap suds pretty strong — two gallons of water to half a pound of soap, and with it saturated a bushel of sawdust; then placed a little around the stem of each cabbage and tomato plant, — using a handful to eight or ten plants, — adding a little more after two or three days when the odor seemed gone. This was completely successful in ground where the worms were quite plenty, and where plants not protected were speedily cut off by them. It is the cheapest and most easily applied remedy that I have yet seen.

For striped bugs on melons and cucumber vines, I find the same method of using the soap quite effective, if the sawdust is sprinkled on the plants every day, — which is very little trouble, — but I am now trying wetting the plants directly with weak suds, made of ten gallons of water to half a pound of the soap, and I think this will prove the best.

For aphid or plant lice on cherry trees and the like, a sprinkling or two with the suds, by means of a sponge, or bending the shoots so as to dip them into a pail or basin, is speedy death to the bugs. Care must be used not to have the suds too strong when applied to tender plants or young shoots of trees; experiments are needed for this point.

For the currant worm and the rose slug, I have not had an opportunity to experiment as yet, but expect to soon; and I hope others will do the same, and report.

M. B. Batcham, in Ohio Farmer.

PRESIDENT WIDLER STRAWBERRY. — This new variety was not mentioned in our notes upon page 304, as at the time they were made up we had not seen any specimens. It has not fruited to any extent in the neighborhood of New York, but at the June Exhibition of the Massachusetts Horticultural Society, it was the principal feature. A sample of the fruit, from J. M. Merrick, Jr., of Waltham, Mass., was sent to Messrs. Bliss & Son, which, though it endured the rough handling of the expressmen satisfactorily, had been too long from the vines to appear at its best, in point of flavor. . . . We notice in the Country Gentleman a communication signed "J. E. Tilton & Co., Proprietors of the President Wilder Strawberry Plant." Is there but one plant, and who is the "proprietor" of those we received from Colonel Wilder himself?

American Agriculturist.

If the Agriculturist had been content to state the facts in regard to the specimens of the President Wilder Strawberry, and then leave off, we should not have a word of comment to make on the above paragraph. The specimens were sent by J. E. Tilton & Co., and not by J. M. Merrick, Jr. (who, by the way, lives at *Walpole*, and not *Waltham*, Mass.), at the special request of Mr. Bliss, who stated that Professor Thurber, of the *Agriculturist*, was extremely desirous to see the fruit. We therefore took particular pains to send on a specimen, although it was so late in the season as to be attended with some risk of keeping sound until its arrival. And if the fling in the close of the paragraph quoted is the *Agriculturist's* idea of a courteous return for a favor, we can only say that it differs from ours. We consider it beneath the dignity of a journal of the undoubted great circulation and ability of the *Agriculturist* to quibble over words; but if we were disposed to follow its example, we should say that the recipient of the plants from Colonel Wilder ought to know best what he did with them, and consequently who is the "proprietor" of them.

Our point, however, is settled by this amiable paragraph in regard to the President Wilder Strawberry, viz., that it will endure rough handling satisfactorily.

THE DOCTOR TURNER PEAR. — We are indebted to Moses Pierce, Esq., of Norwich, Conn., for a dozen fine specimens of this variety. Mr. Pierce, in a note accompanying the pears, says, "They grow on old trees, and bear well. They will sell for more than the Bartlett grown about here."

After carefully testing them, we have come to the conclusion that we should not be willing to pay as much for them as for Bartletts, as they are not equal either in appearance or quality to that variety. As we cannot make a better description than Mr. Downing's, and as the variety is little known, we copy it here.

"Doctor Turner: a Connecticut pear, origin unknown; tree a moderate spreading grower; young wood dark olive brown; fruit large, obtuse pyriform; skin pale yellow, sometimes with a slight blush, and thickly sprinkled with green and brown dots, a few traces of russet; stalk long, curved, set in a slight depression by a ring or lip; calyx closed; basin rather small; flesh white, juicy, half melting, slightly vinous, somewhat astringent; good; August."

RAISING FERNS FROM OLD SPORES.—MR. EDITOR: In February, 1863, I communicated to your magazine the fact that fern spores which had been collected some years back would germinate and produce plants in due time when sown and treated properly. Although, as I have since learned, the statement was doubted at the time, that fern spores would germinate if taken from specimens of the dried plants in an herbarium, experiments which I have recently made prove that they *will* germinate and grow rapidly without the aid of artificial heat in our houses.

Those ferns I have been successful with, so far as proving that productive power existed, after ten years' keeping as dried specimens, are, *Adiantum Capillus-Veneris*, *Scolopendrium vulgare* (Hart's tongue fern), *Blechnum Spicant*, and various *Polypodiums*, all of the above brought from different parts of Europe. I learned in England last summer that they had met with success there in similar experiments. In more than one of the instances where they made these trials with success, the spores were from very old dried specimens. I am sure there are others who have tried the experiment, and can give the result of their investigations.

At present I have a large and thick growth of seedling ferns, planted about January first, now making rapid growth in a Wardian case, about sixteen inches square devoted entirely to them. These seedlings are from spores of ferns picked from the road-sides of Italy, the mountain passes of Switzerland, and different parts of Germany. Among them I note *Ceterach officinarum*, the scaly spleenwort, *Asplenium Ruta muraria*, the wall Rue spleenwort, *Polystichum louchitis*, the holly fern, *Blechnum boreale*, the hard fern, *Woodsia alpina*, *Polypodium Robertianum*, *Polypodium calcareum*, *Cystopteris fragilis*, and others. Fern spores, although as minute as the dust that blows, and microscopic in fineness, contain embryonic forms as well as the larger *seeds* of all plants. Place them under favorable circumstances, and they will grow. Nothing could be more interesting than to watch them from the time they tinge the earth with a shade of green, till they send up their first fronds.

James L. Little, Jr.

March 1, 1870.

DROUGHT IN WESTERN NEW YORK.—In some localities in Western New York, the present season, the weather has been so dry and hot as to injure garden crops severely. Among the newer strawberries that withstood the drought best were Ellwanger and Barry's Nicanor, and Jacob Moore's New Seedlings. The former is well known to possess great vigor and hardiness of the plants, which they exhibited well on this occasion, and the berries were nearly as large as usual. Moore's new varieties, possessing excellent flavor, grew well, and gave fine berries in the dry soil, although not as productive as at other times.

Country Gentleman.

THE GRAPE CROP.—The Country Gentleman reports a superabundance of grapes, especially Catawbas, in Erie Co., Ohio. On the Lake Erie Islands the prospects for a heavy crop are exceedingly promising. Near Seneca Lake, N. Y., the season thus far has been all that could be desired by grape growers.

MASSACHUSETTS HORTICULTURAL SOCIETY. — June 11. The first prize for the best two quarts of early strawberries, open culture, was awarded to George Hill, for Jenny Lind; second prize to J. B. Moore, for Jenny Lind; third prize to George Hill, for Brighton Pine.

Miss C. S. Wood exhibited *Cyperus alternifolius variegata*, a very graceful plant. From George Everett, *Lilium Szovitsianum*, delicate straw color, with black dots. From E. S. Rand, Jr., *Ulex europea* (double Gorse), *Clematis Fortunei*, *Lilium calciforme*, and the following new English rhododendrons: Sir John Seabright, Stella, very beautifully marked, like a pelargonium, Mrs. John Clutton, fine white, Caractacus, H. H. Hunnewell, Mrs. Holford, fine color, and Sir John Spencer. Also thirty other varieties of rhododendrons, and a large collection of hardy azaleas. From J. J. Dixwell, *Rhododendron ovatum* (dwarf) and other flowers. From Nelson Parker, Stoneham, carnations, seedlings from Sally Lee, very double and fine.

The first prize for the best twelve named varieties of iris was awarded to James McTear, for *Cælestina grandiflora*, Zoyara, Grand Sultan, *Azurea speciosa*, Queen Victoria, Lady Drummond, Prince of Orange, Lady Trafford, *Delicatissimum*, Madame Merle, Colonel Sibthorp, Madame Cherat.

June 18. From H. G. Lungren, Volusia, Florida, fine large specimens of the Volusia orange.

The first prize for the best peck of peas was awarded to George Hill, for Hill's Early; second prize to J. B. Moore, for Carter's First Crop. The first prize for the best twelve summer turnip-rooted beets was awarded to Josiah Crosby, for the Egyptian, and the second to George Hill, for Hatch's Early.

The first prize for the best ten named varieties of herbaceous peonies was gained by Hovey & Co., with *Violacea plena*, *Triomphe du Nord*, *Festina Maxima*, *Ne plus ultra*, Madame Vilmorin, *Festiva*, F. Ortegat, Duguesclin, and Bossuet. J. G. Barker received the first prize for Sweet Williams, from seed of Hunt's auricula flowered varieties. Mr. Barker also exhibited *Maxillaria Harrisonæ*.

Francis Parkman exhibited a splendid collection of roses, which received a gratuity of ten dollars.

E. S. Rand, Jr., exhibited *Cypripedium spectabile*, *Kalmia latifolia* (four varieties), *Wistaria frutescens*, *Periploca græca*, *Rhododendron concessum*, *R. punctatum*, *Saxifraga Cotyledon*, *Anemone pennsylvanica*, *Viola cornuta*, *Ornithogalum pyramidale*, *Rhus glabra laciniata* (new), *Magnolia macrophylla*, and beautiful seedling hardy azaleas.

J. J. Dixwell showed *Rhododendron Hannibal* and *Styrax officinalis*. Washburn & Co. showed *Anomatheca omenta*, *Gladiolus communis rubra* and *rosea*.

The annual rose and strawberry show was held June 22 and 23. The first prize for the best four quarts of strawberries, of any variety, open to all competitors, a silver cup, valued at twenty-five dollars, was awarded to J. E. Tilton & Co., for President Wilder. The first prize, of twenty-five dollars, for the best two varieties, four quarts each, to Warren Heustis, for Agriculturist and Jucunda. For the best four varieties, two quarts each, the first prize of twenty-five

dollars, to George Hill, for Triomphe de Gand, Brighton Pine, Hovey's Seedling, and Jucunda. For the best collection, of not less than six varieties, one quart each, the first prize, of twelve dollars, to J. C. Park, for Green Prolific, Agriculturist, Lady of the Lake, Cremont, Fillmore, Durand's Seedling, Hovey's Seedling, and Jucunda.

J. D. Willard, of Hartford, Conn., showed a handsome dish of Banana strawberries.

J. E. M. Gilley received the first prize for cherries. Variety, The Doctor.

The first prize, of ten dollars, for the best twenty distinct named varieties of hardy perpetual roses, was gained by John C. Chaffin; varieties, La Duchesse de Morny, Madame Victor Verdier, Annie Wood, Madame Charles Crapelet, Souvenir de Wm. Wood, Senateur Vaisse, Camille Bernardin, Maurice Bernardin, Baroness Rothschild, Gloire de Montplaisir, Anna de Diesbach, Fisher Holmes, Prince Camille de Rohan, Alfred Colomb, Alba Carnea, Victor Verdier, Monsieur Boncenne.

For the best display of not less than ten named varieties of Moss Roses, to Francis Parkman, the first prize, for Duchesse d'Abrantes, Luxembourg, Angélique Quétier, Lami, Perpetual White, Decandolle, Mongadin, Salet, Ratrin, Princess Adelaide.

For the best display of not less than ten varieties of tender roses, to James McTear, for Safrano, Charles Ryband, Isabella Sprunt, Bon Celine, Bougere, Celine Forestier, Caroline Mumba, Gloire de Dijon, Homer, Amie Vibert, Lamarque, Cornelia Koch, America.

For the best general display of roses, the first prize to Francis Parkman.

Messrs. Hovey & Co. took the first prize, of twenty-five dollars, for the best twenty green-house or stove plants of different varieties, with *Statice Holfordi*, *Agave medio-picta*, *A. micracantha*, *A. schidigera*, *Livistona altissima*, *Cycas circinalis*, *Maranta pulchella*, *Echeveria metallica*, *Hibiscus Cooperi*, *Oreodoxa regia*, *Theophrasta imperialis*, *Dracæna Veitchii*, *D. terminalis*, *D. Draco*, *D. ferrea*, *D. terminalis latifolia pendula*, *Anthurium leuconcurum*, *Yucca Aloifolia variegata*, *Aspidistra variegata*.

W. H. Halliday's Wardian case, with *Maranta zebra*, grown in it from a small plant, received the first prize, and his case of native plants and ferns the second.

The first prize for the best six named varieties of fuchsias was gained by Hovey & Co. Varieties: Starlight, Eliza d'Amour, Madame Laffay, Marquis of Bellfont, Little Boopeep, Elm City. These were well grown and magnificent specimens, finely formed and full of flowers.

Mrs. T. Ward received the first prize for gloxinias, and a gratuity of five dollars for a fine specimen of *Rhyncospermum jasminoides*. Also the first prize for Paisley pinks, the best sixty blooms of not less than six varieties, viz.: Emily, Mary Ann, Purple Ring, Queen Victoria, Peter Patterson, Mont Blanc, Blondin, Mrs. McLean, Gypsy Queen, Alma, Helene, Mrs. Foster, Mrs. Hobbs, Red Helene.

E. S. Rand, Jr., showed *Rhododendron punctatum*, or Alpine Rose, Purple Martagon Lily, and *Lilium umbellatum*.

From James Cruickshanks, a new red honeysuckle.

From Hovey & Co., new double geraniums : Madame Thibaut, Terre Promise (fine color), Merveille de Lorraine, Ascendency, and Wilhelm Pfitzer. Also *Yucca angustifolia* and *Campanula medina rosea* (new).

John Richardson showed two new seedling peonies, Nos. 1 and 2, which received a first class certificate of merit.

From Francis Parkman, *Lilium tenuifolium* and *Magnolia macrophylla*.

From Mrs. Wm. Horner, White Pogonia.

From C. Furneaux, Abutilon Duc de Malakoff.

From John G. Barker, *Myanthus cernuus*, *Brassia Lanceana*, *Catasetum abruptum*, *Epidendrum vanillasina*.

From James Comley, double geraniums : Madame Lemoine, Andrew Henderson, and Captain l'Hermet.

Caleb Bates, of Kingston, showed a new pea, which he deems an improvement on Dan O'Rourke, being as early, and of more vigorous growth and sweeter flavor. It was found in a row of Champions.

Andrew Wellington exhibited Caractacus, Dan O'Rourke, Carter's First Crop, Weld, Hill's Early, Glen Cottage, and Early Dexter peas. James Comley showed Dwarf Waterloo, Dan O'Rourke, Carter's First Crop, and McLean's Advancer peas. Charles H. Higbee, fine Boston Curled and Butter lettuce.

July 2. J. C. Park exhibited a most superb dish of La Constante strawberries, which took the first prize of ten dollars for the best four quarts.

William A. Parsons showed Charles Downing strawberries, which presented rather a soft appearance.

J. E. M. Gilley exhibited Black Eagle cherries ; J. H. Frothingham, Black Tartarean ; and E. A. Story, Black Eagle and Bigarreau. From Galen Merriam, Walsh's Seedling cherry.

John G. Barker exhibited the following orchids : *Oncidium carthaginense*, with a fine spike of flowers, *Maxillaria* sp., *Miltonia* sp., *Epidendrum* sp., *Brassia Lanceana*, and *Cattleya crassifolia*.

C. M. Atkinson exhibited his seedling carnation, which received a certificate of merit last year. From James O'Brien, variegated ivy-leaved geranium, Duke of Edinburgh. From John Felt Osgood, *Sarcodes sanguinea*, or California Snow Plant, which grows six thousand feet above the level of the sea ; from Lake Tahoe. Hovey & Co. showed a new hybrid seedling lily.

July 9. George Hill received the first prize for Early Rose potatoes. Josiah Crosby the first prize for Early Scarlet carrots, Early Wyman cabbage, and onions. Walter Russell received the second prize for Early Wakefield, and the third prize for Early Wyman cabbages. James Comley exhibited Yellow Cranberry beans, and Laxton's Prolific and Laxton's Supreme peas, and Caleb Bates Feejee beans.

The first prize for the best ten named delphiniums was awarded to Francis Parkman, for *Cæruleum plenissimum*, *Flora*, *Albo-cæruleum*, *Nigra pallidum*, *Cælestinum plenum* No. 1, *Multiflora*, *Incarnatum plenum*, *Elatum grandiflorum* and *Cælestinum plenum* No. 2. First prize for summer phloxes to J. McTear, for Madame Rendatler, Mrs. Dombrain, Madame le Bonte, Talley-

rand, Cromwell, Lady Home, Emma Fabvrier, Lily of the Valley, Cosie Glen, Mrs. Hare.

Francis Parkman exhibited seedling *Delphinium Cælestinum plenum* No. 3, which received as a gratuity the society's silver medal; and seedling lilies, very hardy, and of the easiest cultivation, and not growing above eighteen inches high, which also received a silver medal. These were all raised from one parent, but showed a great variety of colors.

E. S. Rand, Jr., exhibited a remarkably fine specimen of *Lilium auratum*, open air culture, from bulbs, two years planted, with eight flowers upon one stem. From E. A. Story, *Lilium speciosum*. From Hovey & Co., double pelargonium, Marie Lemoine. From James Comley, double seedling geraniums and carnations. From John Fillebrown, seedling pinks. From A. Farrier, *Lilium Brownii*.

There was a good display of cherries, strawberries, raspberries, and currants, but no particular novelty.

The fine specimens of heaths, reported in our last number, page 114, as exhibited by O. H. Peck, of Melrose, should have been credited to A. G. Peck, of Arlington.

THE CURRANT WORM AGAIN.— In answer to your Critique on the July number, I would say that I have to report a complete victory on the same line. "Bismarck" wishes to know what occurred in the four weeks following June 3. I answer, knowing that the enemy would appear again within three or four weeks, I was armed and ready to meet him on his first appearance. As "Bismarck" says, the work of destruction that followed on the appearance of the main body was rapid, and would have been complete had it not been checked; but the currant bushes bear witness that the enemy did not have it all his own way. On the first appearance of the second crop of worms, I applied the whale-oil soap and kerosene thoroughly to all the bushes, and found it much easier to kill the worms of the second crop than the first. *George Cruickshanks.*

August 11, 1870.

PRESIDENT WILDER STRAWBERRY.— The editor of the Horticulturist, in an interesting article on strawberries, describing more than fifty varieties, as grown either on his own grounds, or by Mr. Dreer at Philadelphia, or Messrs. Reisig and Hexamer at Newcastle, N. Y., speaks of the President Wilder as "a good amateur variety; not firm enough for market." We would like to inquire the extent of the experience from which this judgment was pronounced, and where it was gained. The American Agriculturist, in a paragraph which we quote elsewhere, speaking of specimens sent from Boston to New York, late in the season, when fully ripe, says, "They endured rough handling satisfactorily."

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

NEW PLANTS. — *Ænothera marginata* (Bot. Mag., t. 5828). — A magnificent



ÆNOTHERA MARGINATA.

hardy evening primrose, differing from, but reminding us of, *Æ. taraxacifolia*.

The flowers are four inches in diameter, pure white, but while in bud, pale pink.

Rhynchothecum ellipticum (Bot. Mag., t. 5832). — A stove biennial of noble character, producing large obovate leaves and numerous corymbs of purplish pink flowers, which are succeeded by small, white, transparent berries.

Orthosiphon stamineus (Bot. Mag., t. 5833). — A curious and pretty labiate, requiring to be cultivated in the stove. The flowers, produced in terminal racemes, are of a pale purple color; the stamens are an inch and a quarter long.

Pepinia aphelandræflora (I. H., 3, V.). — A magnificent bromeliaceous plant, native of Brazil. In aspect it may be likened to a pandanus, the leaves being linear, of great length, and elegantly recurved. The flowers are produced in terminal spikes; they are of a brilliant vermilion color, and render the plant a splendid object when plentifully produced.

Calathea (Maranta) chimborasensis (L'illust. Hort., 3, VI.). — A handsome species, the leaves marked with broad, wavy lines of dark green and whitish gray on a bright green ground. It is not strikingly distinct from some other marantas already in cultivation.

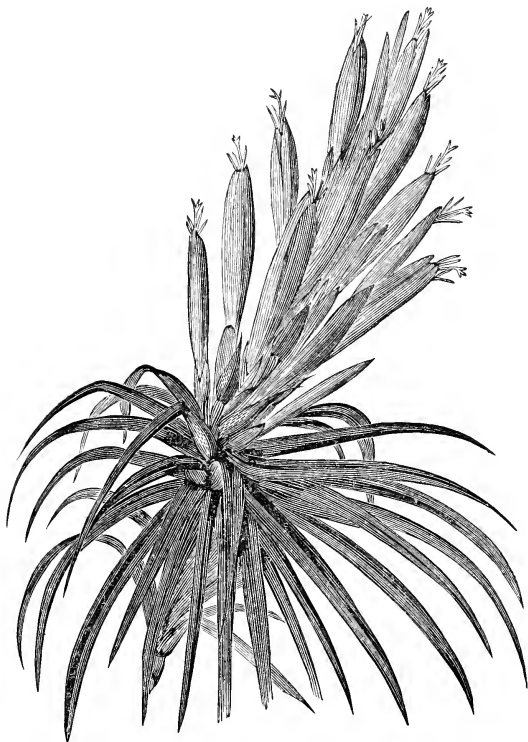
Cattleya Eldorado splendens (L'illust. Hort., 3, VII.). — The following account of the plant accompanies the plate, which is admirably executed: —

“Amongst the numerous specimens of *Cattleya* that M. Linden has received, for some years, from the different regions of Brazil, especially from the River Negro, he remarked a certain number of choice plants, which he set aside, and studied with care during many seasons of flowering. One of these specimens, which was exhibited by him at Paris in 1867, under the horticultural name of *C. Eldorado*, had struck every one's attention by the splendor of its striking colors, and, above all, by the magnificent blending of golden yellow, of violet, and of white. The plant was “let out,” and M. Van Houtte has given a colored representation of it in his *Flore* (vol. xviii. p. 13). It ran evidently into the type named *C. quadricolor*, of which Dr. Lindley made a “species” after a specimen in Bateman's collection, and, in spite of characteristics, little marked from a botanical point of view, which distinguished this novelty from *C. labiata*. Without protesting against the decision of such an authority as the late Dr. Lindley, we shall nevertheless consider this last species as the type of that variety we are about to describe on the present occasion.

“Our plant far surpasses in beauty, already uncommon, the original *C. Eldorado*. We might say that it is to the last plant as the *C. Mossiæ* to the type *C. labiata*. The epithet of “splendid,” that was allotted to it by M. Linden, is perfectly justified. We can imagine nothing more elegant, more brilliant, and more delicate at the same time, than the contrast of its throat, tinted and crowned with golden yellow, which surrounds a belt white as snow, bordered at the same time with a fringe of purple. The admirable lip detaches itself upon petals and sepals of a tender transparent rose color, of which the freshness could not be rendered by the pencil of any artist. The figure that we publish can only represent to the mind the form of contour and proportion of shadings, but the brightness, the harmonious fusion of these charming tints, are secrets that the great Painter of all things has reserved for Himself alone. The other distinctive characters of *C. Eldorado*

splendens are little striking. They are reducible to a habit more vigorous, leaves larger and more displayed, less fleshy and less elliptical than the *C. Eldorado*, and their pseudo bulbs more robust.

“Moreover it is not requisite to dwell too much from a botanical, or even a descriptive point of view, upon the numberless varieties of *C. labiata*, and its



PEPEROMIA APHELANDRAEFLOREA.

near neighbors *C. Trianae* and *C. quadricolor*. I was able to state, very recently, in relation to the flowering of these plants in the glass houses of M. Linden, that, amongst about seven hundred flowers expanded at the same time, it was impossible to find two alike. The variability of these plants is enormous; and it is necessary to point out also that their slightest differences strike the attention, and display themselves more vividly upon the colored perianths, strong or deli-

cate, when very large, than if we observe them upon small flowers with uncertain shadings.

“It would be idle to seek if all these varieties belong to *C. labiata*, and the more so that they are all spontaneous, and that they have come thus from Brazil. For myself, the essential point is to describe the most plainly distinct, and to pass the others in silence from a botanical point of view. We could then group their divers forms into the four following sections:—

“1. *C. labiata*.—The type of Lindley and the neighboring varieties that comprise white flowers.

“2. *C. Triana*.—Plants with delicate rose upon all their lobes.

“3. *C. quadricolor*.—All the varieties with four colors well cut.

“4. *C. chocoensis*.—A new tribe, introduced lately at M. Linden’s, from Choco (a province between the Rio Cauca and the Pacific Ocean, and running by the Rio Atrato, New Granada), all alike in aspect, having rosaceous flowers; the two large wings of the perianth (petals) very large, and not unguiculated like the sessile order. This arrangement renders the flower of nearly regular form. The texture of it is of extreme delicacy and tenuity, and the shadings vary between pure white, with a yellow blotch, in the shape of an anchor, upon the lip; white, with a stain of violet rose, the petals rosy-flesh, and slightly streaked from the interior; finally, the intermediate tones between these different colors.

“This new tribe, very distinct, is destined to a great horticultural future.—
ED. ANDRE.”

Gardener’s Magazine.

CULTIVATION OF TREE CARNATIONS. — It requires a considerable amount of care and judgment to grow these delightfully fragrant flowers satisfactorily. The cuttings should be struck in February, March, and April. Take cuttings of two or three joints in length, remove the lowest leaves only, put them into pots or pans in sand alone, and place the pots in a brisk, moist heat—like that afforded by a melon or cucumber frame, for instance. When well furnished with roots, put them into thumb-pots, and then shift from thumb-pots to three-inch size, and so on, always observing that they should not be shifted till they really need it, nor be allowed to become pot-bound for want of a shift. As soon as they have recovered from the first shift, nip out the growing points, and then stop no more. Continue to shift as required till the middle of July, when they may be in either eight or ten inch pots, as both are good sizes in which to flower them. After the plants are established in the thumb-pots, they should be grown with as little artificial heat as possible; and after they have had their last shift, put them out of doors in an open situation, and stand the pots upon a bed of coal ashes not less than six inches in thickness. When the pots are well filled with roots, water with *very weak* liquid manure. The pots must be drained efficiently, and the compost should consist of good turfy loam, quite free from wire-worm, with about a third of its bulk of old cow manure, and a liberal proportion of sharp silver sand. House from the 21st of September to the 7th of October, regulating the exact date by the time they are wanted in flower and by the weather. Keep them near the glass in a cool, airy house for a fortnight; then transfer them to a warm green-house, where they will begin to bloom towards the end of November, and, by judicious management, continue in flower throughout the winter.

Idem.

FRUIT-THINNING. — Perhaps no practice is so much neglected as that of the careful thinning of fruit. In many gardens it seldom reaches below peaches, nectarines, apricots, or perhaps plums; and even these are thinned, if at all, in a haphazard way. All fruits below these in the scale of importance are left crowded together, or are suffered to thin themselves, as the case may be. Under such circumstances, it is hardly to be wondered at that we so often see trees either laden beyond their strength, borne down beneath a heavy load of puny fruit, or without a crop at all. These results but too often represent two opposite sides of the same evil. Barrenness is the rebound from over-cropping. The trees swiftly revenge ill treatment, either in the current or the preceding year. This is so well known, so generally admitted, that it has become quite common among fruit growers to talk of alternate crops of this or that fruit. The season gives us such light weights a great deal too often, without our help, and in spite of our hinderances; and it is a serious blunder, if not a crime, that we should add to the number of the years of scarcity by our reckless or thoughtless modes of cropping. I was in a garden last year where the plum trees were so laden that the branches were propped up with clothes'-forks. There were cordons of fruit with a vengeance. I remonstrated upon the barbarous weight of the load, and was met by the triumphant answer, "Why, these trees have not yielded a crop this ten years, and I must have been a fool not to have taken all I could when I could get them." I asked the grower when he expected a second. He looked puzzled for a moment, and finally answered, "Never;" and I believe he was right. Let him that is without fault among us, in regard to this matter, throw the first stone at this man's folly.

Over-cropping is the greatest evil of the present day in fruit-growing. It wrecks regularity of supply, lowers the quality of the fruit, and prematurely exhausts the strength of the trees. Born of greed and ignorance, it has been upheld by custom, and supported by indiscriminating practice, until it has become well nigh universal. I therefore wish to raise, as loudly as possible, on behalf of the trees, the cry they have all along been mutely urging: "Thin, thin our fruit!" Alternate cropping is but one form of that cry; showers of dropping young fruit another; deformed fruit a third; small, prematurely-ripened fruit a fourth; weakness and death overtaking the trees in their youth a fifth; while many more mute expressions of opinion by the trees themselves upon this point might be noted by the careful observer. I believe it might be shown that a crop of suckers springing up from the root-stocks of trees is but another form of protest against over-cropping. In effect the tree says, "You will burden all my fruit-bearing wood unmercifully. You leave no reserve of strength to come back as a fresh stream of force, a new current of quickening life to my constitution. Very well, I have revealed my will concerning this to you already in divers manners and at various times. And now I will try a fresh tack. I will create my own strength for my own need; I will throw out supports so close to my root-stock that you cannot exhaust them with fruit-bearing." But the poor tree, like many of us, had reckoned without its host. The cultivator sees, condemns, and slashes off the horrid suckers at once, and this illegitimate source of strength is suddenly drained dry. But the tree was right. As a remedy for

over-cropping, the suckers were good for the life of its roots, though not for the well-being of its fruitful top; the suckers were its emphatic protest against over-cropping, and, though in a widely-different language to most of the other remonstrants, suckers also do naturally appeal to us along the whole of their lines, to thin, thin the fruit. So much for the necessity of thinning the fruit. I will now give a few simple instructions as to the time and manner of doing it, and the extent to which it ought to be carried.

There is considerable difference of opinion in regard to time. The whole range, from flowering to the stoning or seeding of the fruit, has, I believe, been chosen by various practitioners and writers as the very best time for thinning. This, while it may be puzzling to the inexperienced, should also assure them; for while such variations in practice may not prove one time to be as good as another, or better, it at least shows that so long as the thing is done, time is not the important question in regard to it that many imagine. And yet I hold it is important, and that the thinning ought not to be one act, but many. I cannot agree with those who advocate the thinning of the flowers of fruit trees out of doors. In our climate this savors too much of presumption, and an excess of interference, which nature justly resents. Flower-thinning may safely be left to the tree. The expansion of flowers into full blossom, and their progress to fruit babyhood, hardly exhaust the tree at all. All these supplies, so far, are inherent in the bud, or laid up at its base; and if you reduce the number of buds in the spring, I don't believe that you can get the supplies that were laid for those that you remove diverted into those that are left; and if you could, I question the wisdom of giving them more than nature has provided for them at this stage. Babies are none the better, but all the worse, for being unduly crammed, whatever may be said about men — or turkeys. It is difficult, also, without a very great sacrifice of time in the scrutiny, to discriminate at a glance between perfect and imperfect flowers, or determine with certainty which will set, this or that. The thing is impossible. For these reasons, the thinning of the flowers of fruit trees in the open air had better be dispensed with. It is alike unsafe, uncertain, and unnecessary. A fortnight or three weeks after the fruit is set is a suitable time for the first thinning; a second might take place in another fortnight; and the third and final one should be after stone fruits are stoned, and when apples and pears have grown to about one sixth of their full size. No set time can be laid down for the process. The size and condition of the fruit determine the time. And it is safest not to thin severely until the natural period when each fruit tree throws off its superfluous fruit has passed. For instance, no wise man would thin cherries until the fruit had passed through the dropping or yellow stage. The only thinning that might precede these natural ones would be the removal of imperfectly set and malformed fruits. In the case of thinning too early, the chances are that those taken off might have gone on to maturity, while those left might be destined to drop. It is difficult to fix the right moment on paper, though the practised eye can speedily settle it on the tree. Neither too early nor too late, and with caution and skill always, are good and safe thinning instructions, of universal application. The middle course here — there are always three courses — is the only safe one.

As to the manner of thinning, nothing can well be more simple. With the fingers and thumb-nail as the handy instrument of the eye, go to work upon the trees as soon as the fruit is fairly thoroughly set. Remove every ill-formed and badly-placed fruit, and thin the thickest of the clusters where the young fruit is crowded together. Cherries, plums, apples, and apricots are most given to overcrowding at this early stage. Leave only from two to six of the strongest fruit in each bunch or cluster. At the second thinning, reduce them again by one half; and if the clusters are placed closely together, only one should be left to each at the final thinning. The largest should invariably be chosen to remain, provided their form is perfect and their position good. No wall fruit should ever be left crushing under or against a branch, as the compression will ruin its appearance for table. The second thinnings of such stone-fruits as apricots, peaches, and plums are generally preserved for tarts or jams, and sometimes the last thinnings also. The operation should be completed on apples and pears before their fruit are of any value.

Other fruit, higher or lower than either of these, might be thinned with great advantage. Numbers might grow grapes out of doors almost equal to hot-house ones if they would but take the same trouble in thinning bunch and berry to the same extent. Descending lower, the thinning of currants and raspberries is tedious work, but it improves the size amazingly, and strawberries swell into marvellous mouthfuls of lusciousness if only three or four fruit are kept on a stem. A sharp pair of scissors in nimble hands will make quick work of thinning a row of strawberries in bloom. To grow monstrous gooseberries, again, thinning is indispensable, and the thinnings here can be converted into puddings on the instant.

As to the extent of thinning, no rule of general application can be laid down, it depends upon so many considerations, such as the strength of the tree, the quality of the soil, the objects of the grower, &c. The following general rules may, however, be useful. In all such cases as this, it is better to give flexible rules than unyielding figures. I am not aware that I ever saw a perfectly satisfactory fruit crop measured off by rule or line. If I laid down a hard-and-fast line for peaches, for instance, of six, nine, twelve, or eighteen inches apart, not a single reader could adhere to it exactly. One great hinderance to the efficient thinning of fruit is a mistaken notion that numbers mean weight, and that a full crop cannot be had without great numbers. But if three peaches weigh as much as nine, where is the gain in having the nine? There is no gain, but great loss, in the undue increase of numbers. Peel carefully and cut out the stones from both lots, and weigh the amount of peach in each, and you will be astonished at the difference of peach-weight in favor of the lesser number. It is the same with all fruits. He that grows small fruit grows trash; it is rind, it is stone, it is seed — anything, everything, but good, sound flesh or pulp. He who grows large fruit has a maximum of good grain, with a minimum of such worthless chaff as seeds, rind, and stones. Further, full average size is favorable to quality, though there are many exceptions to this rule. Small fruits are often like sweetmeats; in fact, they are unnaturally, unpleasantly sweet at times, especially if their diminutive size is associated with deformity. Still, the above rule holds

good; notwithstanding the exceptions, size and quality mostly are found together. Note, I do not write that mere size nor large size is proof of quality, but average size is mostly associated with it. Finally, fine fruit are much more easily gathered and stored, and more pleasing to the eye than small fruit. Surely more need not be added in favor of prompt, vigorous, and thorough thinning. No one, I think, will deny that it has the effect here ascribed to it, that it preserves the health and husband the strength of the trees, guides the vital force into the most useful channels, and enlarges the size, improves the quality, and enhances the value of the fruit.

*D. T. Fish, F. R. H. S., Hardwicke House, Bury
St. Edmund's, in Florist and Pomologist.*

IBERIS, OR CANDYTUFT.—As there are several of these worth notice, I hardly know which to select, as they are all deserving more attention than they have hitherto received. They are dwarf evergreen shrubs, producing in the spring innumerable corymbs of white flowers, so dense on most of the species as to entirely eclipse the whole plant. *I. gibraltarica* is a robust-growing species lately reintroduced into this country. It is the largest flowered of the race, but is not so hardy as some, therefore cannot be recommended for general purposes; it is, however, a beautiful plant, and one which will soon become familiar to us all. *I. corifolia* must be called the gem of this family; it is an invaluable hardy plant, and indispensable where good flowers are appreciated. It is distinct from all the others, having large, thick foliage, and compact heads of pure white flowers, which stand up boldly above the plant; the individual flowers, as well as the corymbs, are much larger than any other species of this character, and it continues in flower long after all the others have done. *I. sempervirens superba* is a variety of the common candytuft, much larger in flower and foliage, and is a decided improvement upon the old plant.

A. I. P., Tottenham, in Gardener's Chronicle.

THE NEW ZEALAND FLAX.—The beautiful *Phormium tenax* is now well known in this country, but it is not grown so extensively as it should be. Although fit to grace the conservatory of a prince, it is one of the best of all plants with ornamental leafage for the amateur. It is easily propagated and cultivated, and is, moreover, nearly hardy. Good specimens present a noble appearance on terrace walks during the summer, and they are as valuable for the winter decoration of the conservatory as they are for the ornament of the flower garden during the summer. It is also a good window plant, as its thick, leathery leaves are not readily influenced by the dry atmosphere common to sitting-rooms. Sound, turfy loam, enriched with about a sixth part decayed manure, will grow it to perfection, provided the other details of management are carried out properly. It is also essential to pot firm, and well drain the pots, as liberal supplies of water are necessary during the summer. The variegated variety is one of the grandest plants with ornamental leafage in cultivation, but at present is comparatively dear. *P. tenax* is increased by division or from seed, and *P. tenax variegatum* by division. The species may be planted out in the open air, in sheltered positions, in the southern counties.

Floral World.

THE HAWTHORN, WORKED ON THE PEAR OR QUINCE.— In the summer of 1866 I budded the double scarlet thorn upon the pear and on the quince, and in the spring of 1867 I grafted this thorn upon the pear. The buds grew with extreme vigor in 1867, and not only flowered in 1868, but bore haws abundantly, which, however, were not single-seeded, but each haw contained two to four stones. These haws had large, open eyes, and were thus of a flattened form. The parent trees from which I cut the buds and grafts, although they had flowered previously for several years, had never before produced a haw. The budded plants, after they had ripened their fruit, lost their vigor, and not only died themselves, but the pear stocks upon which they grew also succumbed. I, however, thought that the excessive heat of the weather at least expedited this result. The grafts on the pear pushed away most splendidly in 1868, and formed magnificent leaves, I should think at least eight inches across, with fine, strong shoots, having clean bark. They flowered in 1869, bore haws less abundantly, and seed similar to the budded plants, and then died, both thorn and stock. In 1868 I obtained a rather small plant of Paul's fine new scarlet double thorn, and was able to cut from it about half a dozen small, weak grafts, three of which I worked upon pear stocks, which were at least an inch in diameter. These came away as well as could be wished, and during the summer pushed fine, healthy shoots two feet long; and as my object in working these upon the pear was chiefly to obtain a large supply of scions of this most splendid flowering thorn, I was fully rewarded; for one small graft, not above a twelfth (if so much) of an inch in thickness and three inches in length, grew me, I should think, fully sixty fine, strong, healthy grafts, which were taken in the spring of 1869, and, in fact, fully three times the quantity the original plant could give, even if it had been more severely cut down.

Working the thorn upon the pear yields this practical result, that when thorn scions are wanted in abundance one year will be sufficient to produce them either by budding or grafting, but particularly by the latter process. Having scrubbed the pulp off the haws, I planted them in a pot, which, although ticketed, has been lost. If any one wishes to work out an idea, he must watch, and almost exclusively attend to, the whole process himself. Subsequently I planted the more recently obtained haws in the open border, after removing the pulp. Two out of three grafts of Paul's thorn I cut down for scions in 1869, and the third I allowed to remain, and it flowered most gloriously; and although I am under the impression that the color of the blossoms was not quite so intense as those produced in the neighborhood of Darlington upon thorn stocks, yet the size of each individual blossom was very much larger; and it struck me that, for exhibition purposes, the grafting on the pear offered very tempting advantages. I may add, that, even considering the above result, I am not thoroughly convinced that the thorn may not, under certain circumstances, be advisedly grown upon the pear. Obviously the excessive luxuriance of the growth of the thorn grafts and buds might lead to fear for the results. Had the pear stocks been of less size, and been root-pruned, — which mine had not been for at least four years previous to working, — more favorable results might have been anticipated. I have a few of the old double-flowering thorn, budded in 1868 upon the pear, some of which

have not grown so vigorously, and which flowered and bore haws last year, but are still alive. The two of Paul's thorns cut down for scions in 1869 are still alive, and from one of them I procured the other day a handful of twigs for grafting; but although quite alive, they did not appear quite so healthy as ordinary thorn shoots do. The one which flowered, and was not cut at all in 1869, is still alive. In 1866 I put in a bud on a pear stock of a large-fruited variety of the white thorn, which I had marked in a hedge. This did not grow so vigorously as the double-flowering variety, and did not flower till 1869, and only bore one haw, but it died last autumn. In 1868 I put in a bud of that variety which the continental nurserymen send over to this country as "the weeping thorn," but which with me seems to be vastly too proud to weep, and will persist in gleefully holding its head erect. This upon the pear is still alive, and I believe quite healthy, and, although lop-sided, it weeps in the most graceful curve desirable.

My experience of the old double-crimson thorn worked upon the quince is most satisfactory. Here, I think, is afforded a means by which this beautiful May bush may be adapted to many situations from which its strong growth now precludes it. I have plants budded on the quince in 1866 quite healthy, and I believe they will remain so. They are, however, dwarfed, bear pinching in with all endurance, and will make handsome, small profuse-blooming plants for the front of shrubberies. Mine did not flower till last year, being then within a month or so of three years from the time of budding. I shall follow out with these Mr. Rivers's practice with pears. When he finds certain varieties of pears do badly upon the quince, he grafts a variety of pear upon the quince which does well, and then grafts the other varieties upon the pear grafted on the quince. The American thorn, I find, takes also well upon the quince, comes into flowering and bearing the second year (the fruit, I think, being enlarged), grows into a nice pyramid, and bears summer pruning well. I have been desirous to see if the haw, by cultivation, working upon the pear, could be improved so as to be made deserving notice as an article of domestic use; and I incline to think the object may be attained by working the best varieties, which may be occasionally found in the hedges, upon the quince, or on the quince worked upon the pear, and then upon this pear-graft, or perhaps upon the American thorn. *Cratægus Layi* seems to stand well upon the pear. I have a graft, put on in 1868, looking well; but it did not flower like Paul's double, although worked on the same afternoon.

In conclusion, I may add that the plan of grafting I adopted as a boy is the simplest method of all. An old Scotchman was my first instructor in grafting, and his method was to head down the stock, make a slit up the bark, which he raised with a small, thin piece of bone, and then inserted the scion, cut splice-wise as usual. I at once saw that by inserting the piece of bone the rind was separated a greater distance than the space required for the scion, and thus more violence was inflicted than need be. To avoid this, after making the first cut up the back of the stock, I placed the already prepared scion against the stock, and made a second cut up the bark, and thus just raised enough to allow the scion to fit in cosily, by which I avoided punishing the stock more than was unavoidable, while by placing the scion against one edge of the cut rind the sap had im-

mediate access to it. I have found this method very successful, and for an amateur most easy. Even with smallish stocks it can be adopted, while with small ones, instead of cutting a slice, and then seeing that a portion of the inner rind of the graft fits on to a portion of the inner bark of the stock, one side can be a little cut away, and the graft placed against the edge of the bark on one side and on the sap-wood, from which the bark has just been removed.

W. A. Wooler, Sadberge Hall, in Gardener's Chronicle.

VIRGIN CORK. — The cork known under this name is the first gathering of bark from the cork tree (*Quercus suber*), and, as it is of little or no use for cork making, it has recently been introduced to this country by the London and Lisbon Cork Wood Company, who have large forests in Portugal, for garden decoration. It is sold by the company at a remarkably cheap rate, and is unsurpassed for forming an inside lining to summer-houses and grottoes; indeed, for this purpose, it is impossible to say too much in its praise. It is light, clean, and durable; indeed, the common bark used for this purpose bears no comparison with it. Its greatest value, however, consists in its adaptability for giving a natural rustic appearance to the fernery and fern case, without the annoyance of fungi and rot, which always accompany the use of bark and wood of other trees. It can also be converted into stands for ferns, and also brackets, for hanging to the walls of the fernery and green-house, and may be employed in place of rustic wood or pottery for growing ferns, and also for intermixing with burrs or rock-work in either the in or out door fernery. Our able coadjutor, Mr. Cole, has had one of the ends of a fernery under his charge fitted up with it, and nothing could have a more rustic appearance; and a number of small plants of the curious "Elk's Horn" fern, *Platyserium alaicorne*, fixed to it a short time since, have grown with remarkable vigor, and are now specimens of a considerable size. Cork is decidedly the best material for blocks upon which to grow orchids, but its expensiveness has hitherto prevented its being generally employed in the orchid-houses; but, now that it can be obtained at a cheap rate, it will undoubtedly be used in preference to all other kinds of wood.

Floral World.

MUTUAL INFLUENCE OF THE GRAFT AND STOCK. — I enclose samples of three varieties of Laburnum, growing here on one tree. It appears to have been grafted about four feet from the ground — the purplish-flowered kind on the common yellow variety. The scion portion of the trunk is about one third greater in diameter than the stock. The blood of the stock seems to be struggling hard with that of the scion, for on one branch of the tree the yellow appears at the point, the purple all round for three feet lower down, then a whorl of the lilac colored, then the purple all the way to the main stem, interspersed with bushy twigs of the lilac form. Doubtless the lilac sports are occasioned by the commingling of the purple and yellow blood, while the purple is affected by the struggle of the yellow to appear by the influence of its stock.

P. M., Wynnstay, in Gardener's Chronicle.

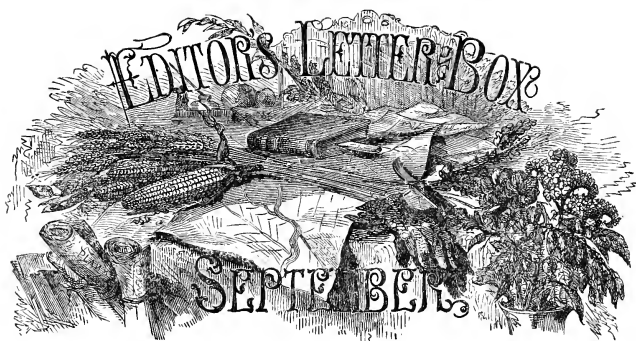
ORANGES. — The best orange for growing in this country is the Tangerin, as it is of comparatively small size, and grows freely in a medium temperature. The plants can be either grown in pots or tubs, or planted out in a border. In either case the compost in which they are grown should consist of stiff loam and rotten manure.

Floral World.

LEONARDO DA VINCI AS A BOTANIST. — In a recent number of *Nature*, Mr. A. W. Bennett discusses the claims of the great painter Leonardo da Vinci to be ranked among the botanists. It appears that the method in which leaves are arranged on the stem (*phyllotaxis*) was known to and described by Da Vinci long before Sir Thomas Browne, in his *Garden of Cyrus*, called attention to it, and before Grew and Malpighi noticed it. The fact that in exogenous trees the age may be determined by the number of rings, and the aspect in which the tree has grown by the greater thickness of the tree on the south side, was also first noticed by the great painter. Many other illustrations of his botanical knowledge are cited, and which have hitherto been overlooked. The student will find in Mr. Ruskin's *Modern Painters* many remarkable observations on plant conformation, which appear to be as much neglected by the botanist as those of Leonardo da Vinci.

LARGE TREES IN AUSTRALIA. — A Karri Eucalyptus (*E. colossea*) was found to measure four hundred and twenty feet in height, with proportionate width, and a Eucalyptus near Healesville, measured by McKlein, was found to reach four hundred and eighty feet. The "Victorian trees," as remarked by Mr. Mossman, in the *Origin of the Sea-coast*, rival in length, though not in thickness, even the renowned forest giants of California; the highest of the Californian trees, *Wellingtonia gigantea*, being said to be about four hundred feet in height.

Floral World.



THE Editors of Tilton's Journal of Horticulture cordially invite all interested in horticulture and pomology, in their 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 horticulture.

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.

K. T. W. — It is true that the Clapp's Favorite has been charged with rotting at the core, and very likely it has been the case in some instances when the fruit was carelessly managed. It is very easy to spoil a summer pear, and it is very easy to ripen it in perfection. To spoil it you have only to let it hang on the tree till fully ripe, and in nine cases out of ten it will grow mealy and rot at the core; while if gathered as soon as the first indication of ripeness in the

sound pears (not the wormy ones) is perceived, while the majority are still hard, and ripened in a dark place in doors, they will just as certainly be juicy and sound. If wanted to put into the market as soon as possible, they may be gathered earlier than above indicated — even before fully grown.

MR. EDITOR: In looking over Mr. Alexander Hyde's article on Asparagus, in the section of soil suited and not suited to its growth, he says, in heavy clay soil it is difficult to harvest the crop, *as the shoots must be cut two or three inches below the surface*. Now, I ask why it is necessary to cut the shoots two or three inches below the surface. If he had said it was necessary for the benefit of the *market gardener* to cut it so low in order to make the bunch larger or longer, and to make the consumer feel that he is buying a generous bunch for his money, I should have understood him; but now I do not.

I have grown asparagus for more than thirty years (one bed), and have always cut at the top of the ground, and then it is all tender; and that *only* should be sold.

I am a plain dealer, and would like for Mr. Hyde to explain why it is necessary it should be cut two or three inches below the surface. He must have some reason, and we would like it, as his article is incomplete.

A Subscriber.

Our views on cutting asparagus are stated in the Journal for April, 1870 (vol. vii. p. 236), and will be found to agree with those of "A Subscriber," given above. We should be glad to hear what Mr. Hyde has to say in defence of the plan of cutting two or three inches under the surface. — ED.

MR. EDITOR: I send you by mail a box containing some grape vine leaves. I never happened to see any like them before, or saw enough together to attract my attention. The whole vine, or rather three quarters, are like those sent you. Thinking they might interest you, I send a few. Yours truly, T. T. S.

The curious protuberances which covered these leaves were made by the grape leaf gall-louse; an insect first described in this country by Fitch, of New York, as the *Pemphigus vitifoliae*; but it has been ascertained that it is nearly related to *Phylloxera*, and probably identical with the *Phylloxera vastatrix* of Planchon, which in Europe is so fatal to the growing vines, by puncturing their tissues, and thereby causing the rot of the roots by impeding circulation. In this country the Clinton and Delaware, and a few other hybrid varieties, seem particularly subject to the ravages of the insect. The American Entomologist for August, 1869, p. 248, contains an interesting article on this subject, and furnishes many valuable hints for vine growers. We would recommend plucking off the leaves and burning them as fast as they are noticed.

DOES the Purple Beech ever produce fruit? I have known trees, apparently of sufficient size and age, but do not know of their ever bearing any nuts.

S. H.

N. S. N.—We are not at all surprised that you have destroyed your plants by applying salt to kill weeds. Cultivated flowers, at best, are not generally any more hardy than weeds, and common sense should have taught you that what would kill the weeds would kill the plants. Salt may be used with advantage to kill weeds on walks, or wherever nothing else is wanted to grow. A very thin dressing applied early in spring before growth has commenced, will destroy many injurious insects which infest old gardens, without injury to the plants. It renders the ground cold, however, and therefore is better for warm, dry soils than for those naturally cool and damp.

OUR friend, General O., of Salem, a very earnest lover of flowers, as well as occasionally flowery in his speech, and not averse either to receiving or to uttering a witty repartee, was a few days since passing down the street upon which he resides, with an attractive bouquet of roses in his mouth. A fair neighbor who met him, after admiring the floral display, asked him, in a rallying tone, if he had not room for a few more flowers between his lips. "O, yes," quickly replied the general, "I can make room for your tulips" (two lips!).

"The fair one blushed, and turned away,
And wishing *yes*, yet acted *noy*."

E. A. R., Bethlehem, Pa. — The specimens came to hand in good order, and as they included leaf, flower, and seed, we had little trouble, with the assistance of your notes, in deciding it to be the *Erodium ciconium*, a native of the south of Europe.

The work which we think will best answer your purpose is Sweet's British Flower Garden, containing colored figures, and descriptions of the most ornamental and curious hardy herbaceous plants, including annuals, biennials, and perennials, with their scientific and English names, cultivation, propagation, heights, etc. It is in seven octavo volumes; but we do not now think of any general work on the European Flora in a smaller compass.

MR. EDITOR: Three years since I received from a friend in Western Massachusetts about twenty plants of the blueberry; I think the *Gaylussacia frondosa*. They all lived through the first summer, since when most of them have died off, although planted in good ground and well cared for. About five or six remain, which barely exist, and cannot be made to flourish by any means that I know how to employ. I know that some plants of the same natural order, the *Ericaceæ*, will not thrive in soils impregnated with lime. Is that the case with the blueberry? If you can give me any information on the subject, through the Journal or otherwise, you will oblige me. Yours truly, A. B.

PRINCETON, ILL.

We regret that we are unable to throw any light on the subject of the above query, but publish it in the hope that it may meet the eye of some one who can. In the absence of anything better, we would suggest, if it is suspected that the failure of the blueberries is caused by excess of lime in the soil, the trial of the plan which has succeeded so well with rhododendrons on limestone soils, as described in our vol. vii. p. 101. — ED.

H. B. L., Danvers, Mass. — We think the cause of the leaves of your crab apple tree turning yellow is the dry weather; but since then they have been attacked by a fungus, the *Rastelia pyri*. We cannot suggest any remedy for it, and very likely they may never again be troubled in the same way.

MESSRS. J. E. TILTON & Co.

My July number of the Journal of Horticulture has not yet come to hand; and whenever it is delayed I feel quite at loss, for I value your periodical more than almost any other one; and I can assure you the number I receive from different parts of the world is not a few by any means. Please mail me the missing number as soon as convenient, for I shall anxiously await its arrival for the good things it is sure to contain.

I would send an article for its columns along, but really, my dear sirs, you have no idea how little time a thorough *fruit* and *truck* grower has to call his own; therefore I will have to defer the promised article until a more favorable period as regards leisure time.

The weather has been unusually dry for the last month, and the intense heat — from ninety to one hundred and five degrees in the shade — is injuring the crops very materially; but we are hoping for rain; and when it is His will to give it to us we will get it; so it is no use for us to fret or repine about our hard lot.

With best wishes for that paragon of papers, The Journal of Horticulture, I remain, as ever,
 Yours, truly,
 D. Z. E., Jr.

CHESAPEAKE CITY, MD., July 25, 1870.

WE are under obligations to the Pleasant Valley Grape Growers' Association for a complimentary ticket to their meeting at Hammondsport, for the purpose of viewing the extensive vineyards and fine scenery of that valley, eating of the early vintage and testing their pure wines.

Also to the Illinois State Agricultural Society for a complimentary ticket to the Annual Fair at Decatur.

HAS rained fourteen days out of seventeen; crops fine; corn extra; fruit good and plentiful.
 T. T. S.

DANSVILLE, N. Y., August 1, 1870.

THE fore part of our summer here was very wet, and our fruit suffered considerably from the effect. We expect a fair crop, but it will not be of so fine a quality as usual. Hale's Early peaches will be ripe in about ten days. T. M.

ELIZABETH GARDENS, MERCERSBURG, PA., July 22.



NOTES OF A HORTICULTURAL VISIT TO CALIFORNIA. II.

By MARSHALL P. WILDER, CHARLES DOWNING, GEORGE ELLWANGER, and P. BARRY.

THE GEYSERS.

ON the evening of June 30 we returned to Napa, and took the train to Calistoga, on our way to the Geyser Hot Springs. In passing through the Napa valley, some thirty miles, to Calistoga, we were delighted with the beauty of the country; immense fields of grain, dotted over with live oaks, vineyards, orchards, and gardens, with finely wooded hills in the distance on either side.

Calistoga is the terminus of the California Pacific Railroad. There are hot sulphur springs there which begin to attract attention, and it is expected to become a popular resort. A large number of neat little cottages are already provided for the accommodation of visitors, and what most attracted our attention about them was a fine palm tree growing in front of each, giving them quite a tropical aspect.

From this place we rode to Geyser Springs, part of the way in coaches and part in open wagons. The distance is called twenty-six miles, over a mountainous district of country. The road runs along and curves around the edges of the mountain, sometimes along the

edge of a precipice several hundred feet of perpendicular depth. Nothing can surpass this ride in wild, picturesque beauty; but the sense of danger which nervous people experience detracts from the pleasure which it would otherwise afford. The drivers, and especially Mr. Foss, the proprietor of this line of coaches, are noted for fast driving. We certainly came down those fearful hill-sides and around sharp corners at the rate of fifteen miles an hour.

On our way we met with the *Pinus Sabiniana* and *Benthamiana*, and also the *Abies Douglassii*. The last named we saw in large groves, and of immense size.

At the Geysers we found the thermometer one hundred and six degrees in the shade, and we were satisfied with a brief visit to the wonderful boiling springs.

The hill-side on which these springs are located is thickly interspersed with these boiling, hissing, sulphurous springs. One immense caldron is not inaptly called the Witch's Caldron; another his Ink Bottle; the fluid in it is black, and makes a good ink.

We shall spend no more time on these curiosities, but pursue our visits to the orchards, etc.

THE ALHAMBRA VALLEY.

On the 5th of July we visited the Alhambra gardens of Dr. Strenzel, in the Alhambra valley, near Martinez.

The area of ground in fruit is about ninety acres; the whole ranch embraces some seven hundred acres. Thirty-four acres are covered with grapes, one half of which is the Mission Grape, so called; the other sorts embrace White Muscat of Alexandria, Flame Tokay, White Chasselas, Black Hamburg, White Corinth, Palestine, etc. Bunches of the last named we found, on measurement, to be eighteen inches in length, though of course the berries were not more than half grown. Isabella and Catawba have been tested, and found unsuccessful.

The vines are planted seven feet apart, and are grown in tree form, with stems about eighteen inches high. Dr. Strenzel, unlike most of the others we have visited, performs a kind of summer pruning twice during the growing season; ten to twelve bearing canes are left to a

vine. He applies sulphur four or five times during the season, beginning as soon as the leaves are half grown; by this means he prevents mildew.

The vineyard here we thought to be in quite as good a condition, all things considered, as any we visited. Dr. Strenzel has given much careful thought to the subject, and evidently understands it well. Prices, we were informed, were, for Mission, three to five cents per pound; others, seven to eleven cents, except Flame Tokay, which commands a higher price. The average crop was stated to be about ten pounds to the vine. Some parts of the vineyard are sixteen years old. The stems of many of the vines are six inches in diameter. The grapes are mostly grown for the table.

The orchard contains twelve hundred apple trees, one thousand pear trees, eighteen hundred peach trees, besides plums, cherries, almonds, apricots, figs, walnuts, pomegranates, quinces, and oranges. All these were in a vigorous and fruitful state, promising a full crop. Of figs, White Marseilles and Brown Turkey were ripe; of apples, Early Harvest and Red Astrachan. Among apples, the following were named as most profitable: Red June, Early Strawberry, Red Astrachan, Swaar, Rawle's Janet, Newtown Pippin.

Pears looked well. Kinds run same as in other places. The leading sorts appeared to be Bartlett, Washington, Vicar of Winkfield, Flemish Beauty, and Beurré d'Anjou. The trees were about twelve years planted, standards, with stems four feet high, and but little pruned.

The quinces — about two hundred — were the finest we ever saw. The price obtained for the fruit is three to four cents per pound.

The pomegranates — one hundred and eighty — are superb plants, about six feet in height, covered with fruit and flowers, a splendid sight of the kind, and such a one as we never enjoyed before. They ripen in September and October, and sell for eight to fifteen cents per pound. In good seasons these trees produce six hundred pounds.

Walnuts (English) begin to bear at fifteen years old, and produce sixty to seventy pounds per tree.

The Alhambra Valley is narrow, wholly occupied by this plantation,

and sheltered on two sides by hills some six hundred feet high. The climate is, therefore, very warm. During the warm period, occurring about the first of July, the mercury rose to one hundred and nine degrees in the shade — very unusual. The whole plantation of Dr. Strenzel appeared to be managed with great intelligence and system, and gave us much satisfaction. A fine Osage orange hedge encloses two sides of the orchard.

OAKLAND.

July 6, we visited Oakland, across the bay from San Francisco, chiefly with a view to see the ornamental trees and plants in the gardens of that city, of which we had heard much. In going our rounds we saw many small collections of fruits looking well. One is specially deserving of mention — that of Mr. Jonathan Hunt. It contained a good collection of pears and other fruits in full bearing, and a large and beautiful collection of dwarf apple trees, also in full bearing, the finest any of us had ever seen. The trees were perfect in form, and laden with the largest and finest of fruits. Peaches also looked quite as well as any we had seen. This garden had many ornamental trees and plants worthy of note, which we shall name hereafter.

SACRAMENTO.

On the 7th of July we went to Sacramento, to visit the gardens around that city. Our first visit next day, the 8th, was to the plantation of Mr. Charles W. Reed. Here we found an orchard of some ten thousand pear trees, dwarf and standard. The oldest trees had been planted nine years, and some of them were twenty-five or thirty feet high. Like other orchards we have seen, the trees are too closely planted.

We were shown Beurré Clairgeau and Winter Nelis, said to have been four years planted, twenty feet high, and stem full six inches in diameter, heavily laden with fruit. The following varieties were observed to be very fine: Beurré Giffard, Rostiezer, Bartlett, Winter Nelis, Duchesse d'Angoulême, Vicar of Winkfield, and Seckel. Of the Seckel the orchard contained one thousand trees; of Winter Nelis,

a long avenue. The Beurré Giffard were extraordinary, and all were very fine. Of the Vicar of Winkfield Mr Reed sent twenty tons to New York in 1869.

Apricots were superb, and sold at two to ten cents per pound. Peaches are grown extensively, and the early varieties pay well. A fine dish was set before us, with melons, figs, Lawton blackberries, and pears, which we partook of sitting under fig trees as large as good sized orchard apple trees, full twenty-five feet in height. Brown Turkey is regarded as the most profitable fig.

Apples are grown to a considerable extent, and succeed well. The most profitable sorts were said to be Keswick Codlin, Red Astrachan, Early Harvest, Red June, and Newtown Pippin.

Of grapes the culture embraces some ten thousand vines. Eight acres are wholly Muscat of Alexandria. The fruit was about two thirds grown, and looked well. Black Hamburg and Black Prince were named as profitable sorts.

A few years ago this orchard was much damaged by the flood, but it now appears to be in an excellent condition. It is located within two miles of the city of Sacramento.

At the time of our visit Mr. Reed was preparing to ship to New York some car loads of Bartletts. These cars are specially constructed for the purpose, and contain each ten tons. Two of them are on our train, as we now return home, July 27.

SMITH'S ORCHARDS.

We next visited the orchards of Mr. A. P. Smith, also within a short distance of Sacramento.

Mr. Smith formerly carried on an extensive nursery business, in addition to fruit growing, and his grounds were regarded as, and no doubt were, the finest in the state; but the floods, so destructive around that city, swept away a large portion of the grounds near the river, and covered other parts some three to five feet deep with sand. The finest portions of the grounds were thus destroyed. The wreck is still to be seen. A considerable portion of the orchard remains, and is bearing a heavy crop.

Pears and plums were specially fine. Among pears the following were prominent: Dearborn's Seedling, Bartlett, White Doyenné, Winter Nelis, Easter Beurré, Dix, and Glout Morceau. The Dearborn's Seedling and Glout Morceau surpassed in size, beauty, and quantity any crops we have seen. Trees of Dearborn were bearing eight to ten bushels of fruit. Dix were high colored and fine. White Doyenné in all its ancient beauty and excellence.

The crop of plums was so heavy as to break down branches of the trees. The Early Orleans were just gathered, and ready for market. Washington plums were superb. The ground on which these fine, fruitful trees were growing was covered by sand to the depth of two to three feet, washed on by the flood. In our climate they would have perished. We could not but share in the sympathy so generally felt and expressed for the Messrs. Smith. They were the pioneers in this culture, and highly respected and esteemed by all.

THE "BIG TREES."

July 9. Left Sacramento for Stockton, forty-three miles distant, in San Joaquin County, and there took carriages to the celebrated grove of "Big Trees," — *Sequoia gigantea*, — in Calaveras County. The distance from Stockton is seventy-two miles, which we made in about a day and a half each way.

On our way, as soon as we passed off the plains and began to ascend the mountains, we met the *Pinus Sabiniana*, just as we did in going to the Geysers. Passing out of the region of this tree, we came to *Pinus ponderosa* (called Yellow Pine), mixed with *Libocedrus decurrens* and *Thuja gigantea*, the last being scattering. As we ascended higher and came closer to the grove of Sequoia, the forest became thicker and the trees larger, until they reached a magnitude surpassing anything we had ever seen.

Besides the trees named, *Pinus Lambertiana* (Sugar Pine) became abundant and of immense size. This is the finest timber tree of that region, and, like the *ponderosa*, distinguished in the forest by its beautiful shining bark, resembling mosaic in its elegant tracery. Here are also found the *Abies grandis* — noble specimens. Words would fail

to describe the sensations we experienced in riding through this giant forest, on a road as smooth as a park drive, just as the sun went down on our approach to the grove. As we entered the grove the moon had got sufficiently up to throw her light on the two "big trees" (*Sequoia*), which form a grand gateway, and are called "The Sentinels." As we passed between them we were filled with amazement, and uncovered our heads in reverence to these glorious monarchs of the forest. We saw no more till the next morning.

In the morning, after breakfast, we started on our journey through the grove, which is in close proximity — indeed, surrounding our hotel. The grove is said to extend over fifty acres, but the largest specimens are assembled in a comparatively small space. We have already alluded to the "Sentinels," which form a gateway, as it were, to the grove. The largest of these is three hundred and fifteen feet in height, the other over three hundred feet, and twenty-three feet in diameter. There are ten trees in the grove thirty feet or over in diameter, and upwards of three hundred feet in height.

Most of the trees have been named, and the names are inscribed on tablets which are nailed to the trees in a conspicuous place. Some of the names — as, for instance, those of a state or city — are appropriate; but some of them are scarcely short of desecration, according to our view of such matters, viz.: "Old Bachelor," "Old Maid," "Siamese Twins," "Salem Witch," etc. As these trees have all been described so often by travellers, it would be superfluous for us, and foreign to our purpose, to give a detailed account of them. It is sufficient to say that there are in all in this grove about eighty trees, many of which are over three hundred feet in height and sixteen to thirty-two feet in diameter, clear of branches one hundred feet in height or more. There are fallen trees reported of greater size than any of those now standing.

The "Father of the Forest," the hollow of which is large enough to admit a man on horseback or a carriage to be driven on the outside surface of it; the "Pioneer's Cabin," thirty-two feet in diameter; a group of twelve trees standing close together, two hundred and fifty feet in height and fifteen feet in diameter; and the "Three Graces," three beautiful trees standing together in a row, each about three hundred feet high, are among the most interesting specimens in the grove.

Next to the "Big trees" in interest to us were noble specimens of *Abies nobilis*, which abounds here. These trees, many of them, exceed two hundred and fifty feet in height and six to seven feet in diameter. *Pinus Lambertiana* is also plentiful, and some of them reach the height of three hundred feet. *Libocedrus decurrens* also abounds, and reaches the height of two hundred feet, with a diameter of five feet.

On our return from the Big trees we took a different route from that by which we went, and met much finer groves of the *Pinus Sabiniana*, young trees of elegant form, than we had met before. The "Poison Oak" (*Rhus triloba*) we saw all along in great abundance. The California Buckeye also abounded along our way, and was just passing out of bloom, especially on the dry, rocky places.

We found fruit trees thriving and bearing well clear up into the mountains, and we were told that the fruit was finer flavored than that produced on bottom lands. The vine is also being planted far up, and is said to yield better wine than is made on the plains; and this we presume to be the case.

At a hotel where we stopped for dinner, in a wild mining district, we found fruit trees bearing abundantly in the garden, and fig trees in front of the hotel on the roadside were laden with ripe fruit, of which we picked and ate plentifully, and relished well, the day being warm and the roads dusty.

This ride to the Big trees in the warmest of summer weather, over dusty mountain roads, was necessarily fatiguing, but we felt amply compensated for it all; and, even if we had not seen the Big trees we should have been so, the other vegetation and scenery being so new to us, and so grand and beautiful.

STOCKTON.

Returning to Stockton, we were met by a delegation of gentlemen, including Mayor Evans and Dr. Holden, who invited us to examine some vineyards and gardens there, and to see whatever else there might be of interest to us.

Among the principal nurseries, orchards, and vineyards are those of the Messrs. George and William B. West.

They have a nursery of young trees, in which are specimens of several rare species of pines and cypress; among the latter, *Cupressus lusitanica*, *Goveniana*, *Macnabiana*, etc.

The vineyard contains one hundred acres, fifty of which are in bearing, and fifty recently planted, mainly with Frontignan, Zinfindal, and Riesling, for wine. Among the table grapes grown, Black Prince was named as the most profitable, selling readily for six to ten cents per pound; some of these vines yielding forty pounds each, eight to ten years planted. We saw White Nice, the bunches of which already measured eighteen inches long, and Palestine fifteen. The vines are pruned, as most of the others, in tree form, stems eighteen inches to three feet in height, removing the superfluous shoots in May; no summer pruning. The canes are allowed to spread on the ground. The Mission grape is the staple, and is said to yield occasionally as much as forty pounds to the vine, ten year old vines. The best fruit for table sells at three to five cents per pound, and the balance twenty dollars per ton for wine.

Apricots, pears, peaches, figs, and other fruits do well here, but do not pay so well as the grape, and consequently the vineyards are being extended more than orchards.

WINES.

Mr. George West produces a large quantity of wine. We were shown through his cellars, which are above ground, the character of the wine made not requiring deep, underground cellars. The wines were mainly port and sherry, for which the fruit is dried for about a week after gathering. This produces a large amount of sugar, and consequently alcohol, which makes these wines heavy and rich. We thought his sherry quite as good as any we had tasted, having much real sherry character. The port is much like a Burgundy. The light wines made are from Riesling and Frontignan, and Mission and Frontignan combined, both of which are good wines. His pure Frontignan is sold to the wine dealers to flavor the sparkling wines, and especially that known as Muscatel.

From Mr. West's we rode about the town, and visited several gardens, which were interesting. In the public square we found fine

specimens of the agave coming into bloom, and two others in the garden of Dr. Reed. These plants were from eight to ten years old, and the flower stems about thirty feet in height.

Stockton is a handsome, flourishing town, surrounded by a splendid farming and fruit growing country.

GENERAL CONCLUSIONS.

Having now given a brief account of the various orchards, gardens, and vineyards visited, it may not be improper for us to express an opinion as to the capabilities of California for fruit growing. Our opinion is that, in the several sections which we have visited, and doubtless many others which we have not visited, fruit in general can be produced at much less cost than at the east, for these reasons: —

1. In most cases the land can be had, good quality, at low prices. Good fruit and grain land in the coast valleys, except close to a town or village, can be bought for twenty to one hundred dollars per acre. In the second range of valleys, Sacramento, San Joaquin, etc., at less.

2. The trees grow nearly twice as rapidly as with us, and come into bearing in less than half the time.

3. The fruit is large and handsome.

4. As yet they are almost entirely exempt from diseases and insects.

5. The atmosphere is so dry during the whole season that rotting on the tree is unknown, and the fruits remain on the trees, sound, long after they are ripe, thus greatly prolonging the season of gathering.

6. The ground requires much less cultivation than at the east.

When the dry season commences weeds cease to be troublesome, and for a period of between four and five months very little labor is needed to keep the ground in good order. This is an important saving. Labor, at present, is quite as cheap as with us. The necessity for good culture exists there no less than with us, and is probably greater, as we observed instances where a single year's neglect had in a great measure ruined the plantation. This is, no doubt, owing to the exhausting nature of a climate where heat and drought are so prolonged.

(To be continued.)

ASHES AND IRON FOR FLOWERS.

By SERENO EDWARDS TODD, Brooklyn, N. Y.

DAME Nature cannot paint in colors of exquisite beauty, any more than a skilled artist, without proper materials from which she can extract the rosy tints of morning, and the azure and purple shades of the calm twilight of a summer sunset. When she clothes the lily of the field in all the regal brilliancy and glory of the throne of King Solomon, and decks the petals of the rose, the dahlia, and the pink in her gayest colors, coloring material must be provided and mingled with the soil, when roots can appropriate it to the wonderful operation of bringing out flowers of transcendent beauty and richness of color.

If we examine the wild flowers that lift up their heads in every shady nook, in localities where the soil contains a superabundance of ferruginous material and silica, every admirer of these twinkling day-stars will be forcibly impressed with the superior brilliancy of the petals. The reason for this is, the iron in the soil, or flower-bed, furnishes a liberal supply of coloring matter, and the silica supplies a material which is of vast importance in the production of that brilliancy of the petals and the dark green lustre of the leaves. Then, if potash be added, or the ground be dressed round about the growing flowers with unleached wood ashes, an increased brilliancy will appear in every petal and leaf.

Any person who cultivates only a few flowers in pots, or between grassy lawns, or on spacious parterres, may readily satisfy himself of the exceedingly useful part the foregoing materials play in the production of beautiful flowers. Even white flowers, or roses that have petals nearly white, will be greatly improved in brilliancy, by providing iron, sand, and unleached ashes for the roots of growing plants. Ferruginous material may be applied to the soil where flowers are growing, or where they are to grow, by procuring a supply of oxide of iron, in the form of the dark-colored scales that fall from the heated bars of iron when the metal is hammered by blacksmiths. Iron turnings and iron filings, which may be obtained at most machine shops, should be

worked into the soil near flowers; and in a few years it will be perceived that all the minute fragments will have been dissolved, thus furnishing the choicest material for painting the gayest colors of the flower garden. When there is an excess of vegetable mould in a flower-bed, and a deficiency of silica, or sand, the flowers will never be so rich in color, nor so brilliant, as they would be were a liberal dressing of sand, or sandy loam, worked down into the bed, where the growing roots could reach it. If wood ashes can be obtained readily, let a dressing be spread over the surface of the ground, half an inch deep, and be raked in. A dressing of quicklime will be found excellent for flowers of every description. It is also of eminent importance to improve the fertility of the soil where flowers are growing, in order to have mature, plump, and ripe seeds. Let the foregoing materials be spread around the flowers, and raked in at any convenient period of the year. When soil is prepared for flowers in pots, let some sand, oxide of iron, and ashes be mingled thoroughly with the leaf mould.

DOUBLE IRIS KÄMPFERI.

By JOHN C. HOVEY, Cambridge, Mass.

AMONG the list of new herbaceous plants that have been introduced during the past few years, none seem more worthy of notice than this very remarkable class of iris. Seeds of the original species were presented to us in 1860 by a friend, who brought them from Japan. The plants flowered in three years from the seed, and among them was noticed one small plant, bearing a flower with six large petals, instead of three large and three small, as is usual. From this plant seed was gathered, and, after three generations of seedlings, a number of fine varieties have been produced, of different shades of color. — such as purple, rose, white, and striped, — with from six to twelve petals each.

The specimen here figured represents a fine seedling named *Unique*, which flowered for the first time in July, 1868, and was awarded a silver medal the following season by the Massachusetts Horticultural So-

ciety. It is a strong grower, and bears a succession of pure white flowers, each having six large petals, which touch each other, the whole forming a complete circle, measuring four to five inches in diameter.



IRIS KÄMPFERI, VAR. UNIQUE.

We believe this to be the most promising species in cultivation, as it is perfectly hardy, will grow in any soil not too dry, and is susceptible of more and greater variations from seed than any other.

PROTECTING TREES FROM CANKER WORMS.

By JOHN G. BARKER, Cambridge, Mass.

My attention was first called to the canker worm in the fall of 1864, when I entered upon my engagement here as gardener to Gardiner G. Hubbard, Esq. While in the orchard one morning, a friend stepped in to see me, and pulling down one of the limbs of a tree, he called my attention to the eggs that had been deposited in the forks of the limbs of the trees. Well, I knew it was a lot of eggs of some kind of insect, and that was all, until I began to make inquiries about them; and I very soon found out about them, and had their whole history painted in my imagination in frightful colors. But it was too late to do anything that season: too many had already gone up the tree, and deposited their eggs: so I let them go for that season altogether, and in the following June, by the third week of the month, the whole orchard of about seventy-five young and handsome trees — many of them ten to fifteen feet through the top — looked as if a fire had swept through the entire orchard, and scorched every tree. There was not a leaf left: and it was not only the apples, but the elms shared the same fate: and there were so many worms that hung over the sidewalks from the trees, that it was impossible to walk on them with any pleasure: in fact, if you wished to keep your collar clean, you must go in the middle of the street: for where there was a tree at all, they hung in thousands until about the 20th of June, when they all went into the ground, and the trees began to make their second growth. With this experience, I thought I would be on hand for them by the fall of 1865. So, early in October, I procured tarred paper, and cut it into strips about eight inches wide, and tacked a strip on each tree, about two feet up from the ground: and as soon as the first frost came — which is the time they commence to run — I was ready with tar and brush, and went at it with a will, twice a day, rain or shine, until winter set in: and when I saw what a lot were caught, I congratulated myself on my success. In the spring of 1866, as soon as the ground commenced to get a little warm, I went at them again, and followed it up to the best of my ability; and

with the great number that had been caught, I certainly thought I had saved my trees, but, to my sorrow, I found out my mistake. There had been a sufficient number run up the tree during the night, when the tar had hardened, to destroy all the foliage; but to give you an idea of the number that run in a short time, I will state one instance. One morning in May, I took the tar and brush, and tarred one tree myself, and watched it all day. I put it on at nine o'clock, A. M., and by three o'clock in the afternoon they had run so fast that the paper was entirely covered with them, and others were running over their backs by the hundred. I must confess I was beat, and did not know what to do, after spending the time I had to do it thoroughly, and then to see the trees as bad as ever. But being determined to succeed, I made every inquiry possible, to see if something could not be done to prevent their annual depredations.

In relating my experience one day to a friend, he invited me to call at his place, and see his trees. I did so, and found fourteen trees large and fine, all of them laden with beautiful fruit that would do any one good to look at. Well, what was the secret? It was just this: in the first place, a box was made of rough pine boards, fourteen inches wide, and about three inches larger than the tree on each side. This box was sunk into the ground about four inches, so as to keep it firm, leaving it about ten inches out of the ground; and then, four inches from the top of the box, there was a zinc trough, nailed on all around, in the shape of a V, and over this trough was nailed, on the top of the box, a flange made of zinc, which projected over the trough about one and a half inches, to keep out the rain, and prevent anything from blowing in to fill it up. In this trough was one pint of crude petroleum, and between the box and the tree were three or four inches of slacked lime (I find tan-bark equally as good). This composed the whole arrangement; and upon asking my friend if he objected to my following his example, he replied in the negative. So, in the fall of 1867, we concluded to try the experiment on a part of the trees; and we put them up as described around fourteen trees, and continued the tarring of the balance, fifty-six in number.

There they were alongside of each other; and those that had the

boxes around them had scarcely a leaf touched, and hardly a worm was to be seen, except what blew from the other trees; and they bore a nice crop of fruit, — enough to pay for the boxes, which cost about two dollars and a half per tree, — while the remaining fifty-six were stripped of their foliage as bad as ever.

This being so thorough a test, and so complete a success, we resolved, the following fall, to put the boxes around the balance of the trees; and by the last of September we were on hand for the enemy, with every tree protected, and, of course, very anxious for the result. The 19th of June, 1868, while my neighbors' trees were all stripped of their foliage as bad as ever, also two that stood on our place, at a small distance from the orchard, our trees that had the boxes around them were not touched, but were healthy and handsome, with a good show for fruit on most of them; and we picked that season by far more apples than, if sold, would have paid for the boxes. I will state here that the last lot of boxes cost but two dollars per tree, — fifty cents less than the first fourteen, — and that there was but one pint of oil put to each tree, from the time they were put up, for two years, when some of them required refilling.

For this year the crop has been splendid, and the fruit only needs to be seen to be appreciated. In connection with this I will say, that during the same time the worms were making such havoc among the trees, they were pruned and cared for as well as if they were yielding abundantly, and we are now reaping the benefit of that care.

I take great pleasure in assuring you of the perfect success of this experiment in every respect; and with the little labor required to take care of trees protected by these boxes, any one that is troubled with these pests, and will try this plan, and take good care of the trees, cannot fail to be well rewarded for their trouble. But apples, like all other fruit trees, require to be well fed and properly cared for; and if you would like proof of this fact, I extend to you a most cordial invitation to take a trip to Cambridge, and examine the trees for yourself, and from there to the fruit room, and inspect the boxes and barrels of apples; and I think you will be satisfied that apples can be raised even where canker worms exist.

THE SAP-SUCKER.

By W. C. FLAGG, Alton, Ill.

ONE of the delusions much cherished by fancy farmers and sentimental fruit growers, nowadays, is, that all birds are beautiful and good, and that the destruction of any of them is a dire offence, that should be punished by statute law, and, as Thackeray puts it, by punishments "of a future and much more durable kind."

By a parity of reasoning, we might argue that the beautiful skunk and the artful and intelligent fox ought not, for the mere taking of a chicken or two, to have the dogs and guns of a whole country-side arrayed against them, nor the beautifully-spotted and vibrating rattlesnake, for the mere saving of an occasional human life, be incontinently slain; nor should those wonderful and beautiful creations, the curculios, the borers, and the caterpillars, which doubtless have a divine mission and use, be caught and crushed for the sake of a few plums and fruit trees.

This proves too much — more, at least, than the indiscriminate defender of birds will be willing to stand up to; and if such a one should read the beginning of this article, I will now ask him to consider whether there is not another exception in the case of the sap-sucker —

"A *bird* whom there are none to praise,
And *very few* to love."

He is described by Tenney, in his Natural History, as follows:—

"The yellow-bellied woodpecker (*Sphyrapicus varius*. Baird) of North America, east of the Rocky Mountains, is eight and a quarter inches long, the wing about four and three quarters inches, and, in addition to characteristics before mentioned, it has the crown red, bordered with black, chin and throat red, a black patch upon the breast, and the outer and inner tail feathers varied with white."

Its general appearance is said to be very nearly that of the hairy woodpecker (*Picus villosus*), a fact which accounts for some honest differences of opinion, founded on mistaken identity, that have been

formed about these two birds. The latter is a valuable bird in worm-gathering: if the former does anything but mischief, I should like to know it. It would strengthen our faith in bird nature vastly to be convinced that the sap-sucker is not totally depraved; and I hope that anybody having the facts will do it.

Here is the history of the case against him so far as I have been acquainted with it:—

C. S. Chase, of Chicago, in a little work entitled the *Prairie Fruit Culturist*, having stated that “the sap-sucker is a small bird, of the woodpecker family, which strikes its sharp beak through the bark, completely girdling the tree,” was attacked, in a friendly way, by our late state entomologist, Benjamin D. Walsh, for putting forth a heresy. This was in the *Prairie Farmer* of March 15, 1860. About a month later, Edwin A. Clifford, of Evanston, near Chicago, having investigated the matter by request of the late Dr. Kennicott, reported in the *Prairie Farmer*. I quote as follows:—

“The sap-suckers arrive here in spring, about the last of March or first of April, and are very plenteous about the 10th of April. The favorite trees for their depredations are the apple, poplar, and pine. They do great damage to the apple trees and Scotch and Austrian pines, sometimes girdling them so as to kill them entirely.

“Now, the bird that does so much mischief is the *Sphyrapicus varius* (Baird), or yellow-bellied woodpecker. I have shot from twenty to thirty of this kind of bird, and have dissected their gizzards, and found nothing but the bark in all of them, except in one single case, where I found one solitary grub in the bark. . . . The bark found in the gizzard consisted of all the coats of bark, from the *epidermis*, through the *cambium* layer, to the stem, sometimes taking in some of the wood with the bark.”

During the same year, Mr. Clifford furnished a drawing of the sap-sucker, which was published September 13, 1860, in the *Prairie Farmer*.

At the annual meeting of the Illinois Horticultural Society, held at Chicago, in December, 1861, Dr. P. R. Hoy, of Racine, Wisconsin, read a short paper on the sap-sucker, from which I make some extracts:—

“This species is the yellow-bellied woodpecker (the *Picus varius* of naturalists), and may be known by the light red spot on the head, and, in the male, also on the throat, the female having the red on the head, but lacking that on the throat. Length, eight and a half inches; expanse of wings, fifteen inches; a black spot in centre of breast; belly, light yellow; tail, black — the two central feathers white on their inner vanes, and spotted with black; bill, dusky horn color. The tongue of this species is quite unlike that of any other of our woodpeckers, the tip, or horny portion, being rounded at the point, and highly developed, while the length of the tongue renders it incapable of being protruded much beyond the point of the beak — in vastly the majority of cases, not more than half an inch.

“On the contrary, in the downy, hairy, and all other worm-eating woodpeckers, the tongue can be protruded from two to two and a half inches beyond the beak, and is provided with a narrow, sharp, horny point, plentifully supplied with recurved barbs — a most perfect instrument for abstracting worms from their burrows. The following outlines will represent the difference more perfectly: —



“Figure 1 represents the head of a worm-eating woodpecker; figure 2, the head of the *Picus varius*, the true bark-eater and sap-sucker.

“Professor Baird, of the Smithsonian Institution, has constructed the new genus, *Sphyrapicus*, of which this species is made the type — a wise disposition, undoubtedly, for in anatomy, habits, and voice it is widely distinct from the so-called spotted woodpeckers.

“The *Picus varius* arrives at Racine generally within a few days of the 15th of April, usually after a rather warm night; for woodpeckers, like most land birds, migrate only during the night.

“Then is prime ‘boy time.’ Armed with bows and arrows, stones, clubs, cross-guns, and the like, they wage a vigorous war on the sap-suckers, while they, in turn, as energetically attack the maple, mountain

ash, pine, spruce, pear, apple, plum, cherry, peach, and silver poplar. But if they damaged no more valuable tree than this silver poplar, I should not appear here in judgment against them. About the first of June they retire to the seclusion of the forest to nest, feeding, at the time, mostly on the iron-wood, wild cherry, and basswood, but continuing daily to visit neighboring orchards to feast on the more palatable cultivated trees.

“ In September they reappear with a large reënforcement, consisting of the young, — which, at this time, lack the red spots, — and continue their depredations until the last of October, when they take their departure south.

“ It is during the autumnal visit that they do the greatest damage; for in spring, when the vital forces of vegetation are unusually active, the tree recovers more certainly from the wounds inflicted, while in the fall, vegetable life being less active, the septa between the punctures are more likely to dry, leaving the tree dead, or crippled for life. The sap-suckers attack the most thrifty trees; but after they have suffered a siege from these sap-suckers, they are thrifty no more. . . .

“ The wounds made by the sap-sucking (better say bark-eating) woodpecker are carried down to the wood, and a portion of the inside bark (*liber*) and the gelatinous substance between the bark and wood (*cambium*) are eaten out. These openings are from one eighth of an inch to one inch in diameter, and are generally made in regular lines, running around the tree, girdling the trunk and larger branches with one or more rows of holes. Sometimes the line of punctures extends longitudinally, as in the specimen of mountain ash exhibited. The punctures are generally placed so near to each other that the divisions have not sufficient thickness to carry on the circulation.

“ They are a silent bird, seldom uttering a note while feeding. An occasional *Kewee, kewee*, when about to wing, uttered in a minor key, is their only voice. I have shot and dissected many, at all seasons; and in vastly the greater number of cases I have found nothing in their stomachs but bits of bark — not a trace of an insect. Occasionally I have found a few small *coleoptera*, but never the larvæ of those little pests, the borers, and for a very good reason — the birds had not the tools for extracting them.”

These statements of Dr. Hoy were verified, as he informs us, by Professor Leida (Leidy?), of Philadelphia. Dr. Hull, of Alton, has also satisfied himself that the shape of the tongue and the actual habits of the sap-sucker indicate that he is mainly — perhaps altogether — a bark-eater. I have myself examined the tongues of the two similar birds answering to the descriptions *Sphyrapicus varius* and *Picus villosus*, and found them to differ as Dr. Hoy describes.

In this part of the country, the sap-sucker appeared this year about the first of March, which I judge will be found to be about his average time. His mischief here seems confined mainly to the evergreen trees, the Austrian pine and Norway spruce fir seeming to be most attacked. The older trees, of twenty to thirty years of age, are, I think, more depredated upon than the younger trees. I have not lost fruit trees by their attacks; but N. J. Colman, editor of the Rural World, of St. Louis, states that he has lost many trees, in an orchard below St. Louis, from their being girdled by the sap-sucker.

I have seen notices of attempts to deny the probability of the conclusions that the above facts lead to, and even of the facts themselves, but have seen no evidence adduced to the contrary. It seems to me well proved, that we have a bird that does a good deal of mischief, without an equivalent of good, and that he ought to be destroyed.

Professor Tenney enumerates, as other species of the same genus, *S. ruber* (red-breasted woodpecker), *S. Williamsonii* (Williamson's woodpecker), *S. thyroideus* (brown-headed woodpecker), — all found west of the Mississippi. Have their habits, diet, and tongue-formation been examined, to ascertain whether they coincide with those of the sap-sucker?

I have called up this subject again, in the hope that our better informed ornithologists, who, ten years ago, were quite incredulous as to the correctness of the above statements, may have since examined into the matter, and be able to give something more than a theoretical opinion.

In case these birds are what we suppose them to be, I desire, also, to recommend them to Alderman Ely and others as something I would like to have them keep on their grounds. I would like to learn the

uses of an adversity that takes shape in the death of a favorite evergreen, on which the labor and hopes of twenty years have been spent, caused by one of the beautiful feathered tribe that can do no wrong. I might be afraid that there would be some latent or outspoken profanity excited, but I would run the risk if the sap-sucker would.

VEGETABLES—THEIR HISTORY, USE, VARIETIES, AND CULTURE.—II.

By ALEXANDER HYDE, Lee, Mass.

BEANS.

“HE doesn’t know beans,” is a common expression applicable to a very dull fellow; but the number of men who appreciate the full value of beans is comparatively small. Beans belong to the leguminous class of plants, so called from the large amount of legumin which they contain—a substance identical in composition with the caseine of milk, and corresponding with the gluten, or nitrogenous compound, of the cereals. Johnston’s analysis of beans gives the following constituents:—

Water,	23.	Gum,	1.5
Husk,	7.	Oil,7
Legumin, albumen, etc., . .	23.6	Salts,	1.
Starch,	43.		
Sugar,2	Total,	100

This analysis shows that the flesh-forming constituents of beans are unusually large; that the starch is sufficient for all the purposes of life; but that the fat-forming quality is less than one per cent. To remedy this deficiency, the instinct of mankind has taught us to cook beans in connection with pork, or, when cooked separately, to butter them well. When so cooked, there is no vegetable which gives so much vigor to the animal frame, and at so cheap a rate—cabbages alone excepted. Baked beans and pork are proverbially a Yankee dish, and blessed is the man that makes his dinner of them once a week. The Boston

custom is to have them on Sunday; but the good old Connecticut fashion was to look over the beans Sabbath evening, — holy time ended then with sundown, — put them to soak over night, and into the oven at early dawn Monday morning, so that they might be served for dinner, as the most conveniently-cooked dish for washing-day. Pork and beans were the favorite dinner of our childhood, and we look upon them with equal favor now. The pork imbedded in the centre of the dish of beans, with its brown, well-crisped rind forming the apex of the crested surface, looks as cosy and comfortable as young birds in a nest; and there is no situation in which pork looks more inviting, or to which it is better adapted, as it supplies to the beans just the principle in which they are deficient.

HISTORY.

The history of beans runs back indefinitely. For aught we know. Adam and Eve partook of them in the garden of Eden. Certainly they formed a part of the rations in the army of King David; for we read that, in the days of Absalom's rebellion, Barzillai, the Gileadite, brought to the king, and the people that were with him, wheat, barley, *beans*, honey, butter, and cheese. This, we believe, is the first mention of beans in the Bible; but they are spoken of in connection with other blessings which were old and common, and the beans may have been as old as the wheat or the honey. David, however, could not have known the luxury of pork and beans, for the pig was a proscribed animal among the Jews; but Barzillai's butter was no mean substitute for the pork. Beans are not indigenous to Europe and America, but, like peaches, and many other blessings, have come to us from their native home in the Orient, and have been greatly improved in their Occidental transit. We doubt very much whether Barzillai's beans were equal to our modern Limas; but they were good muscle-producing food then, as now. Daniel, at the court of Babylon, preferred pulse (beans) and water to Nebuchadnezzar's meat and wine, and appeared fairer than those who feasted more sumptuously. Beans were a favorite dish with the Romans, and the Fabian family derived their name from *faba* — a bean; and possibly Fabius Maximus may have been partly indebted to

his diet of beans for his title of Maximus, as well as that of Fabius. However this may have been, we have no doubt that the free use of beans has a tendency to make vigorous, muscular men. They always form a portion of the rations of soldiers and sailors, and do their part in helping to sustain the labors of sea-fare and warfare.

VARIETIES.

Of course, with so old a vegetable, the varieties are numerous. We have seen forty distinct kinds exhibited at one agricultural fair. The two great families of beans are Bush, or Dwarf, and Running, or Pole, and each family is subdivided into numerous branches. Of the dwarf varieties, the China is the earliest, often being ready for the table in six weeks after planting. While tender, the pods furnish a dish little, if any, inferior to green peas, and the general crop is slightly diminished by picking the young pods; for the great object of all vegetation being to produce seed, the plants continue to blossom till this object is accomplished. For snap-beans, the Newington Wonder is very popular, being very productive, and the pods crisp and tender. For a market crop of dry beans, the White Marrowfat is the favorite, being large, luscious, and great yielders.

But none of the dwarf varieties equal the runners in richness and flavor. The latter require more room and more labor, as they must be furnished with poles; but the additional labor is abundantly compensated by their greater yield and better quality; and no garden is complete without its patch of Limas — the *ne plus ultra* among beans. Above forty-two degrees of latitude, they are a little uncertain; but if planted in a warm, sandy soil, well enriched, they will generally mature so as to furnish rich dishes of green beans. Next to the Lima we place the Cranberry in richness; and this is a much earlier variety. The Case-knife is also a favorite, and the Scarlet Runner deserves honorable mention, both for its beautiful flowers and large, rich seeds.

SOIL.

It is a great mistake to suppose that beans will thrive in poor soil. It is quite common to speak of barren sand knolls as too poor to pro-

duce a hill of beans, as if this vegetable would grow where no other could. It is true, that beans, like other vegetables, will do the best they can wherever planted; but they know the difference between a sand-hill and a rich, loamy soil, and are always grateful if furnished with the latter. We have seen beans growing in such soil that we feared they would be starved, and if the cultivator depended upon them for a living, that he would starve also. Beans are only remunerative when planted in good soil, and a sandy loam is most congenial to them.

CULTIVATION.

As they are very tender, they should not be planted till the ground is warm; and as they push their cotyledons up through the soil, they must be planted at a shallow depth, and with only the finest earth over them. If planted too early, or at too great a depth, they are quite sure to rot. We prefer drills to hills for the dwarf varieties, and in good soil the seed should be dropped two or three inches apart. The runners, of course, must be planted in hills, and we always stick the poles before dropping the seed. A little hen manure, guano, or phosphate of lime on the hill gives them a good start, and a good start is as advantageous to beans as to boys sliding down hill.

HARVESTING

is an important part of bean culture. The haulm and the pods must be thoroughly dried, or the seeds will mould. In the case of runners, we have found that the best mode of harvesting is to pull up the poles, with the vines still clinging to them, and stack them in a round, pyramid form, with a broad base, so as to let in the air freely. Bush beans are best cured by placing them on an elevated platform, made of poles, or they can be hung on little saplings, cut with branches projecting a few inches, and placed in the form of a pyramid.

COOKING.

But, after all, the great secret in knowing beans is to know how to cook them well. If cooked green, there must be plenty of butter; for

they are deficient in oleaginous matter. Dry beans must be soaked in tepid water for at least twelve hours before being boiled or baked, and there is little danger of their being cooked too much. A tablespoonful of granulated sugar to a quart of beans adds much to their relish with most palates. We took dinner, the past winter, with a well-to-do Massachusetts farmer, who said baked beans, hot or cold, graced his table every day in the week; and we certainly never ate them with a better relish. A long and daily experience had taught our hostess the art of baking beans to perfection. We had supposed our mother understood the art beyond all other women, for she had the weekly experience of a lifetime; but she was accustomed to sweeten them with a little molasses or brown sugar; but we are satisfied the granulated is better; and by all means be sure that the pork is corn-fed and well cured. Thus cooked, baked beans are a dish fit for a king.

THE WHITE RIESLING GRAPE.

By W. C. BUELL, Troy, N. Y.

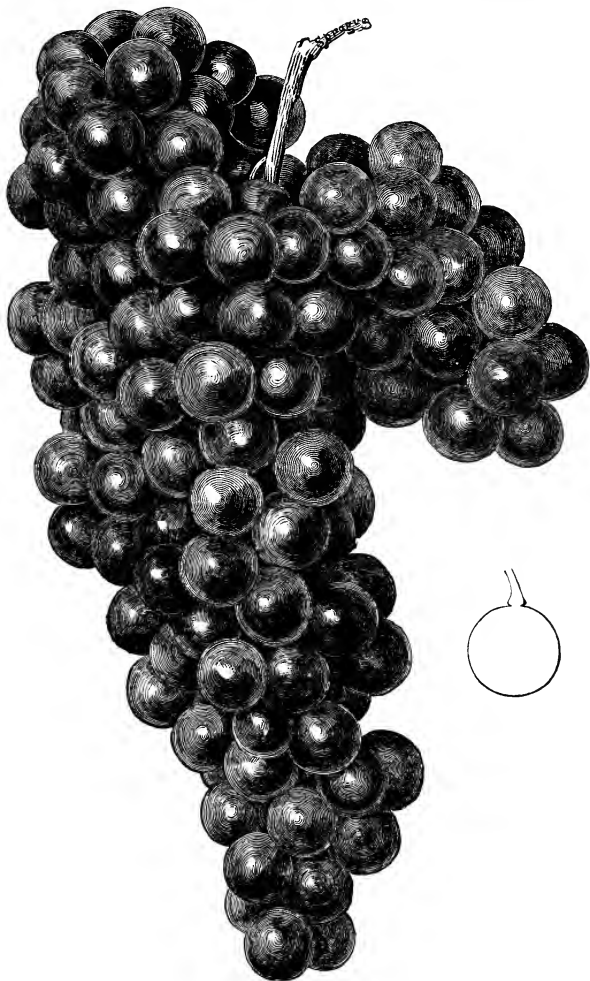
THE White Riesling is one of the leading grapes in Germany, and is used in making the celebrated hock wine, which, next to champagne, brings the highest price.

The vine from which the fruit was taken that I sent you was brought from Germany some eight or ten years since, and planted in the yard of Isaac W. Crissey, in Troy, N. Y. The yield of this vine some years has been enormous — from one hundred to one hundred and fifty pounds of the most beautiful white grapes ever produced in the open air.

I exhibited some of the fruit at the New York state grape show at Canandaigua, in 1868; and they attracted their full share of attention, and were much admired. Some three years since, this grape was exhibited at the Rensselaer county (New York) fair, and one of the clusters weighed *three and a half pounds*.

The parent vine now covers the entire end of a two-story basement house. It requires winter protection. Other than this it is perfectly hardy, and very productive. I know the prejudice which exists against

all foreign grapes, but this variety seems to be an exception; for no



cultivator could ask a grape to do any better than this has done.

GRAPE CULTURE IN OHIO.

By GEORGE C. HUNTINGTON, Kelly's Island, Ohio.

I READ with pleasure the article in the Journal for November last, on the "Treatment of the American Grape Vine," by E. F. Underhill. I think the fact that different individuals, by a series of independent experiments and observations, should arrive at the same general conclusions, will go far to support any theory which may be deduced from these experiments and observations.

It is now twenty-five years since we commenced cultivating the grape, as a business, in this locality. We were wholly unacquainted with the business practically, and, as a matter of course, wished to avail ourselves of the experience of those who had gone before. We made ourselves acquainted with the systems in vogue in the southern part of the State, as coming nearest to our wants. It soon became evident, however, that something different was necessary. The vines refused to be confined to the narrow limits assigned them. There were, too, other difficulties. We then determined to commence *de novo*, and work out a system for ourselves. We threw overboard all old theories, and studied the habits of the vine, as affected by the conditions under which it was placed. The first innovation on old theories was to give the vine more room; the next was to prune less severely. It did not seem in accordance with common sense to subject to the same treatment a vine which would grow fifteen or twenty feet in a season, and one which would grow but two feet. Instead, therefore, of cutting every vine down to just so many eyes each year, according to the prescribed rules, we pruned according to the vigor of the vine. If, in our judgment, a vine could support twice or thrice the prescribed number of buds, we gave it that number. The result was the most eminent success.

In 1861, at the request of the late Commissioner Newton, the writer prepared an article for publication in the Patent Office Report of that year, giving in full the result of our experiments, and the general con-

clusions to which we had arrived ; and since that date, in the thousands of acres which have been set to grapes in this part of the country, there has been no material deviation from the system there advocated as the result of our experience. The whole may be summed up in a few words — thorough underdraining, shallow planting (just deep enough to set the roots properly), vines set in rows north and south, six feet apart in the rows, and the rows eight feet apart, very little if any summer pruning, and the main pruning in winter, according to circumstances. These are the main requisites.

The writer was applied to, a few weeks since, for an article for publication in a leading journal on the subject of grape culture. He replied to the application by referring to the article in the Patent Office Report of 1861, and stated that since the publication of that article he had seen no reason to change his views therein expressed. On the other hand, subsequent experience had confirmed every leading principle there advocated.

As to the theory of giving the vines twice or ten times the room which we have adopted, as a general principle, it may be well enough for those who are disposed to try it. I have known eight bushels of Isabella grapes to grow on one vine, when there was no other vine within a hundred feet in any direction ; and this vine was trained all over a large building ; and I have myself paid for eight tons of the same variety, grown on one acre, the vines six by eight feet, or forty-eight superficial feet to each vine. The question is, Which system will grow the greatest quantity to the acre, and with the least expense? I have vines in my experimental vineyard which were set in 1843, and they are now apparently as healthy as those set twenty years later, which seems conclusive evidence that a grape vine, if properly treated, may be made to thrive on forty square feet of good soil. I am of opinion that eight hundred vines to the acre, if properly managed, will yield more fruit than half the number of vines on the same surface. In this respect, I would say, let every one give his vines as much room as he pleases, provided it is not less than forty-eight superficial feet to each vine.

A FEW MORE SUMMER PEARS.

THERE are several more summer pears for which we had not room in our last number, which we think worthy of notice, including one or two that we would warn our readers against.

Saint Menin. — Large, obovate, tapering to an obtuse point at the stem; skin covered with thin russet, which at maturity takes a rich yellow tinge. Flesh melting, juicy, and fine flavored. A pear of the highest quality, but when ripe must be eaten soon, as it does not keep long. First of September. Tree vigorous, with ample foliage. It was found about 1844, by Mr. Leroy, in the garden of the *Comice horticole d'Angers*, where it had been received but a short time before, but from whom is unknown. It is called also *Omer Pacha* and *Poire His*.

Summer St. Germain. — We have found this variety much better than it is described by Downing, and its good size and always fair skin would seem to render it eligible for market; and though we are not prepared to advise planting it extensively, we think it worthy of trial. The tree is thrifty, with long, spreading limbs, having a smooth, clean, yellow bark. Fruit largest in the middle, tapering somewhat towards the eye, and to a point at the stem; medium size, clear yellow, without any red. Ripe last of August and first of September.

Julienne. — Here is another variety of whose history we have no certain knowledge, though it has been long known and widely cultivated. From the French appearance of the name, we have always assumed it to be of French origin; but Leroy makes no mention of it, and it is in the London Catalogue only as having once existed in that collection. The earliest mention of it that has come under our eye is by Coxe, who, however, says not a word as to its origin. It is not of the highest quality, but is so productive, and, when properly ripened, so good, as to be one of the most profitable for market. In some of the Southern States it has proved of

the highest excellence, and is recommended for general cultivation in that region.

Dearborn's Seedling. — This nice, delicate pear is unfortunately too small for market, for which its great productiveness adapts it. It is doubtless a seedling from the Madeleine, to which the growth always, and the fruit sometimes, bears a strong resemblance.

The *Windsor* or *Summer Bell* makes a great figure in our markets, and from the marketman's or orchardist's point of view is one of the most desirable, because profitable kinds, but in the eye of the pomologist is simply execrable. It makes us feel vexed and irritated to see men buying such detestable trash, under the wretched delusion, from its size and fairness, that they are getting an eatable fruit. It is very good to cook, and that is all it is good for. Ripe the last half of August.

The *English Fargonelle* is an old variety; tree a little apt to canker, and the fruit sometimes astringent, and if not gathered early decays at the core. Yet, when well ripened, it is not at all to be despised; indeed, it would be difficult to name a pear so early, and at the same time so large and so good. The synonyme "*Poire des tables des princes*" shows in what estimation it was held by the French, and it was pronounced by the Pomological Magazine the "queen of summer pears," and it is still so esteemed in England. There it is always destitute of the brownish cheek which enriches it here. Ripe middle of August.

The *Hosenschenk*, known also as *Shenk's* and *Moore's Pound*, is valuable for its large size, and when gathered in season is very juicy and good, but is a clumsy-shaped pear, and we have found it a little apt to crack. Ripe last of August and first of September.

The *Belle de Bruxelles*, though not generally known, keeps coming up from time to time, only for its lovely outside to raise expectations which are utterly disappointed on tasting. It would be difficult to imagine a fairer or more beautifully colored pear, and it is withal of large size; but as to flavor, it has none, either good or bad; unlike the *Windsor*, it is simply negative. From its beauty it is known as *Bellissime d'Automne* and *Vermillon des Dames*; but its character was well ex-

pressed by a member of a fruit committee, who summed up his opinion in the remark, "There! I should like to know how many of those it would take to make a poor pear!" Ripe the middle of August.

The *Limon* is a pear of much the same character as Beurré Giffard, but, though longer introduced, it has not become so popular. Like the Beurré Giffard, it is a moderate, somewhat erratic, grower, requires careful cultivation, and is of the same fine flavor; if anything, with more champagne in it. It is obovate, or doyenné-shaped. It is a desirable variety for the gardens of those who relish a sprightly pear, and are willing to take pains to grow it, but by no means fitted for the market orchard.

Duchesse de Berry d'Été.— This is another vinous-flavored pear, which has proved desirable in some localities. Small, or medium size; roundish turbinate, or pyriform; skin smooth; yellow, with a red cheek in the sun. Ripe the last of August. It bears in clusters so abundantly that the fruit, unless severely thinned, is small. It has been received from Europe under several different names, among which is *Souveraine d'Été*, and we are under the impression that the kind described by Mr. Downing as *Souveraine d'Été* is identical with this.

The *Mary* pear, a new variety from Ohio, has thus far given little promise of being valuable here, where it ripens early in August.

And so we might go on and tell of double the number of summer pears we have named, and more, without exhausting the list. Those mentioned extend in season from the middle of July to the autumnal equinox; and if a man should plant a single tree of each of such as we esteem desirable, or even of those only which are fully entitled to a place in the first rank, he would, when they were fairly in bearing, have far more pears than could be consumed in any ordinary family; and for market purposes the number of varieties cultivated should be less, rather than more, than would satisfy the taste of the amateur.



CRITIQUE ON THE SEPTEMBER NUMBER. — *Notes of a Horticultural Trip to California.* — We have no lack of accounts of travels in California since the marvellous Pacific Railroad is opened to that marvellous country, not the least of whose marvels is its fruit crop. It sometimes seems as though, if we are not surfeited with the superabundance of California fruit, we may be with so many accounts of it; but I think there is little danger of tiring of them as long as they are given by observers so well educated for the work as the quartette of horticulturists whose names stand at the head of your leader. The early age at which the trees come into bearing, as well as their rapid growth, is most extraordinary; but I am told that the trees do not ultimately attain any larger size than ours, though they do it in half the time. Probably, their early and great productiveness prevents it. All that we hear of fruit culture in California confirms what we anticipated, that its productions would be analogous to those of the western shore of Europe in the same latitude. The *Vitis vinifera* flourishes better than the American species of grapes, with which we must be content for out-door culture; and the pears have a peculiar look, which reminds me of the colored engravings in French pomological works. But the Californians have, in their virgin soil and freedom from insects and disease, the greatest possible advantage over the old countries of Europe where grapes and other fruits have been cultivated from time immemorial, however well adapted they may be to fruit growing in other respects.

Clematis Jackmani. — A most excellent illustration, wanting only the beautiful blue of this charming flower. If you could but give us that, Mr. Editor, not one of your readers but would straightway plant a *Clematis Jackmani*. And

then, I hope, and I believe, that some, at least, of them would bring it up to the standard of the glowing descriptions and engravings given by Messrs. Jackman, as Mr. Parkman tells us has never yet been done in this country.

Certainly these new varieties of clematis are most wonderful acquisitions, like all those myriad varieties of gladiolus and other flowers, which the florist's art has produced. I can hardly look at them as anything short of new creations; and when I think of the double and single varieties in every shade of color, forming masses of flowers on pillars or arbors, or trailing in luxuriant bloom over beds in the lawn, it seems impossible for any description to exaggerate, or even do justice to their beauty.

Grapes and Grape Culture.—Why is it, Mr. Editor, that the very finest grapes — and not only grapes, but every other fruit — are most difficult to cultivate in perfection? It would seem as if the finest flavor was dependent upon, or necessarily accompanied by, a delicacy of organization which must forever prevent the fruits possessing it from being as common as some of those whose coarser and stronger foliage and fruit enable them better to battle with adverse circumstances. But at any rate, we want the finest fruits, — we must have them, — and so we are grateful to every patient observer like Mr. Campbell, who studies the wants of the Delawares, and Crevelings, and Adirondacs, and tells us how to humor them so as to bring out the best things they are capable of doing. We have got to learn how to suit each kind to the soil and training which it loves best before we attain the best results from each; and every person who, by patient study or by chance, succeeds in satisfying these gentry who are so particular as to their food and clothing, ought to tell us at once how he does it.

Notes on Strawberries at the West.—Mr. Hathaway's statements in regard to his own seedling are fair and candid, and, unlike those of some others when speaking of their protégés, so moderate as to be entirely credible. But his remark that his success with the Michigan may only show more clearly the local adaptation of most strawberries, derives more force from what he says on the very same page of the Jucunda, which, when well cultivated in accordance with its peculiar needs, is hardly excelled in size and beauty, while with Mr. Hathaway it has failed beyond all others. There are some men who, whatever tool they use, do it as if they had been born with it in their hands, while of the vast majority each one can whittle best with his own jackknife; and so there are some — only a few — varieties of fruit which seem to possess a national, or even a world-wide, adaptation, while the great bulk of all our varieties, as soon as they have travelled from certain limited localities, hardly seem to be themselves. I do not make these remarks with any special reference to the Michigan more than any other variety, for, so far as I know, it may or may not be adapted to general cultivation. But at any rate, such notes as Mr. Hathaway's are of great interest, and would be of still greater, if, to his excellent account of the season, he had added a statement of the character of his soil. The fact mentioned in regard to the productiveness of the Agriculturist, when mixed with the Michigan, especially deserves to be noted.

Grapes and Wine in South Carolina.—I have always taken the stories of the excellence of the Scuppernon grape as correct, not having had the oppor-

tunity to test them myself. But I know how many people there are who still gather and eat our wild fox grapes, fully believing them to be of the highest excellence, because unacquainted with anything better (once in a while they will send some to a horticultural exhibition, but not as often as they did a few years ago); and so I can easily believe Mr. Underhill when he tells us that the commendations of the Scuppernong, which we have all heard, proceed from those who are ignorant of the highest standard of excellence. But all that will be changed before long. Mr. Briggman, with his German thoroughness and skill, and Mr. Derby, with his New York enterprise, and Dr. Wylie, with his careful and patient experiments in hybridizing, which have already produced most extraordinary and valuable results, will soon diffuse among the people of South Carolina ideas of something better than Scuppernong grapes, and wines whose chief flavor is of cheap sugar; and I shall be much mistaken if the home of the Catawba, and Isabella, and Herbemont, does not then show us that it can produce as good grapes and wine as Missouri "or any other man." But I remember Mr. Wilder's statement in your Journal a year or two since, that he found the sparkling wine made by Mr. Hart at Wilmington, N. C., from the Scuppernong, without the addition of any spirit, of fine quality as a champagne. So I must still think it is possible to produce a good wine from that grape without putting in whiskey; and I should like to have Mr. Underhill taste some of Mr. Hart's Scuppernong champagne, and give us his opinion of its quality.

A Word for Flowers.— Good. One would know, without being told, that these hints for the adornment of our homes with cheap and easily attainable, but beautiful, flowers and floral decorations, were "by a lady." It does seem utterly inexcusable that any person should not take the slight pains to secure at least one of the ornaments which your lady correspondent tells us how to make. It is most true that "a tangled mass of morning glories in full bloom is really a beautiful sight;" and if you have not time to put up even strings for them to run on, get some mixed seed and plant without any support, and let them run over the ground just like the beds of clematis; and all the money in the world can't buy anything more beautiful.

Some Talk about Summer Pears.— It is said that when one tells a Bostonian of any person previously unknown to him, the first question the dweller on the "Hub" asks is, "Who was his grandmother?" and I see that you, too, Mr. Editor, like to know something about the history and parentage of the pears. Perhaps the "practical men," as they are fond of calling themselves, would say that a pear is no better for knowing where and from what it originated; but for all that, I sympathize with those who like to know where all these fruits came from. Besides gratifying my curiosity, I think I know better what to expect from a variety when I have found out what breed it comes of. "Blood will tell" in pears, and all other fruits, too.

I like what you say about the Bartlett. No fruit ever attained the popularity of the Bartlett without a good reason for it; and you have summed up the case for the Bartlett justly and well.

Fruit Thinning.— A most admirable article. I don't see how the necessity, and principles, and reasons, and methods, and times for this most necessary

and most neglected operation could be better stated. I advise every man who wants to raise *good* fruit, and doesn't want his trees and vines killed by over-bearing, to make himself thoroughly master of these three pages.

The Hawthorn on Pear or Quince. — What a pity that those vigorous grafts on the pear should be so short-lived! and I am rather surprised that the hawthorn should do better on the quince than on the pear, though I don't know why I should be, unless it is because the pear has often been worked on the hawthorn, while I have never known of either quince or hawthorn being worked on the other. But I would not give up the hawthorn on the pear yet; for if we could only get durable trees, they would be most beautiful objects. And I think the chance of success would be greater with stocks of moderate, than of extreme, vigor. *Bismarck.*

NEW PEARS. — Those who have been engaged in the introduction of new pears, have often watched their blossoming only to be disappointed, perhaps year after year, when on the occurrence of a favorable season, their patient care has been rewarded by the revelation of the character of their new and highly praised fruits. Such a season is the present; and on a visit, a few days ago, to the grounds of Colonel Wilder, at Dorchester, than whom no one has done more to introduce new pears, and who still keeps up the good work, we had the opportunity to observe many new kinds, and made the following notes on varieties which have never fruited before with him. In spite of the extreme drought, no rain worth mentioning having fallen for more than three months, these new sorts were, almost without exception, of large size and vigorous growth, in these points showing a most gratifying contrast to the majority of the new introductions of former years.

Beurré Baguet. — Of Belgian origin, long pyriform, as large as Vicar of Winkfield; appears to be a late variety.

Duchesse de Mouchy. — Very large, roundish-doyenné shape, a little irregular, crimson cheek on yellow ground. It is very handsome, but Mr. Wilder thinks that in Belgium, where it originated, it is classed among cooking pears.

Princesse Marie. — Globular-doyenné form, red cheek, above medium size, of promising appearance. An autumn variety.

Madame Delmotte. — Large, yellowish green, form of Urbaniste; quality not yet ascertained.

Madame Cuissard. — Oval form, above medium size, smooth, clear, handsome yellow skin. (Since these notes were made, it has ripened, and proves of excellent quality.)

Louis Vilmorin. — Large, obtuse pyriform; russet, with brownish red cheek; very handsome, and promising. A late variety. Said to be from seed of Beurré Clairgeau.

Madame Loriol de Barny. — Large, long, obtuse pyriform; green.

British Queen. — Large, regular pyriform, completely covered with cinnamon russet, like Beurré Bosc.

Leon Rey. — Globular, oblate; medium size, with brownish-red cheek.

François Borgia. — Large, varying from acute to obtuse pyriform; handsome,

and appears to be an abundant bearer, and a vigorous tree. A premature specimen is spirited and vinous, and gives promise of great excellence.

Beurré Menand. — Large; long, obtuse pyriform.

Lucie Audusson. — Medium size; broadly turbinate; green, and, so far as could be judged from a premature specimen, buttery, juicy, and of good flavor.

Bon du Puits-Ansault. — Looks like Sheldon in shape and color — fully as large; very clean and handsome.

Maurice Desportes. — Acute pyriform; large; greenish, with a little russet. An autumn variety.

Amiral Cecile. — Medium size; roundish. Late autumn.

Madame Favre. — Large; roundish, inclining to oblate; clean, yellow skin, a little touched with red on the cheek. From an imperfect specimen, Mr. Wilder informed us that it was very melting, and excellent, just coming to maturity.

Madame Appert. — Large; long, regular pyriform; skin green, with traces of russet. Described as an October pear.

Loriol de Banny. — Good size; form of the Bartlett, or a little more acute; skin clear yellowish-green.

Brunet, Hert, President de Bouteville, Doctor Lindley, Marie Guisse, Joseph Lamarche, General Canrobert, Voyageur, and many other new varieties, were in fruit; but being grafted on trees so tall that it was difficult to observe them accurately, we will defer further mention until some future occasion.

Mr. Wilder has in fruit quite a number of seedlings of his own raising, besides several originated by his neighbors and others, of which one of his own was remarkably handsome, both in tree and fruit, the latter being large, smooth, yellowish-green, and tree a fine bearer. He had also two or three with brilliant red cheeks, which he hoped might be constant characteristics, and not merely due to this peculiar season.

AMERICAN WINES — “THE CARTE BLANCHE.” — We have before remarked in the Journal that few persons whose attention has not been especially drawn to the subject, have any adequate idea of the extent which the manufacture of wines, from the improved varieties of native grapes, has attained in this country; and we may add, that few are aware of the excellence of some of the wines produced, many of which are sold and drunk as imported wines. Among those who have given the greatest attention to the manufacture of these wines, and brought it to the highest perfection, is the “Pleasant Valley Wine Company,” of Hammondsport, N. Y., whose “Paris Exposition” received a medal at the Great Exhibition of 1867. This has, however, been surpassed by the “Carte Blanche” of the same company, who have kindly sent us a sample of that brand, and which we think one of the finest, if not *the* finest, sparkling American wine we have ever tasted. It has less than most American wines of the peculiar flavor of the native grapes, which commends it to those whose taste has been formed on imported wines, and is also free from the excessive sweetness which has been a great objection to many American wines, and gives evidence of the greatest care in the selection of the grapes and manufacture of the wine.

THE BOUDINOT STRAWBERRY was raised by Dr. Boudinot, of Alexandria, in 1864, from a seed of the Wilson. We find in the Ohio State Journal a notice of this variety, by Mr. A. B. Buttles, who, in company with Mr. J. H. Klippart, Secretary of the Ohio State Board of Agriculture, and Colonel Innis, a practical agriculturist and market gardener, visited the grounds of Mr. A. Merriman, at Granville, Ohio, on the 6th of June, for the purpose of testing this variety. They found it a little past its prime, it having begun to ripen May 25; but, though much affected by the drought, the vines were still loaded down with berries. They regarded it as wonderfully prolific, all agreeing that they had never seen such a mass of fruit on any variety of strawberry. One bed, seventy feet by fifteen, had yielded a little over five bushels, or at the rate of about *two hundred and twenty bushels* to the acre, and with the usual rains the yield would probably have been doubled by the close of the season. Several vines were picked which indicated a yield of six hundred bushels; but these, of course, were of extra character. Mr. Buttles had himself a few plants which ripened some very early and splendid fruit this season. Mr. Merriman's success with the Boudinot was not obtained without great care and attention in the preparation of the ground and cultivation of the vines; but last year he had the Wilson, Agriculturist, and other leading varieties growing in the same soil, and under the same treatment, and the Boudinot yielded more than twice as much fruit as any other variety. The fruit is large, dark rich color, fine in flavor, and very firm, having the admirable quality of being firmer when fully ripe than before.

THE PEAR CROP IN NEW ENGLAND is undoubtedly the largest since 1862. The hailstorm which passed over Boston in June cut the fruit badly; but this was quite limited in extent, and generally the fruit is fair and of fine quality. We think there have never been so many Bartletts in the market, good ones having been sold at wholesale as low as two dollars per bushel for such as commonly bring two or three times that price. It is the opinion of one of the best authorities in pear culture that the proportion of first-rate fruit years is three out of ten, with four moderately good crops, and three poor. This year, in spite of the extreme drought, not only the pears, but the apples and grapes, are unusually abundant and excellent.

THE HOOSAC BLACKBERRY.—We have received from Mr. Frank Ford, of Ravenna, Ohio, photographs of this new variety, which was found by him in 1864, in Rowe, Mass., near the Hoosac Mountain, and also specimens of the canes and leaves. It appears to be quite as free from thorns as any variety we have seen, there being hardly one on the canes, and but a few small ones on the foot-stalks and midribs of the leaves. The photographs indicate an abundant bearer. Mr. Ford describes it as standing the winter better than Wilson's Early or Lawton; quality of fruit, excellent, there being no hard, sour core, but sweet all through; hangs a long time on the bush after becoming ripe without rotting, and continues a long time in bearing. The berries are of only medium size compared with Lawton and Kittatiny, but the quantity will more than make up in the yield.

SERIOUS EFFECTS FROM LATE GROWTH OF TREES. — Last year the excess of rain so saturated the ground with water, that many of our trees were checked in growth at midsummer ; then it came dry and warm, starting a second growth ; and when there came a severe freeze, 17th of October, the trees were so green and growing, that it killed many small ones, and damaged many large ones — nearly all more or less. In the spring our orchards bloomed full, but the fruit immediately dropped. I think the fall freeze was the cause of it. Our pear trees are blighted worse this season than I ever saw them before.

This year the prolonged and extreme drought has checked the growth of the trees at this time (July 27), and rain will be likely to start a second growth, as last year. Our hopes are, that the fall will so gradually approach with cold weather as to harden and prepare the trees, that no serious effects will result. In the nurseries it will be well to sow in oats in August, if we get rains, that the growth of oats may check the growth of the trees, and serve another valuable purpose — mulching. This is not a sure remedy to save the nursery from killing by a sudden fall freeze, and the bark bursting at the surface of the ground, but its tendency is good.

Suel Foster.

MUSCATINE, IOWA, July 27, 1870.

NEW RASPBERRIES. — The latest novelties among native sorts, and perhaps the best that have appeared in many years, are a number of seedlings from the Allen, raised by D. M. Herstine, of Philadelphia. A few days since, we visited Mr. Herstine's grounds for the purpose of examining these berries, and were so well pleased with them, that we give a description of four of the most promising varieties : —

Herstine. — Large, roundish conical, light crimson ; moderately firm ; parts freely from the core ; sweet, rich, and highly perfumed. Canes strong, erect, with a slight tinge of red where fully exposed to the sun ; spines, large and strong, very scattering ; nearly white, the ends slightly tinged with brown. Leaves large, broad, and flat, on young canes, but on bearing shoots slightly wrinkled. Apparently a very productive variety.

Elizabeth. — Very large, obtuse conical ; glossy, light crimson, approaching scarlet ; firm, juicy, and of excellent flavor. Canes strong and erect ; spines long and slender, dark brown. Leaves large, flat, and of good substance.

Ruby. — Large, nearly globular, dull, deep crimson, rather soft, but of a rich, sprightly flavor ; spines purplish, and few in number. This is a very handsome variety ; but we fear it will not be firm enough to carry a long distance to market.

Saunders. — Large, light bright crimson : grains large ; parts freely from the core ; quite firm, quality good, but not equal to the Herstine. Canes slightly colored with red ; spines reddish purple, very few and scattering. Leaves large, flat, and of firm texture. This variety shows unmistakably some of the characteristics of its parent, and will doubtless prove to be a hardy and valuable variety.

Mr. Herstine has many other seedlings that give promise of excellence ; but the above four are the only ones that have as yet been named preparatory to their propagation and dissemination.

Hearth and Home.

PROF. A. S. PACKARD, of the Peabody Academy of Science, Salem, Mass., and author of the "Guide to the Study of Insects," recommends destroying noxious insects by propagating the ichneumon-flies and other parasites which prey upon them. He thinks, that, with comparatively little effort, entomologists will be able to breed these parasites, and thus to restore the balance in Nature ever existing between them and their hosts; and he suggests a commission of entomological experts, who should act in concert in the different States, and pay attention to the rearing of the insect-parasites.

ONE advantage of the Franconia Raspberry and others of a similar character, especially for market, is the fact that they are *better* twenty-four hours after being gathered than when just picked. At first, they are quite acid and hard, even when fully ripe; but, by keeping a proper time, they become mellowed both in flavor and texture.

A ROTATION of manure is as beneficial as a rotation of crops.

One nursery-man in Illinois has sown three hundred acres with Osage Orange to sell for hedging.

Don't crop your grape-vines too severely, especially young vines. A single over-crop often inflicts injury which it requires years to overcome.

The name of the Scuppernong Grape is said to be from the Indian, Skou-per-nong, meaning *Sweet-water*.

HORTICULTURE OF THE OLDEN TIME. — It is nearly twenty-five years since I prepared the following article on "Ancient Horticulture," which was published in the first volume of "Downing's Horticulturist." As most of that generation of readers has passed away, and the subject may be interesting to many on the stage at the present time, I have transcribed it for publication in "The American Journal of Horticulture:" —

It is sometimes pleasant to have things *old* as well as *new* brought before the mind; to take a retrospective glance, the better to judge of the progress that has been made in pursuits in which so many now delight to engage; arts, which, aided by the light of science of the nineteenth century, are now so rapidly tending toward perfection. We have been very much interested and amused in conning over an old work that has been kindly loaned us by the Librarian of Harvard College. We found it, in examining this immense collection of books, in one of the alcoves devoted to botanical, agricultural, and horticultural works; an ancient and rare folio volume of about 1700 pages, entitled "The Herball, or General Historie of plantes by John Gerarde of London, Master in Chirurgerie, very much enlarged and amended by Thomas Johnson, citizen and apothecarie of London, Anno 1633"

The work appears to have been first published by Gerarde in 1597, so that, with the exception of that portion of the work "enlarged and amended by Thomas Johnson," the description of the trees and plants were given 250 years since [now 275]. It is written in a pleasing, quaint style: every plant is so well described and illustrated with a well-executed woodcut, that, although the scientific and

common name in many cases differ from those of the present time, it is at once recognized.

The volume is divided into three books.

1st book, "Treats of Grasses, Rushes, Corne, Reeds, Flags, Bulbous or Onion rooted Plants."

2d. "Most sort of Herbs used for meat, medicine, or sweet smelling."

3d. "Hath Trees, Shrubs, Bushes, Fruit bearing Plants, Roses, Rosins, Gums, Heaths, Mosses, Mushrooms, Corall and their several Kinds."

In these days we should think this to be a rather queer arrangement for a botanical work ; but this was before the days of Linnæus or Jussieu. The Latin and English name is given to each plant, which is placed over the picture of the plant ; then follows the "kinds, description, place, time, names, natures and virtues."

A few extracts from some of the chapters on fruit may not be without interest to the readers of "The Horticulturist;" the spelling of the words, however, I think it expedient to modernize in some degree.

"Of the Pear tree — The description — To write of Pears and Apples, would require a particular volume ; the stock or kindred of Pears are not to be numbered ; every country hath its peculiar fruit ; myself knows one curious in grafting and planting of fruits, who hath in one place of ground, at the point of three-score sundry sorts of Pears, and those exceeding good, not doubting but if his mind had been to seek after multitudes, he might have gotten together the like number of those of worse kinds ; besides the diversities of those that be wild, experience showeth sundry sorts ; and therefore I think it not amiss to set down the figures of some few, with their several titles, as well in Latin as English, and one general description for that, that might be said of many, which to describe apart, were to send an owl to Athens, or to number those things that are without number."

The following are the named varieties : —

1. *Pyrus Superba*. — The Catherine Pear.
2. *Pyrus Præcocia*. — The Jenneting Pear.
3. *Pyrus Jacobæa*. — St. James Pear.
4. *Pyrus Regale*. — The Pear Royal.
5. *Pyrus Palatinum*. — Burgamot Pear.
6. *Pyrus Cydonium*. — The Quince Pear.
7. *Pyrus Episcopatum*. — The Bishop's Pear.
8. *Pyrus Hyemale*. — The Winter Pear.

"The general description. — The Pear tree is for the most part higher than the Apple tree, having boughs not spread abroad, but growing up in height ; the body is many times great ; the timber or wood itself is very tractable or easy to be wrought upon, exceeding fit to make moulds or prints to be graven on, of color tending to yellowness ; the leaf is somewhat broad, finely nicked in the edges, green above, and somewhat whiter underneath ; the flowers are white ; the Pears, that is to say the fruit, are for the most part long, and in form like a top ; but in greatness, color, form and taste, very much differing among themselves ; they be also covered with skins or coats of sundry colors ; the pulp or

meat differeth ; as well in color as in taste ; there is contained in them kernels, black when they be ripe ; the root runneth strait down with some branches running aslope.

“The Place. — The tame Pear trees are planted in Orchards, as be the Apple trees, and by grafting, though upon wild stock, come much variety of good and pleasant fruits. All these before specified, and many sorts more, and those most rare and good are growing in the ground of MASTER RICHARD POINTER, a most cunning and curious grafter and planter of all manner of rare fruits ; dwelling in a small village near London, called Twicknam ; and also in the ground of an excellent grafter and most painful planter, MR. HENRY BANBURY of Touthill-st. near Westminster, and likewise in the ground of a diligent and affectionate lover of plants, MR. WARNER, near Horsey, down by London, and in divers other grounds about London. Most of the best Pears are at this time to be had with MR. JOHN MILLEN in Old-st., in whose nursery are to be found the choicest fruits this kingdom yields.”

Among other virtues and qualities ascribed to the pear, the author says, “Wine made of the juice of Pears, being taken in small quantities comforteth and warmeth the stomach, and causeth good digestion.”

The Apple. — After some general description of the apple-tree, and speaking of the innumerable tastes and flavors of the different varieties, and the impossibility on his part to distinguish them, he says, “Notwithstanding, I hear of one that intendeth to write a peculiar volume of Apples and the use of them. yet when he hath done what he can do, he hath done nothing touching their several kinds to distinguish them.”

The following varieties are named as superior : —

1. *Malus carbonia*. — The Pome Water Tree.
2. *Malus carbonia a longo fructu*. — The Baker's Ditch Apple Tree.
3. *Malus reginale*. — The Queening, or Queen of Apples.
4. *Platomela sive Pyra aestiva*. — The Summer Pearmain.
5. *Platurchapin sive Pyra hyemalia*. — The Winter Pearmain.

“The Place. — The tame and grafted Apple trees are planted and set in orchards made for that purpose ; they delight to grow in good and fertile ground ; Kent doth abound with Apples of most sorts ; but I have seen in pastures and hedgerows about the grounds of a worshipful gentleman, dwelling two miles from Hereford, called Master Roger Bodnome, so many trees of all sorts, that the servants drink for the most part no other drink but that which is made of Apples. The quantity is such, that by the report of the gentleman himself, the Parson hath for tythe many hogsheads of cyder. The hogs are fed with the fallings of them, which are so many, that they make choice of those apples they do eat. who will not take of any but the best. An example doubtless to be followed of gentlemen who have land and living ; but enough saith, the poor will break down our hedges, and we shall have the least part of the fruit ; but forward in God's name ; graft, set, plant and nourish up trees in every corner of your grounds. The labour is small, the cost nothing ; the commodity is great, yourselves shall have plenty, the poor shall have somewhat in time of want to relieve their necessity, and God shall reward your good minds and diligence.”

Under the paragraph, "The virtues of the Apple," among the many good qualities, the author says, "The pulp of the roasted Apple, in number four or five, according to the greatness of the apple, especially of the Pome Water, mixed in a wine quart of fair water, laboured together until it becomes to be as Apples and ale, which we call Lambs Wool, and the whole quart drank last at night, within the space of one hour, doth in one night cure the strangurie, and other like diseases ; in twice taking it, it never faileth in any, which myself have often proved, and gained thereby both crowns and credit."

Of Plums. — "To write of Plums particularly would require a peculiar volume, and yet not the end to be attained unto, nor the stock or kindred perfectly known, neither to be distinguished apart ; the number of sorts or kinds are not known to any one country ; every climate hath his own fruit far different from that of other countries ; myself hath threescore sorts in my garden, and all strange and rare ; there be in other places many more common, and yet yearly commendeth to our hands others not before known."

Of Cherries, the writer makes mention of "divers sorts, some bringing forth great fruit, others lesser ; some with white fruit, some with black, others of the color of black blood, varying infinitely according to the climate and country where they grow."

The Double-flowering Cherry was then known and thus described : "The double-flowering Cherry tree groweth up like unto an hedge bush, but not so great nor high as any of the others ; the leaves and branches differ not from the rest of the Cherry trees. The flowers thereof are exceeding double, as are the flowers of Marigolds, but of a white color, and smelling somewhat like the hawthorne flowers ; after which seldom or never come any fruit, although some authors have said that it beareth sometime fruit which myself hath not at any time seen ; notwithstanding the tree hath grown in my garden many years, and that in an excellent good place by a brick wall, where it had the reflection of the south sun, fit for a tree that is not willing to bear fruit in our cold climate."

Full descriptions are also given of the Peach, Apricot, and other fruits, Gooseberries, Currants, &c., with their different varieties : so that, whatever may be our own opinions in relation to the great improvement made in these modern days in horticulture, we may not, after all, be much in advance of those who lived nearly three centuries before us.

We find the Potato spoken of under the Latin name of *Battata Virginiana sive Virginianorum*, Virginian Potatoes, to distinguish them from the Sweet Potato, *Battata Hispanorum* of that time.

"From the leaves come forth long round slender foot-stalks, whereon do grow very fair and pleasant flowers, made of one entire leaf, which is folded or plaited in such strange sort, that it seemeth to be a flower made of fine sundry small leaves, which cannot easily be perceived except the same be pulled open. The whole flower is of a light purple color, striped down the middle of every fold or welt, with a light show of yellowness, as if purple and yellow were mixed together. In the middle of the flower thrusteth forth a thick flat point, all yellow as gold, with a sharp green prick or point in the middle thereof. The fruit suc-

ceedeth the flowers, round as a ball, of the bigness of a little bullesse or wild plum, green at the first, and black when it is ripe; wherein is contained small white seed lesser than those of the mustard. The root is thick, fat and tuberous, not much differing either in shape, color or taste from the common Potato [sweet potato], saving the roots hereof are not so great nor long; some of them are round as a ball, some oval or egg fashion, some longer, and others shorter; the which knobby roots are fastened unto the stalks with an infinite number of thready strings."

"The Place — It groweth naturally in America where it was first discovered, as reports C. CLUSIUS, since which time I have received roots hereof from Virginia, otherwise called Novembega, which grow and prosper in my garden, as in their own native country." (Probably our agriculturists do not realize that they have such rare, beautiful, and curious flowering-plants by the acre on their farms. Very likely some of them are beginning to understand the value of such a rare plant; for we learn that fifty dollars have been given for a single tuber.)

The Tomato is figured under the name of *Poma amoris*, or Apple of Love, and reported to be eaten in Spain when prepared and boiled with pepper, salt, and oil. That also in some parts of the same country, and Barbary, they are sliced up and seasoned with pepper, salt, and oil, and eaten cold, which Gerarde says, "he should think it was a fit dish for the devil. Likewise that they do eat the Apples with oil, vinegar, and pepper mixed together for sauce to their meat, even as we in these cold countries do mustard. But they yield very little nourishment to the body, and the same is nought and corrupt."

Gerarde, after describing the red and white Beet, says, "There is likewise another sort hereof, that was brought unto me from beyond the seas, by that courteous merchant MASTER LETE before remembered, the which hath leaves very great, and red of color, as is all the rest of the plant, as well root, as stalks and flowers, full of a perfect purple juice tending to redness; the middle rib of which leaves are for the most part very broad and thick, like the middle part of the cabbage leaf, which is equal in goodness with the leaves of cabbage when boiled. It grew with me (in 1596) to the height of seven and a half cubits, and did bring forth his roughly and uneven seed very plentifully; with which plant Nature doth seem to play and sport herself; for the seeds taken from that plant which was altogether of one color, and sowed, doth bring forth plants of many and variable colors, as the worshipful gentleman MASTER JOHN NORDEN can very well testify, unto whom I gave some of the seeds aforesaid, which in his garden brought forth many other beautiful colors."

This "old and affectionate lover of plants" classes the rose with thorny plants. A few extracts from the chapter on roses will close this article.

"The plant of Roses, though it be a shrub full of prickles, yet it had been more fit and convenient to have it placed with the most glorious flowers of the world, than to insert the same here among base and thorny shrubs [I think so]; for the Rose doth deserve the chiefest and most principal place among all flowers whatsoever; being not only esteemed for its beauty, virtues, and his fragrant odoriferous smell; but also because it is the honour and ornament of our English

sceptre, as by the conjunction appeareth in the uniting of those two most royal houses of Lancaster and York.

“It is reported that the Turks can by no means endure to see the leaves of Roses fall to the ground, because that some of them have dreamed, that the first or most ancient Rose did spring from the blood of Venus; and others of the Mahometans say, that it sprang from the sweat of Mahomet.”

The Double Roses described are the white, red, damask, rose without prickles, and the Holland or Provence. “The Holland or Provence Rose hath divers shoots proceeding from a woody root, full of sharp prickles, dividing itself into divers branches, whereon do grow leaves, consisting five leaves set upon a rough middle rib, and those snipt about the edges; the flowers do grow on the tops of the branches, in shape and color like the Damask Rose, but greater and more double, insomuch that the yellow chives in the middle are hard to be seen; of a reasonable good smell, but not full so sweet as the common Damask Rose; the fruit is like the other of his kinde.” Under the head of Musk Roses are the double and single, and great musk, the velvet, single and double yellow, single and double cinnamon. Under Wild Roses, single and double eglantine, brier, and pimpernel roses. The cut of the Holland Rose is a good representation of our La Reine, equal in size and perfection to one of the best specimens.

Thus ends my chapter on ancient horticulture.

Joseph Breck.

TWIG BLIGHT ON THE APPLE. — This malady, which has long been known and suffered by the orchardists of Illinois and other western states, has made its appearance in our neighborhood this season in an unpromising abundance. The disease has heretofore been observed among us, but in a moderate degree, scarcely attracting attention; but now, in some orchards, one half of the foliage is affected, and some trees are completely browned, as though scorched by fire. When this is the case, great injury must ensue to the whole plant; when in less amount, the effect will be like that of a severe summer pruning of the twigs.

A similar affection has often been observed in the quince, and also in the Italian mulberry; and the common pear blight, when confined to small twigs, presents the same appearance. The *cause* of the trouble is not known, but insects have been accused of having produced the result. Nothing satisfactory has been found, however, to show the traces of insect depredations. An examination with magnifying glasses has not enabled me to find either insects, larvæ, eggs, or stings. Some have attributed the disease to frost, some to heat, to electricity, to stimulation, and to neglect. Such an array of various and diverse causes only shows how little we know about the matter.

The most satisfactory explanation is the rather tantalizing one attributing the death of the twigs to the invasion of minute parasitic plants — fungi. This is tantalizing, because so few of us understand the use of the microscope, or know anything of the nature and characters of the wonderful world of miniature objects which are revealed by its use; moreover, we are further tantalized, because the enemy is so minute as to be beyond the reach of our clumsy manipulations.

Dr. Warder, in the Ruralist.

BLACK KNOT.—It was long ago shown in the *Practical Entomologist*, by Mr. Walsh, that the fungoid disease, known, under the name of "black knot," to infest the cultivated cherry, was quite distinct from the disease of the same name which attacks the cultivated plum, and that the former most probably took its origin from the wild choke cherry (*Cerasus virginiana*), and the latter from the common wild plum (*Prunus americana*). Hence there followed the important practical consequence, that black knot could not spread from the cherry to the plum, nor from the plum to the cherry; each parasitic fungus confining itself to its appropriate tree.

In July, 1869, we were favored by Mr. B. N. McKinstry, nurseryman, of East Sumner, Kankakee County, Illinois, with specimens of black knot growing quite abundantly with him, as he says, upon the Miner plum, but not on any other cultivated plum. A single glance suffices to show that this diseased growth is essentially different from the common black knot of the plum, although, like this last, it is evidently of fungoid origin; in fact, in color, in external texture, and in internal organization, the two differ so widely that "brown knot" would be a far more appropriate name than "black knot" for the affection of the Miner plum.

As the Miner plum is a cultivated variety of the Chickasaw plum (*Prunus chicasa*), it would seem to follow that there are three distinct black knots, originating respectively from the choke cherry, from the common wild plum, and from the Chickasaw plum; and further, that the first is confined, among our cultivated fruits, to the cherry; the second, to our common tame plums; and the third, to the Miner plum. It is very remarkable that in Europe they have no black knot at all, whether upon cherry or plum.

American Entomologist and Botanist.

THE HOVEY AND WILSON STRAWBERRIES.—Some surprise has been expressed that the Hovey's Seedling should have been so long cultivated by Boston growers; but we consider it much to their credit that they have so long withstood the temptation to give up everything for a strawberry like the Wilson, whose one merit is its profitableness, and which, in point of quality, is notoriously the poorest that has ever attained any degree of popularity. Hovey's Seedling has well deserved the reputation it has enjoyed around Boston, as was well proved a short time since, when one of the most prominent fruit growers in the State of New York, who visited Boston after having just seen a strawberry exhibition in New York city, on being asked how the Hovey's Seedlings looked, replied that there were none there, and further expressed an opinion of that variety not very complimentary to it. But soon passing through a street where a large quantity of fine Hovey's Seedlings were exposed for sale, he acknowledged that the Boston people knew what they were about, and that if they could grow Hovey's as he saw them there, they need not desire anything better.

THE MONTREAL BEAUTY CRAB.—We are indebted to our correspondent, Mr. George Cruickshanks, for specimens of this new variety. It is of the largest size among crabs; oblong shape, largest in the middle, and tapering to both ends;

skin pale yellow, with a bright scarlet cheek dotted with yellow, and a thin blue bloom; flesh white, tender, and juicy, with but little of the peculiar flavor of crabs. It is produced in clusters of from six to eight, and appears to be one of the most desirable, either for ornament or use.

MASSACHUSETTS HORTICULTURAL SOCIETY.—July 16. The prize for the best collection of currants, not less than four varieties, was awarded to J. W. Foster for Red Dutch, Fertile d'Angers; Cherry, La Versaillaise. For the best four quarts of red currants to W. H. Barnes, for La Versaillaise. Best four quarts white to J. B. Moore, for Dana's New White.

For the best four quarts of raspberries to John B. Moore, for Northumberland Fillbasket.

James Comley exhibited Cranberry Wax beans, King of the Earlies potato, planted May 14, Champion of Scotland, and Laxton's Alpha peas; the latter very fine.

The first prize for the best display of named species and varieties of summer lilies was awarded to Francis Parkman for *Lilium atrosanguineum*, *eximium*, *longiflorum*, *lanceifolium* varieties, *canadense*, *Takesima*, *auratum*.

James McTear received the first prize for the best ten named varieties of carnations; viz., Lady Ely, Dreadnought, Lord Milton, Squire Meynell, Queen Victoria, Uncle Tom, Mrs. Holland, Brutus, Poor Tom, William IV.; also for the best ten picotees, Queen of the East, Bertha, James II., Sarah Ann, William Summers, Parsee Bride, General Lee, Rosetta, Cedo Nulli, Amy Robsart.

John G. Barker exhibited *Cattleya Mossiæ*, one of the finest orchids, of a beautiful lilac color, which received a gratuity of five dollars; also *Dendrobium formosum*. Mrs. Ward exhibited *Roupellia grata*, *Gardenia radicans*, *Stephanotis floribunda*, Andrew Henderson geranium, carnations, picotees, and cut flowers of gloxinias; also two beautifully arranged dishes of exotic flowers, which received a gratuity of five dollars.

From Francis Parkman remarkably fine specimens of *Yucca filamentosa* and *floribunda*, the latter especially beautiful. From E. S. Rand, Jr., *Lilium auratum*, Hardy Heather, *Stuartia pentagynia*, *Hypericum calycinum*, *Lilium canadense*, Double Flowering Blackberry, and Variegated Leaved Four-o'clocks.

From Hovey & Co., *Stipa gigantea* and *pinnata*, *Gypsophila paniculata compacta*, *Sedum saxifraga* and *denticulatum*, *Hermerocallis aurea*, *Clematis Jackmani*, *Lychnis chalconica* white and scarlet, double seedling delphiniums, pelargoniums Robin Hood and Chief Justice, and double pelargoniums Madame Lemoine, William Pfitzer, Marie Lemoine, La Vésuve, Emile Lemoine, Ville de Nancy, and Terre de Promise.

From James Comley, *Scutellaria nudiflora*, *Gladiolus Lynnei*, and double seedling pelargonium.

From J. S. Richards, seedling hollyhocks, which received a gratuity of three dollars.

July 23. The first prize for the best collection of raspberries, one quart of each kind, was taken by J. B. Moore: varieties Northumberland Fillbasket, Clarke, Franconia, Philadelphia. To the same the first prize for the best two

quarts of raspberries for Northumberland Fillbasket, and for the best two quarts of blackberries, variety Wilson's Early. The prize for the best four quarts of currants was again awarded to W. H. Barnes for La Versaillaise, and that for the best two quarts of gooseberries to Mrs. E. M. Gill for Mountain Seedling.

The Mammoth Cluster raspberry was shown by W. C. Strong. A gratuity of three dollars was awarded to O. C. Gibbs for a tree of Keswick Codlin apple in fruit, and two dollars to Mrs. Julia Loring for an orange tree, also in fruit.

J. B. Moore exhibited his new hybrid sweet corn, and a good display of vegetables was made by other exhibitors.

John G. Barker exhibited another beautiful orchid, *Oncidium Lanceanum*, and also *Cattleya intermedia*, for which a gratuity of three dollars was awarded. E. S. Rand, Jr., exhibited *Helianthus argophyllus*, *Zinnia Haageana*, *Kolreuteria paniculata*, *Lilium superbum*, and *Canna Rendatleri*.

Francis Parkman, a hybrid between *Lilium auratum* and *lancifolium*.

James McTear showed some remarkably beautiful Phloxes and *Campanula celtifolia*.

From James Cruickshanks *Lysimachia thyrsiflora*, *Kolreuteria paniculata*, and seedling carnations.

From James Comley a finely-grown plant of the graceful *Humca elegans*.

From E. H. Hitchings a collection of native plants, including *Elymus hystrix*, *Actæa rubra*, *Typhonia virginica*, *Corallorhiza multiflora*, and other rare species.

The prize for the best display of fungi, and best arranged, was awarded to Miss A. C. Wheeler, and that for the next best to E. H. Hitchings.

July 30. The first premium for the best twelve specimens of Doyenné d'été was awarded to J. E. M. Gilley; second, to Henry Vandine. For the best twelve specimens of Madeleine, to Henry Vandine; second, to B. B. Davis. For the best two quarts of blackberries, to J. B. Moore; second, to James Nugent. A gratuity to R. W. Turner for a fine collection of foreign grapes and figs.

Gratuities were awarded to Josiah Crosby for collection of vegetables, including fine specimens of the Black Pekin egg-plant; Daniel Clark, for collection of vegetables; J. B. Moore, for his new hybrid sweet corn; S. Foster, for Dwarf Wax beans; Caleb Bates, for Bates's New Crimson corn and hybrid tomatoes, and William Baker for collection of tomatoes.

Mrs. T. W. Ward exhibited another elegant collection of green-house flowers, most tastefully arranged; also, a stand of Hardy Perpetual roses.

E. S. Rand, Jr., showed fine specimens of *Lilium superbum*, one of our finest native lilies.

J. S. Richards exhibited a handsome collection of seedling Gladiolus; also, fine specimens of *Tritoma Uvaria glaucescens*.

The Committee on Flowers awarded the following premiums:—

Cut Flowers—first premium to F. Parkman; second, to A. McLaren; third, to James O'Brien. Baskets of flowers—first, to Mrs. S. Joyce; second, to Miss C. S. Wood. Parlor bouquets—first, to James McTear; second, to J. Nugent. Hand bouquets—first, to J. Nugent; second, to James McTear.

Gratuities were awarded to J. S. Richards for gladiolus and tritomas; J. B.

Moore, for double balsams ; Mrs. T. W. Ward, for roses and green-house flowers ; E. S. Rand, Jr., for lilies ; J. Nugent, for tritomas ; Mrs. E. A. Story, for choice flowers ; E. H. Hitchings, for native flowers ; B. D. Hill, Jr., E. A. Story, and James Comley, for cut flowers ; J. McTear, for phloxes ; Mrs. E. M. Gill, Miss S. W. Story, and Miss A. C. Kenrick, for baskets of flowers.

August 6. The first prize for the best two quarts of blackberries of any kind was awarded to James Nugent, for Dorchester ; second, to J. B. Moore, for Wilson ; third, to B. B. Davis, for Dorchester. The prize for the best twelve specimens of any variety of pears was awarded to Davis & Bates ; second best, to Warren Heustis ; third, to Henry Vandine — all for Beurré Giffard. M. P. Wilder exhibited Bartlett pears, brought by him from California.

The prize for the best twelve tomatoes (open culture) was awarded to C. N. Brackett ; second, to Josiah Crosby ; third, to F. H. Graves ; fourth, to Daniel Clark — all for General Grant.

A gratuity of three dollars to Ridge Hill Farm for Early York tomatoes (curiously striped), Trophy, General Grant, and another unnamed variety. Joseph Tailby showed a new high pole bean, either string or shell, sown June 8. J. B. Moore again exhibited his new hybrid sweet corn.

The first prize for the best ten distinct varieties of late phloxes was awarded to Francis Parkman, for La Volupté, John Bull, Mad. Marot, Pourpre Imperial, d'Argent, Tri de Tarikel, Flambeau, Mad. Marseau, Mad. Standish, Prof. Kock.

George Craft exhibited a large variety of gladiolus, including Ornament des Parterres, Mary Stuart, Pericles (new), M. Legouve, Romulus, etc. J. S. Richards showed a large collection of seedling gladiolus, which received a gratuity of three dollars. Curtis & Cobb showed a beautiful rose-colored water lily (*Nymphaea odorata*, var. *rosea*), which received a certificate of merit. F. H. Graves exhibited seedling coleus, Miss Alice and Miss Emma, also achimenes. A gratuity of five dollars was awarded to O. C. Gibbs for a collection of thirty pots of gloxinias, bulbs from the Belgian exposition of 1869 ; varieties Myriostigma, Th. Lobb, Roi Fernando, Foxglove, Mina, Lady Amelia Villiers, A. Bonnard, Lady Victoria Howard.

August 13. The prize for the best collection of pears, not less than three varieties, was gained by Rostiezer, Osband's Summer, Tyson, Clapp's Favorite, and Beurré Giffard, grown by Davis & Bates, who also received the first prize for the best single dish — Beurré Giffard. The second prize for single dish was awarded to Galen Merriam for Supreme de Quimper ; third, to Warren Heustis for Beurré Giffard. Good specimens of Bartlett, Seckel, and Louise Bonne of Jersey, were exhibited from G. F. B. Leighton, of Norfolk, Va., which received a gratuity of three dollars. E. W. Wood exhibited a fine bunch of Black Ham-burgh grape, which received a gratuity of two dollars. Dr. G. F. Waters exhibited seedling peaches, Nos. 1 and 2, which received a gratuity of two dollars.

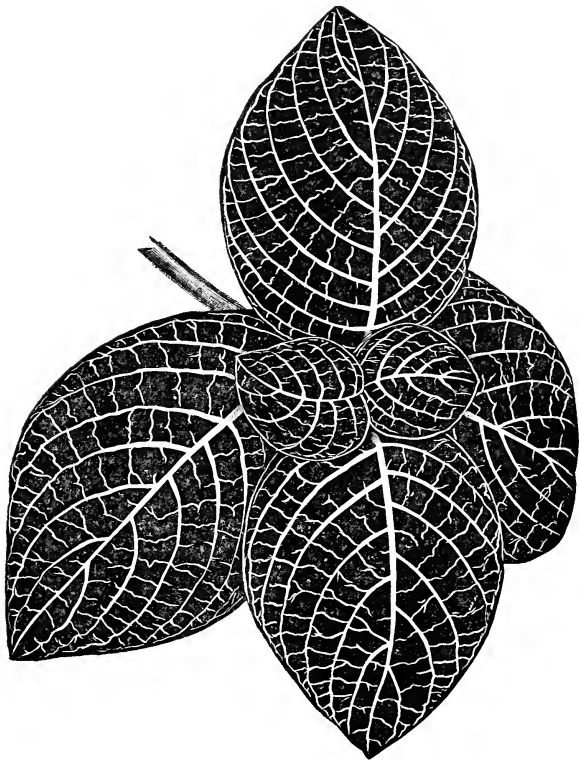
The prize for the best twelve ears of sweet corn was awarded to C. N. Brackett for Crosby's Early, second prize to Daniel Clark. The prize for the best four squashes was awarded to Josiah Crosby, for Marrows ; second, to James Comley, for Marrows ; third, to the same, for Turban. Gratuities were awarded of one

dollar each to C. E. Richardson and Benj. G. Smith for fine Lima Beans, a silver medal to J. B. Moore for new hybrid sweet corn, and two dollars to Josiah Crosby for Large Purple egg-plants and Green fleshed melons.

Joseph Breck exhibited magnificent spikes of balsams, which gained the first premium. The prize for the largest and best display of named species and varieties of native plants was awarded to Miss M. E. Carter; second, to E. H. Hitchings. J. S. Richards exhibited a large stand of seedling gladiolus, which received a gratuity of three dollars. A beautiful white variety—the Bride—received a gratuity of one dollar. Mr. Richards also showed a vase of tritomas, gladiolus, and lilies. Gratuities were also awarded to Mrs. Ward; three dollars for one of her baskets of choice flowers, and three dollars for a beautiful collection of hardy perpetual roses; one dollar to James McTear for *Tritoma aurea*, *Passiflora princeps*, and phloxes, Lady E. Lake, Napoleon, and Souvenir de Soultzmat; two dollars to James Comley for *Pancratium maritimum*, etc.; one dollar to C. W. Wellington for *Liatris pycnostachya*; two dollars to Mrs. W. S. Horner for one hundred and forty varieties native plants. George Craft exhibited a fine stand of gladiolus, including Napoleon III., Mad. Desportes, Meyerbeer, Elizabeth (new), Mad. Lebel, Pericles (new), Robert Fortune (new), Stella, Eldorado, and a large collection of seedlings; also cardinal flowers, phloxes, and *Datura Wrightii*.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

FITTONIAS AND GYMNSTACHYUMS. — For beauty and general usefulness these genera are unsurpassed by anything else in the same way, and there can be no doubt that up to the present moment they have not had that full meed of



GYMNOSTACHYUM PEARCEL.

attention they so thoroughly deserve. Although grand for the decoration of the stove when grown in pans or pots in the ordinary way, their greatest merits con-

sist in their adaptability for table decoration, and for growing in suspended baskets. There is really nothing to say about the ordinary mode of cultivation beyond what has already been said ; therefore these remarks will be confined almost entirely to their management in baskets and in the preparation of specimens for the decoration of the dinner table.

The baskets used here are of the usual half-globular shape, with a rather larger mesh than usual ; and as they are filled in a somewhat peculiar manner, it will be necessary to describe the process rather more fully than the simplicity of the operation may appear to render necessary. The baskets, when planted, should be entirely enveloped in foliage ; and to do this it will be necessary to cover the bottom and sides first by putting a number of plants, head downwards, through the wire work previous to filling in the soil. The centre plant should be put in its position first, and the others disposed regularly round it, with a layer of fresh green moss packed firmly between them to keep the soil in its proper place. The dwarf felt-like moss from the trunks of trees is the most suitable, as it not only keeps the soil in its proper place better, but it will continue to grow and present a fresh, green appearance throughout the season. The stronger-growing mosses, although they will keep the soil in its place, are not so useful, as after a short time they change to a brown color, and in a certain measure become unsightly. When the planting of the sides and bottom of the basket is finished, the latter must be filled with lumpy peat, a quantity of rooted cuttings dibbled rather closely together over the surface, and then watered rather copiously through a fine rose to settle the soil. This done, suspend the basket in a shady part of the stove.

The whole of the after management consists, beyond keeping the soil properly moist, in training out the new growth and securing it to the wire work. Tepid water should be used at all seasons of the year, and supplied rather copiously during the growing season. The most suitable way of applying the water is by dipping the basket in a vessel of water large enough to allow of its being immersed without the leaves being injured by contact with the sides. By following the few rules here laid down, massive globular specimens may be produced, the beauty of which can only be realized by ocular demonstration.

Before passing on to the cultural details connected with the production of table specimens, it will not be out of place to observe that it would be much better for people with limited means to grow a few plants that are always available, than to strip the garden or conservatory of flowers every time a few friends are invited to dinner. Shallow pans are the most suitable for the table, and then, after a short space of time, the growth will project over and completely hide the sides of the pan. The size of the latter must be determined by the purpose for which they are required ; if for the top of a stand, they should not exceed six inches in diameter, and be about three inches in depth ; but those for standing on the table should range from nine to twelve inches in diameter and from three to four inches in depth. Inside the largest size two pans of a smaller size must be placed ; and in the other one pan and a small pot will be the most convenient arrangement. The inside pans must be elevated in a progressive manner from four to six inches higher than the outside ; that is, the second should

be two or three inches higher than the outside, and the third, or central one, the same height above the second. A moderate layer of potsherds should then be placed in the bottom of each, and the remaining space filled up with fibrous peat mixed with a liberal proportion of silver sand.

Rooted cuttings are the most suitable for planting in the spaces between the pans, although established plants may be put out after reducing the ball of soil and loosening the roots, or the growing points of the young shoots may be taken off and inserted rather thickly, and the pans placed in a close corner, when the cuttings will soon take root and become established. Several systems have been tried here for growing them for the table, but none can equal that described above, which is now the only one practised.

The most suitable species for the purposes here mentioned are, —

Fittonia argyroneura, leaves deep green, entirely overlaid with a beautiful reticulation of silvery white; it is very compact in habit, yet remarkably vigorous in growth.

F. gigantea differs from the preceding in having larger leaves and a rosy-red reticulation instead of white.

Gymnostachyum Pearcei, leaves rich metallic green, the entire surface covered with a network of brilliant rosy carmine. The accompanying illustration affords a good idea of the general character of the leaves, but conveys but a poor idea of the great beauty of a full-sized specimen. This beautiful species was introduced by Messrs. Veitch & Co., of Chelsea, to whom we are indebted for the opportunity of illustrating this paper.

G. Verschaffelti is also very useful, although scarcely so beautiful as the preceding; the coloring of the veins is scarcely so brilliant, being of a more rosy hue.

‡ *W. Silver*, in *Flora! World*.

NEW BEDDING PLANTS. — We have received samples of two new annual white flowered bedding plants, which seem to be acquisitions for general decorative purposes. One is a dwarf white Virginian stock, a single tuft of which forms a close, erect mass (much like *Lobelia Erinus* in habit), of some six inches high and nine inches broad, clothed with a profusion of pure white flowers. It will form a capital white edging plant. Another is *Nemophila cramboides alba*, which is dwarfer in habit and a closer grower than *N. insignis grandiflora alba*, and with white flowers equally pure as in that useful variety.

Gardener's Chronicle.

CHANGING COLOR OF PRIMROSES. — I have about half a dozen differing in color from yellow to a very dark purple. This change was caused by being yearly transplanted into richer soil. They first came an orange color, then a light red, and eventually purple. The colors of flowers may be changed by certain additions to the soil in which they grow. Powdered charcoal deepens and intensifies the flowers of the dahlia, rose, petunia, etc.; carbonate of soda reddens hyacinths, and superphosphate of soda alters in various ways the hue and bloom of other plants.

W. F. Haigh, in *English Mechanic and Mirror of Science*.

NEW STRAWBERRIES. — The following new strawberries are this year introduced by M. Gloede, of Beauvais : —

Baron Brisse (Gloede). — Large and rich, of quite a novel yellowish color, rather late, and very productive.

Belle de Nantes (Boisselot). — Extremely large, and handsome shape ; flavor first rate ; a noble dessert fruit. Plant exceedingly robust, and coming in very late.

Constantin Trctiakoff (Gloede). — Large, and very handsome ; color deep brilliant scarlet ; flesh solid and rich. A strong grower, very prolific, and remains long in bearing.

Favorite (Madame Clements). — Large, even conical shape ; bright orange ; of exquisite flavor. An improvement on *Carolina superba*, and a good forcer.

Helena Gloede (Gloede). — Very large, and of delicious flavor. A noble fruit, ripening very late ; will be valuable as a highly improved Frogmore Late Pine, which it resembles, as regards size and flavor, but to which it is far superior in growth, hardiness, and lateness.

President Delacour (Horticultural Society's Trial Gardens at Beauvais). — Large ; globular shape ; bright glossy red. A very showy strawberry, solid, rich, and buttery. Plant very hardy, and extremely prolific. Ripens at the medium season.

Roseberry maxima. — This is a very fine, large, and useful strawberry, extensively grown in Russia, especially for early forcing. Exceedingly hardy and prolific ; belongs to the Pine class. Real origin unknown.

Alpine Trouillet. — A much improved variety of the Red Alpine strawberry ; fruit of large size for its race, and an immense bearer till frost sets in.

English Journal of Horticulture.

BRUGMANSIA SUAVEOLENS. — Reader, have you ever tried this as a wall-plant ? You have, of course, heard of the conservatory wall at Chatsworth, in which nearly all fine hardy greenhouse climbers had a trial. Years ago, a large portion of this glass-covered wall was clothed with the vigorous green of this fine plant, over which drooped gracefully scores of its beautiful large white flowers, so sweet as to fill the whole long structure with fragrance, and cause the people to come out in the dusk to see the full beauty of the plant. It, like the other brugmansias, is of the easiest culture, and will not require much care from the gardener, after once covering the space allotted to it, except a few minutes with the pruning-knife in the winter or late autumn, when it is usually pruned back a little. In a cold greenhouse, the tips, and, perhaps, a good deal of the shoots, may get pinched off with the frost in the winter ; but the plant "comes away" vigorously with returning summer. — *Floral World*.

THE CREAM OF THE DOUBLE-FLOWERED ZONATE PELARGONIUMS. — Since the remarks upon double-flowering zonal pelargoniums, which appeared in the *Floral World* of July, 1869, I have been able to thoroughly test the merits of all the varieties, with the exception of one or two, in commerce. A few years since, when there were only three or four varieties, we were bound to look over any little defect, whether in the habit, foliage, or flowers, and take them with all

their faults. But now the case is altered; for, up to the present time there are nearly fifty varieties in cultivation, and we can afford to criticise and compare their merits. They are all too gross and luxuriant in growth to make first-rate bedders, although one or two have a respectable appearance when planted out. The notes about to be offered are founded upon their behavior as pot plants, and are the result of careful observation and comparison throughout the season. Taking the several varieties alphabetically, we have first on the list, —

Andrew Henderson. — Orange scarlet; medium sized, compact trusses, and large faintly zoned leaves; moderately vigorous in growth, and flowers very freely; indeed, it is one of the best of its color.

Gloire de Nancy. — Bright scarlet, with faint shade of rose; trusses rather above the medium size, and elevated well above the foliage; leaves large, and of a bright green color. Rather vigorous in growth, but flowers very profusely when confined at the root. It is as yet unsurpassed by any of the newer varieties of the same hue.

Le Vésuve. — Light scarlet, shaded with orange; trusses large and globular. Very vigorous in growth, and must be kept pot-bound at the root to insure its flowering freely.

Madame Lemoine. — Bright rose-pink; trusses medium sized, and produced well above the foliage. The leaves are of a medium size, and faintly zoned. It is scarcely so vigorous in growth as many other varieties, and altogether is one of the very best yet sent out.

Marie Lemoine. — Rose-pink; flowers and trusses very large, of excellent form, and produced in the greatest abundance. It has also the desirable quality of a fine dwarf habit, and should be grown extensively for conservatory decoration.

Memnon. — Light scarlet flowers, and trusses of fair size, but the latter are rather too compact, the flower-stalk being scarcely long enough for the trusses to assume a globular form. It is, however, a desirable variety, because of its distinct character.

Signet. — Bright rose carmine; flowers of good form, and produced in well-shaped trusses; leaves rather large, and faintly zoned, habit rather too vigorous. I have only seen this and the preceding variety under trial, but both appear very promising and desirable.

Sparkhill Beauty. — Bright rose-pink; flowers of fine form individually, but they are packed too close together in the truss. It is, however, inferior, in many respects, to Marie and Madame Lemoine, both of which it resembles, and therefore not required in the same collection with them.

Triomphe de Lorraine. — Rosy scarlet; trusses medium size, rather dwarf in habit, and therefore rather desirable.

Triomphe de Thumesnil. — Scarlet, flowers of good form, and produced in moderate trusses. It is a very strong grower, and must be confined at the roots, otherwise it produces an excess of leafage and few flowers.

Victor (G. Smith). — This fine variety was figured in the Floral World for July, 1869. Flowers large in size, of deep scarlet color, and produced in fine bold trusses. In growth it is remarkably dwarf and compact, and, moreover,

flowers very profusely. Without exception, one of the best of its color at present in cultivation. There is an inferior, coarse-growing variety, under the same name, which must be borne in mind by purchasers.

Victor Lemoine. — Bright orange-scarlet; flowers produced in large globular trusses. Rather vigorous in growth, but that defect can easily be remedied by the use of small pots and rather poor soil. It is one of the very best of its color.

Victoire de Lyon. — Rich, reddish violet; huge trusses of fine rosette flowers. Leaves medium size, faintly zoned, and of a deep green color. This is the only double of its color, and was raised by Jean Sisley of Lyons. M. Sisley has raised many, and yet this is the only one he has sent out. This augurs well, for if he were not particular about his fame he would have sent out several. This fine variety may be obtained of M. Alegatiere, Chemin de St. Priest, Montplaisir, Lyons.

Wilhelm Pfitzer. — Brilliant scarlet; flowers large, and freely produced in bold, showy trusses. Moderately vigorous in growth, and altogether a very desirable variety, worthy of being grown extensively.

I did intend saying something about the bad sorts as well as the good ones, but in carrying out that resolution valuable space would have been wasted, therefore I have refrained from doing so. All the varieties named above may be safely depended upon as the best in their several shades of color.

John Walsh, in Floral World.

THE SULPHUR DISTRIBUTOR of Messrs. Adams and Grant is one of the most simple contrivances for the purpose that can be imagined, yet it appears to be a most effectual one. It consists of a little box with two glass sides, five inches long by three inches wide, and a little more than one inch in depth, into which the sulphur is put. On one side there is a small aperture for the sulphur to pass out, and on the opposite another, which is fitted on to the nozzle of a common household bellows. By blowing the bellows the sulphur is made to issue through the small aperture on the opposite side like fine dust, in a most effectual manner. It is the simplest and best sulphur distributor we have yet seen.

Florist and Pomologist.

DIANTHUS DIADEMATUS. — Of all that I have seen this is the best of the garden pinks. Of course they are all very beautiful, but *Diadematus*, as I saw it last season, is the best of all. Its growth is regular, it flowers freely, and its colors are rich and various. Those who would like to grow it should sow seed at once in a warm house, and nurse on until the end of May. If the plants are then put out in good soil, in a small bed, or in the mixed border, they will produce plenty of flowers. How long this variety will maintain its neat and compact habit of growth I cannot tell, but I think at least for this season it may be depended upon to maintain its true character. The great fault of all the varieties of *Dianthus* is, that they soon degenerate into a coarse, unmanageable growth, simply because many varieties of the same genus are grown near together, and they become mixed. It is a great pity they do this, for we have no class of plants so rich in color and so chaste in markings as they are.

J. C. C., in Gardener's Magazine.

THE FLORETEN, or flower-pot holder, is a very simple and useful contrivance, adapted for window or wall gardening. It consists of two rings of stout wire, with a short connecting piece bent at right angles, and is intended for furnishing blank vertical surfaces with pots filled with plants. The mode of using it may be readily seen from the accompanying figures, for which we are indebted to the inventor, Mr. W. J. Tait, of Rugby. Wherever a nail or a hook can be driven in, there the Floreten can be fixed up, and a vase or flower-pot steadily and



securely hung; by using an inverted bell-glass instead of a flower-pot, an aquarium may be formed; and again, by fixing two or more on the same level, and laying a board on the horizontal part, a shelf of any desired length may be extemporized. For window-gardening, for covering bare, dead walls with living plants, or for furnishing many a nook and corner in the conservatory of the villa garden, this little contrivance will be found to be of much utility. The odd-looking name is, we are told, derived from *flores*, and *tenco*, to hold.

Florist and Pomologist.

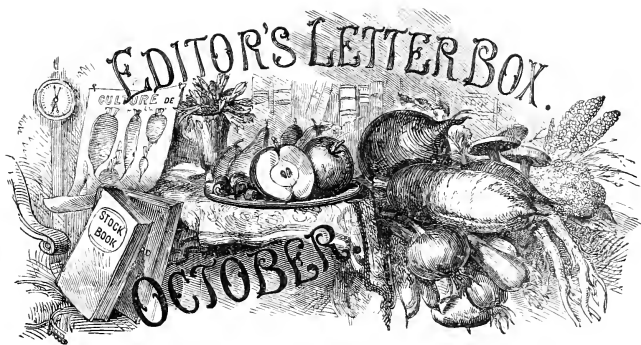
A CONE OF IRESINE HERBSTI. — Having first prepared and struck a lot of cuttings, a seed-pan of any desired diameter is got, together with a supply of light, turfy peat, moss, and some strong wire. Having settled on the height, strands of wire sufficient to retain securely the material enclosed within them, when brought up longitudinally and secured to a point, so as to form the cone, are fixed to the seed-pan or base. The drainage is provided for in the usual way, and the pan is filled with rough peat, etc., to a level with the edge; then the little plants of *Iresine* are laid on the surface; over them a layer of peat and moss, then more plants, and so on till the cone is finished, when the whole is neatly mossed over, the wires brought into their places and secured at the point, and the work is complete. A tepid syringing gives the finish. It is introduced into the stove, where the plants have nothing to do but grow. They quickly lay hold of their quarters, and turn up their heads boldly, and soon the whole is a pyramid of beauty, and our plant becomes really valuable, and highly decorative and ornamental. After standing in the house or conservatory, it may now be cut back, and introduced again into heat. It is only when grown in heat, we apprehend, that it is properly developed, or the peculiar beauty of its foliage fully brought out.

Irish Farmer's Gazette.

THE FRUIT CROP IN ENGLAND is described by the Gardener's Chronicle as one of the best within the memory of the present generation.

CULTURE OF RICHARDIAS.— These useful and ornamental plants may be had in flower during the winter months by adopting the following mode of treatment. Bring the plants to rest early in summer, by exposing them to the sun in the open air, and gradually withholding water until properly dried off. Afterwards store them away where they may be protected from rain. Towards the end of August, the first batch may be started into growth. Be careful to select those roots that went earliest to rest ; carefully clean the root-stocks from decayed matter, and repot in a rich, turfy loam, with a sufficiency of sand and pieces of charcoal to keep the compost open. Give a good watering, and expose them in the open air. As the season advances, they will require the protection of glass ; but take care to fully expose the plants near the glass to the full action of sun and air, so as to maintain a sturdy and compact growth ; for on this, in a great measure, depends the effectiveness of the leaves, which are arrow-head shaped. The old *R. Æthiopica* is more particularly liable to get stalky and attenuated in growth when not fully exposed. Water freely, and place the pots in pans kept full of water. *R. albo-maculata* is a particularly effective variety : the leaves are arrow-head shaped, of a lively-green color, and distinctly marked with oblong white blotches parallel with the nerves ; and the flower-spathe is white. It is a native of Natal.

By adhering to the foregoing directions, a succession of these showy plants may be had in flower during the whole winter, at a time when other flowering plants are scarce. I may add, that these plants deserve cultivating more extensively ; being of the greatest service where flowering plants are in demand during the winter season.



THE Editors of Tilton's Journal of Horticulture cordially invite all interested in the various branches of horticulture, to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard 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.

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.

Q. X., Oswego, N. Y. — Two of the largest cultivators of the gladiolus in the vicinity of Boston inform us that their plants have never been troubled with grasshoppers.

Your inquiries in regard to roses we referred to a correspondent, whose authority on the subject is the very highest, and who has favored us with the following reply: —

The liability to mildew seems about the same as roses budded on Manetti as on others.

We have never tried carbolic acid for mildew. The best remedy we know is the following: Mix quicklime and powdered sulphur in equal parts. Throw on a little water, and let them slake together. Then put them into a large kettle or boiler, add plenty of water, and boil the whole together. The result will be a saturated solution of sulphuret of lime, of an amber color, and quite transparent, which may be drawn off from the residuum and bottled for use. A gill of this solution, mixed with a gallon of water, and applied from time to time with a syringe, will kill mildew on roses very effectually, without injuring the plants. This is kept by some florists as a precious secret.

We do not know why Safrano, etc., should not bloom as freely as your other roses. The difference is an effect of soil, situation, or culture. Safrano is one of the freest of bloomers.

Your whale oil soap was much too strong. As the article sold under this name differs in quality, no fixed rule can be given as to proportions in dissolving it. Our practice is to make, first, a weak solution; then add more soap, little by little, till it reaches the required strength, testing it, after each addition, by applying a little of it to a rose leaf on which are slugs. When it is strong enough to kill them within a minute, it will answer its purpose without injuring the foliage. Jaques's tobacco soap is a better remedy, being quite as effectual, and much cleaner, besides demanding less caution.

F. P.

MR. EDITOR: I have a most wonderful growth of a grape vine from a graft set into an old Isabella stock in the fore part of last March; one of the foreign varieties, wood taken out of Mr. Ward's graperies, at Detroit, last fall, and buried in the earth through the winter. From a single bud I have measured the branches, and they all of them measured two hundred and ten feet. If any one can beat this, please let me hear from him through your columns, and I will thank him.

ADRIAN, MICH., Sept. 3, 1870.

A. S.

We are obliged to our correspondent for the account of this extraordinary growth. It would be interesting to know the name of the variety, and the method of grafting, and whether he is generally successful in grafting grapes. — *Ed.*

MESSRS. J. E. TILTON & Co.

I have been intending for some time to acknowledge the receipt of the President Wilder strawberry plants (two in the fall and two in the spring), which came in the best condition, and have flourished so satisfactorily, that I shall plant out *quite a row* from them. I placed flower pots in the earth for the runners to take root in, and think I can plant them out, in a good season, without danger of loss.

From some of the fruit I have two large flower pots full of seedlings. I flatter myself I have done pretty well for an old woman in her seventieth year — have I not?

Respectfully,

S. B. S.

SANDY SPRING, MONTGOMERY Co., MD., Sept. 13, 1870.

G. C. N., Hudson, Mass. — The best lettuce for forcing in December, or at any other time, and the kind which sells best in Boston market, is the Tennis-ball. We state this on the authority of a cultivator who has tested more than forty varieties.

J. A. L., Woodstock, Ct. — The fern, of which you enclosed leaves, is *Adiantum pedatum*, one of the best, if not *the* best, of our native ferns, being, as you remark, quite equal to many of the exotics. It is well worthy of cultivation; and if you have a root to spare, we should be glad of one for our own grounds.

R. R. — The best means of improving your heavy clay soil are, first, thorough underdraining, and then deep ploughing or trenching, mixing with it sand or coarse manure — especially horse dung — and vegetable matter of every description, all of which will assist in lightening the soil, so as to allow the water to penetrate through it freely. We have mulched such ground with tan, which, as it gradually decayed and became mixed with the soil, produced an excellent effect. Never, on any account, attempt to work such soil while wet, if you have to wait until June, for it is worse than useless; but throwing it up in rough ridges in autumn, to be acted on by the frosts of winter, will be highly beneficial.

MESSRS. J. E. TILTON & Co.

Gents: The President Wilder strawberry plants you sent me are doing extremely well; and as I expect them to lead all other varieties, I would like to give them the soil they like best. I will thank you to tell me on what soil Colonel W. grew them.

Yours, &c.,

J. B.

BATTLE CREEK, MICH., July 30.

N. B. Your Journal is growing more and more in public favor.

Colonel Wilder's soil is heavy, but a plantation of the President Wilder made last year on a quite light soil has done equally as well as on the ground where it originated, producing the berries which took the first prize at the Massachusetts Horticultural Society's annual strawberry exhibition.

W. W. H., Rutland, Ohio. — In reply to your inquiries, we give the following note from our correspondent, Alexander Hyde, Esq.: —

As to cider mills, I think but little of the hand mills. They are good for making a little early and late in the season, when the water power mills are not in operation. They require too much muscle, and do not grind nor press equal to the large mills. I use the "Keystone" hand mill, which is considered the best; it is made in Pennsylvania. The large mills grind with graters, which mash the apples into pulp much better than the cogs, and consequently secure more of the juice. They are manufactured, I think, in Colchester, Conn., but I do not remember the name of the firm. One of the most essential things is a good press, the tub of which should be made of birch or some other hard and pleasant flavored wood; and no straw should be used in the pressing. Slats keep the pumice in shape.

BEGINNER, New Haven, Ct. — We are sorry to have to say that neither the seedling petunia, nor the pelargonium, nor the verbena which you send is of any special value. There are dozens of named varieties of each far superior to yours. But keep on trying.

D. C. R. — The best method of saving trees which like yours have been girdled by mice is to graft scions under the bark, thus forming a bridge, or rather aqueduct, to convey the sap over. The scions should be inserted under the bark at least an inch at each end, and of course must be not less than two inches longer than the wound. Choose good, stout, thrifty shoots for scions, secure them before they start, and insert without delay as soon as the bark will separate from the wood, paring off the end of the scion on one side. It has been recommended, in order to save bending the scion, which in the attempt to spring back will be apt to displace itself, to split it in two for the whole length, placing the split side next to the tree; but a much better way, though a little more trouble, is to take a gouge and cut, in that part of the wood which has been bared by the gnawing of the mice, a groove to receive the inner part of the scion. In this way it can be kept straight without splitting, and there will be no loss by evaporation from the split surface. The grafts must be tied in carefully, and the ends covered with wax, to exclude the air; but we have found the best way to be to cover the whole of the grafts with grafting clay, and bind a cloth on the outside. If, as sometimes happens, the bark is gnawed away so close to the ground that it is difficult or impossible to insert grafts at the bottom, thrifty young seedlings may be set around the tree as near as possible, and the tops grafted in above the girdled place. If there is a strip of bark left, however narrow, do not fail to cherish it with the utmost care; it will be worth more than any scion you can put in.

H. J. C. — The plan of causing Baldwin apple trees to produce fruit the odd year by picking off all the blossoms the even year, has been often recommended, but seldom tried. We once attempted it on a large tree — so large that it took two days' constant labor to effect it, and being only partially successful, although followed up for several years, we at last gave it up, more strongly convinced than before that "it is hard to learn an old dog new tricks." We would not advise H. J. C. to repeat our experiment, but we would advise him to try it on young trees just coming into bearing, where the labor will be much less, and the probability of success much greater. Not only the Baldwin, but other varieties which have the habit of bearing in alternate years, might be experimented upon.

CORRESPONDENTS sending to ascertain the names of plants will oblige us by giving as large a specimen as possible, so as to show the habit of the plant, and including both foliage and flowers. With ferns it is very important that the fructification, which is found on the under side of the fronds, should be present, as this is the chief means of identification. Anything known as to the history of the plants, the source whence received, or the locality where found, should also be communicated, as such information often affords a clew to the names.

MESSRS. J. E. TILTON & Co.

The July number of the Journal of Horticulture has not yet come to hand. As it has become a welcome monthly visitor, I do not like to lose any numbers, and you will greatly oblige by sending it along.

We have had a remarkable summer in the North-west. We endured the hottest weather and most severe drought ever known to us. The crops of all kinds, except corn, have been considerably injured. The flower gardens are a failure, and the crop of small fruits has been very short.

The season is remarkable, also, for being about three weeks earlier than usual. I picked Delaware grapes for market, thoroughly ripe, August 11. Concord about one week later. Bailey Sweet apples are now ripe, and fit for eating. While last season I kept some through until March, the Duchess of Oldenburg has been gone for more than a month, and the St. Lawrence is nearly gone. Flemish Beauty pears are also ripe. We have had no frost yet. J. S. H.

LA CRESCENT, MINN., Sept. 14, 1870.

MR. EDITOR: Will you please give your readers a description of the genuine Salem grape?

In a circular issued in 1867, by James A. Requa, Amenia, Dutchess County, N. Y., is a description, purporting to be written and signed by E. S. Rogers, of Salem, Mass., wherein he says, "It is of a light chestnut or Catawba color."

T. L. Harris, of Salem-on-Erie, Chautauque Co., N. Y., in a circular, says the color is a peculiar dark red, with a rich and delicate bloom, while in the Journal of Horticulture of May, 1869, page 264, Mr. Rogers describes it as a black grape!

You will see that if Mr. Rogers wrote the article ascribed to him in the circular referred to, and also the one in the Journal, he does not agree with himself.

I purchased a supposed Salem grape vine of J. L. Waring, of Amenia, N. Y. (Mr. Rogers's predecessor), Miss Waring claiming that she had purchased all the stock of vines and wood of the Salem grape of Mr. Rogers. The fruit of my vine corresponds with the description attributed to Mr. Rogers in the circular above alluded to. That is, it is "of a *light chestnut* or *Catawba color*." Now, I would like very much to know whether I have the genuine Salem vine or not.

MILFORD, MASS., Sept. 19, 1870.

H. H. B.

If you will turn to the next number of the Journal to that containing the description of the Salem grape, you will find at p. 378 an *erratum*, in which it is stated that "the Salem grape was inadvertently described in our May number as *black*. It is *red*, like the Catawba." Mr. Rogers did most certainly write the article in the Journal ascribed to him, and the error occurred in copying his notes.

It is extremely difficult to give an exact description of the color of a grape, or, indeed, any other fruit, so as to distinguish it from all others, as any one who tries will soon find out, and hence the variation from "light chestnut or Catawba color" to "a peculiar dark red;" but we have the satisfaction of assuring you that we have no doubt that your vines are correct. — *Ed.*

MOUNTAIN ROSE PEACH. — In the Journal for June, p. 339, you gave an illustration of the Mountain Rose Peach. I fruited this peach in a pot in the early vinery. Ripe June 30. Fruit measured from eight and one half to eight and three quarter inches in circumference. It is all that Mr. Pullen claims for it, in color and excellent quality. *Egrog.*

MR. EDITOR: Last winter, for the first time, I kept plants in my cellar which previously had been wintered in my green-houses. To my surprise, I find them doing better this summer than ever before, and am now convinced this is the best, as well as the most convenient, way of keeping them; besides, it releases much valuable room in green-houses.

It has occurred to me that a carefully prepared and full list of all such tender plants as may be safely kept in frost-proof cellars, with directions for their treatment, would be of great value to your readers.

My experience is limited, having been compelled, last winter, to store in my cellar (which is one third above the ground, and well lighted) hydrangeas and pitosporums. The first never looked so well as now; and if you are ever in my neighborhood, I should be glad to have the pleasure of showing you a bed of them, which, I think, you will say are wonderfully beautiful. I intend this winter to try one or more specimens of every plant I have that I think will do well. The following occur to me at this moment, though of course there are many others hardy enough to try: *Latania borbonica*, *Aucuba japonica*, *Laurestinus*, Pomegranate, Orange and Lemon, Irish Yew, Viburnum, Escallonia, etc.

Nothing is more ornamental to a place than large handsome plants in tubs and in beautiful vases. The objection to them with me has been the space they occupy in the green-house in winter; besides, it is much better for the health of the plant that they should rest in winter.

I shall have my cellar prepared with double windows, on hinges, so as to be opened, and give the plants air, even if it is for a very short time, every day when the temperature is not too cold, taking care that they never become too dry.

I am gratified to learn you consider this subject worthy of your attention, and hope, when it is started in your valuable Journal, that those having had any experience will communicate it to you. Even suggestions of such plants as can be recommended for trial would be valuable. *G. B.*

NEWPORT, R. I., July 23, 1870.

We are much obliged to our correspondent for his hints, and hope that others will, in compliance with his wishes, continue the subject which he has so well begun. Nothing in horticulture is more desirable than the knowledge of methods by which tender plants can be carried through the winter *well and at small expense*. — *Ed.*



NOTES OF A HORTICULTURAL VISIT TO CALIFORNIA. III.

By MARSHALL P. WILDER, CHARLES DOWNING, GEORGE ELLWANGER, and P. BARRY.

INSECTS AND DISEASES.

ALTHOUGH we have said that fruits and fruit trees are, in a great measure, exempt from insects and diseases in California, they are not wholly so, and it is reasonable to believe that as fruit culture is extended these enemies will increase. Such has been the general experience. We saw the pear slug, in many instances, on the pear and cherry foliage, caterpillars, and, in some cases, borers, scaly aphid on the orange and olive trees, and the thrips on the grape. Among animal depredators, the gopher and ground squirrel were complained of in some localities.

Diseases.— The peach, in some places, is affected with curled leaf, and the grape with oïdium, or mildew, both of these, however, in a slight degree. Spotting and cracking of the pear we saw in only two or three instances, and so slight as almost to escape observation.

MARKETS AND PRICES.

It seems to be the general opinion of the fruit growers of California that the production already exceeds the demand. This will appear

extraordinary when we reflect that twenty years have not elapsed since the planting of the first orchard. We think we were told that in 1853 peaches were first sent to market, and some sold as high as six dollars per dozen, and even five dollars for a single peach. Now they are selling at fifty cents to one dollar per basket, and they have been sold much lower.

In 1853, 1854, and 1855 cherries were brought from Oregon and sold for two dollars and a half per pound; apples at one dollar and a half per pound. A single apple was sold for five dollars. Of the first crop of peaches raised by Mr. Smith, of Sacramento, in 1855, a single basket was sold for sixty dollars, containing *sixty peaches*. Until last year the fruit growers were confined to a home market. The Pacific and other railroads recently opened, and in course of construction, will open up new markets, and greatly augment the demand. The business is now becoming systematized. Cars are being specially constructed to carry fruit to eastern markets. We examined four of them just being finished at Sacramento, and two of them, loaded with Bartlett pears, — ten tons each, — are on our train (July 28), bound east. Judging from some specimens that we have with us, picked at the same time, they will reach the market in Chicago, New York, or Boston in good condition. Though not more than two thirds grown, they are ripening well, but seem to lose most of their peculiar musky aroma.

While the growers are complaining of low prices, the dealers keep them up well. We visited the fruit market of San Francisco on various occasions, between the 22d of June and the 19th of July, and find the following prices on our memoranda: —

Wholesale, or by the box: Cherries, ten to thirty-five cents per pound; apricots, eight to ten cents per pound; strawberries, ten to fifteen cents per pound; currants, ten to fifteen cents per pound.

July 14 to 19. Peaches, fifty cents to one dollar per half bushel basket; strawberries, three to ten cents per pound; Jaune Hative plum, four cents per pound; Early Orleans plum, eight cents per pound; Duane's Purple plum (large and handsome), eight cents per pound; Washington plum, twelve cents per pound; Damsons, nine cents per

pound; Gages, three cents per pound; currants, ten cents per pound; grapes, fifteen cents per pound; Black July grapes, twenty-five cents per pound; Early Harvest apples, fifty to seventy-five cents per box of sixty pounds; Red Astrachan apples, two dollars to two dollars and fifty cents per box; Red June apples, one dollar and fifty cents per box; figs, four to five cents per pound; Royal Ann (Napoleon) cherries, thirty to thirty-five cents per pound; Belle Magnifique cherries, and other varieties, fifteen to twenty cents per pound; Bloodgood pears, two to three dollars per box of fifty pounds; Tyson pears, one dollar and fifty cents per box; Mission pears, one dollar and twenty-five cents per box; blackberries, ten to fifteen cents per pound; raspberries, twelve to thirty cents per pound; apricots, four to seven cents per pound.

It will be understood that these prices are all in gold or silver, and were taken on several different days. Prices vary, of course, from day to day, according to the supply and demand.

Fruits keep much longer without rotting there than with us. Figs were the only fruits of which we observed an over-supply. The fig is produced in great abundance, and of excellent quality, in many parts of the country; indeed, we saw it fruiting heavily along the wayside. When the process of drying becomes well understood, as it will be soon, the fig culture must be a source of great profit, and will probably rank next to the grape. At present much of the crop is lost every year. In a country where fruits can be grown so cheaply, modes of profitable consumption will soon suggest themselves. For drying fruit, California has advantages superior to most other countries in the world.

QUALITY OF CALIFORNIA FRUITS.

As a general rule, the fruits of California are superior to ours in size and beauty, but rather inferior in flavor. To this there are some exceptions. We think that the cherries and apricots, as well as early pears and apples, are as fine as can be produced in any country. The want of flavor is, in many cases, owing to the unripe condition of the fruit, premature picking, and improper ripening. The early fruits, not being of

overgrown size, are generally of better quality than those of autumn; yet we are unable to say how far the want of flavor in these may be owing to improper treatment. When we arrived in San Francisco the apricot was very abundant and beautiful, as it was during nearly the whole period of our visit; but we were told they were insipid. On taking some to our rooms, and getting them fully ripe, they were delicious, equal to any we ever tasted. Fruits on the market stalls are seldom fit to be eaten.

In the case of strawberries, the best varieties, it seems, have not yet been adopted by the market growers. With the exception of the currant, none of the small fruits seem to be as good as ours. The grapes grown are almost exclusively what we call foreign varieties. The Mission grape, so called, is a foreign grape, though improperly called California. Wild native grapes abound in all the wooded parts of the state, but they are very different in character from the Mission. The practice is, among growers, to speak of the Mission as not being a foreign grape. American grapes have been tested in a few cases, but, as far as we could ascertain, with unfavorable results. We do not, however, regard the few experiments we heard of as conclusive, and think it quite probable that our Clinton, or some of its class, might be employed successfully to make a lighter wine than any they now make, and which is so much needed to take the place of imported claret, now in general use.

GARDEN VEGETABLES.

The supply of culinary vegetables, as seen in the markets of San Francisco and other cities, is very abundant, and of excellent quality. What surprises visitors from the east is to find such articles as celery in the market all summer. Crop after crop can be obtained in varied succession, so that you may find anything you desire at any season. Asparagus is cut from February to June. One grower informed us he had six acres. The product was about five tons to the acre, and contracted for at nine cents per pound.

The size to which vegetables attain is almost incredible. We were told of pumpkins weighing two hundred and fifty pounds; squashes,

one hundred and fifty; beets, one hundred and twenty-five; carrots, thirty, etc. It is easy to understand how these results are obtained in a climate where growth never ceases. The mean temperature of the coldest month (December), at San Francisco, is said to be fifty-five degrees. In the interior it is probably lower.

ORNAMENTAL TREES AND PLANTS.

On arriving in California, we were at once struck with the character of the trees and plants which we saw in the gardens, public streets, etc. Instead of the elms, maples, etc., which prevail at the east, we saw the Australian acacias and eucalyptus, and the Mexican pine (*Pinus insignis*), and Monterey cypress (*Cupressus macrocarpa*). These are everywhere planted as the common trees. Nurserymen informed us that the first trees, and, in many cases, the only ones, asked for by persons beginning to improve their city or suburban lots, are the eucalyptus, acacias, *Pinus insignis*, and *Cupressus macrocarpa*. The reason for this is, that these trees grow rapidly, transplant easily, and are adapted to the climate. We were told that the *Pinus insignis* is so easily transplanted, that if the roots but touch the ground it will grow. The eucalyptus and acacias grow there as willows do with us. In the grounds of Mr. William Patterson, a nurseryman of San Francisco, we saw a *Eucalyptus globulus*, called the "Blue Gum," six years old, which was fifty feet in height, and five feet in circumference of stem; a *Pinus insignis*, of the same age, forty feet high.

The *Cupressus macrocarpa* is more prevalent than any other tree that is planted for ornament, either in city or country. We have even seen it employed as a street tree, pruned up six or eight feet, and the heads shorn into sugar-loaf form. The acacias are frequently used in the same way, and, although stiff and formal, they look very well. The cypress retains all through the long, dry summer a charming verdure, when not stained by dust, as it often is in the streets. The eucalyptus grows so rapidly, that it is being planted for wood. We saw an account of one plantation of fifty acres, planted eight feet by eight, for timber. There is ample scope for plantations of this kind.

MR. PATTERSON'S GARDEN.

In Mr. Patterson's grounds, already referred to, we noted a hedge of *Acacia lophantha* twenty-five feet high and four feet through; a fuchsia hedge, ten feet high, the stems of the plants as thick as a man's arm; a hedge of *Veronica Lindleyana*, ten feet high; beautiful specimens of *Araucaria imbricata* and *Cookii*, ten feet high; fine trees of the guava in blossom — the fruit ripens there in September; also, the camphor tree, and many other species we are not accustomed to see in the open ground.

Here we saw a superb show of roses — the best in the state, we think. Eliza Sauvage (tea) was named as the most valuable for a constant supply of cut flowers.

WOODWARD'S GARDEN, IN SAN FRANCISCO.

This is a public garden, containing several acres of ground well laid out and planted; has several well-stocked plant-houses, a museum, a picture gallery, and a small collection of animals. The proprietor, R. B. Woodward, Esq., kindly sent us invitations, which we accepted.

Here we found fine specimens of acacias, melaleucas, metrosideros, pittosporums, laurustinus, *Cupressus Lawsoniana*, *Libocedrus decurrens*, *Cupressus macrocarpa*, and *Thuya gigantea*. This last-named tree has suffered more than any of the others from the wind.

In addition to these, we saw some large plants of scarlet geraniums, lemon verbena (*Aloysia*), veronica, etc. These are the principal materials used in ornamenting this public garden.

VISIT TO THE FORTS AND ISLANDS IN THE HARBOR.

The collector of the Port of San Francisco, Mr. Phelps, very kindly invited us to visit the forts, islands, and other objects of interest in the harbor. On this delightful excursion we saw some plants well worthy of note — at Black Point, General Ord's quarters, a glowing mass of scarlet geraniums, full ten feet high, noticeable far out in the bay; tree mallows, fuchsias, and plumbagos of enormous size. At Fort Alcatraz, a trellis of ivy-leaved geranium, six feet high — a mass of flowers,

forming a division fence; tree heliotropes and fuchsias of great size and in full bloom. At Angel Island, — a charming spot, — a hedge of rose geranium, fifty feet long and nine feet in height, and rose geraniums grown as standards, with clean stems and large heads.

There are sheltered nooks on these bay islands where the climate cannot be surpassed. Even delicate plants attain extraordinary size.

VISITS IN THE VALLEY OF SANTA CLARA.

We have already given an account of what we saw here in the way of fruits. We now refer to a few note-worthy objects among ornamental trees and plants.

At San José, in the beautiful grounds of General Henry M. Naglee, we saw fine specimens of dracænas, veronicas, eucalyptus, — several species, — *Juniperus Macnabiana*, — a lovely tree, which we saw often afterwards. The “pepper tree” (*Mollis*), which is very common, has the appearance of honey locust in foliage, but is much more flexible in its branches, and more graceful; great specimens of Amie Vibert and tea roses in full bloom; *Cupressus macrocarpa*, *Lawsoniana*, and *funeris*, *Araucaria imbricata*, *Fabiana*, *Chamærops excelsa*, etc. All these plants seemed to be perfectly at home. This gives some idea of the climate of San José.

NURSERY OF L. F. SANDERSON.

In front of Mr. Sanderson’s house we found a beautiful specimen of *Cupressus Lawsoniana*. His nursery is mostly devoted to ornamental plants. Of the articles usually planted he has a handsome stock. *Cupressus macrocarpa* plants, a foot high, are sold at six dollars per hundred. We saw a fine stock of California walnut, *Salisburia*, etc.

San José is a charming place, and contains several interesting gardens; but the trees and plants in them are such as we have already enumerated.

VISIT TO MR. LEWELLING’S, AT SAN LEANDRO.

We have given an account of Mr. Lewelling’s fruit culture. At his residence we saw the finest tree of *Cupressus Lawsoniana* we have met

with. It is thirty feet high, and perfectly symmetrical in form, fourteen years old; an Oregon hemlock, of stronger growth and larger foliage than ours; a Géant des Batailles rose, six feet high, with a head eight feet broad; a Cloth of Gold, also of extraordinary size; a lemon verbena, ten feet high, in flower, stem two inches in diameter; *Veronica Lindleyana*, eight feet high; beautiful hedges of *Cerasus ilicifolia* and Osage orange. Mr. Lewelling pointed out to us a sycamore under which he camped fifteen years ago, when he took possession of his present grounds, there being no house on it. This tree is one hundred and fifteen feet high, ninety feet width of branches, and five feet diameter of trunk.

A MAGNIFICENT HORSECHESTNUT.

On our way from San José to Mr. Lewelling's, we were detained at Niles, on the Western Pacific Railroad, waiting for a train, and seeing in the midst of a grain field a large horsechestnut tree, we thought we would give it a closer examination. On reaching it, we found a party of Chinamen, who were employed binding the grain, preparing their dinner.

The tree far exceeded our expectations, both in size and beauty. It was full fifty feet high, with a spread of branches forty feet, by measurement. The branches swept the ground on every side, and were then, June 28, in full bloom. The flower spikes were from twelve to eighteen inches in length — many two feet — all in a drooping or pendulous position. Since that time, we have met with thousands of this species in different parts of the state, but no specimen approaching this in either size or beauty. It was decided to have this tree propagated, and, to commemorate our visit, named WILDERI.

Here we also saw Lamarque roses and scarlet geraniums, trained to the top of a three-story house, covering the whole end; a tree mallow, twelve feet high, and stem ten inches in diameter; and an Australian pea, trained on a water-tower forty-five feet high, covering it entirely.

At San Leandro, the next station, we again had to wait for a train; and a gentleman who knew the objects of our travel directed us to a remarkable tree of the California laurel, fifty feet high, sixty feet in

width of branches, and ten feet in diameter of trunk. It is still in a flourishing condition, though greatly damaged in the trunk by fires. The beautiful wood of this tree is now being extensively used for the inside finish of rooms, and for furniture. Its color is similar to that of our ash.

GROUNDS OF MESSRS. THOMPSON & SONS, AT SUSCOL.

Here we saw many fine trees — a *Sequoia*, or “Big tree,” twenty-five feet high; a *Pinus insignis*, fifty feet high, ten years old; *Abies Douglasi*; species of pines from Oregon unknown to us; good collections of roses and flowering shrubs; and a good hedge of *Cerasus ilicifolia*.

RESIDENCE OF R. B. WOODWARD, ESQ., OAK KNOLL, NAPA COUNTY.

Here we saw a broad and beautiful lawn planted with many fine trees — a splendid *Grevillea robusta*, *Magnolia grandiflora*, *Araucaria excelsa*, *Salisburia*, gigantic *Cacti*, *Sequoia gigantea*, *Cupressus Lawsoniana*, acacias, and a fine collection of roses and other plants in bloom.

OAKLAND.

This promises to be a beautiful city, just across the bay from San Francisco. We spent two days there very pleasantly, visiting gardens, nurseries, etc.

GENERAL KIRKHAM'S GARDEN.

This place contains several acres, and is kept in the finest order. The lawn is smooth and verdant. Water is used freely. The general informed us that the water he used cost him sixty dollars per month. Among the many interesting objects we noted were, a noble Agave (“century plant”), just coming into bloom, twelve years old. The flower stem was forty feet high, and fully a foot at the base. It had seven or eight series of immense leaves; a Pampas Grass (*Gynerium*), ten feet in diameter, had produced two hundred flowers at one time; fine Deodar cedars; *Abies lasiocarpa*, four feet high; *Abies Douglasi*,

Cupressus Lawsoniana and *funnebris*; large plants of *Cestrum aurantiacum* and *Polygalas*; pittosporums, ten feet high and fourteen feet broad; fuchsias, six feet high and six feet broad; *Pinus insignis*, four years old and thirty-five feet high, its central shoot having grown thirteen feet in one year; eucalyptus, several species; a hedge of *Cupressus macrocarpa*, fifteen feet high; acacias, numerous species, twenty to twenty-five feet in height, among them some beautiful trees of *dealbata*. At every step we were amazed at the extraordinarily rapid growth of trees here — the effects of good soil, good care, and a perpetual summer.

RESIDENCE OF J. MORA MOSS, ESQ.

This is regarded as one of the finest places in Oakland, or near San Francisco. It is really a charming place, managed with liberality and taste. We noted fine specimens of many rare trees — an *Araucaria excelsa*, ten feet high; *Picea Pinsapo*, ten feet high; the beautiful *Poinciana*; several species of palms and bamboos; *Magnolia grandiflora*; *Cupressus funnebris* and *Lawsoniana*; besides a grand display of flowering plants, — cannas, dracænas, yuccas, etc., — making up a rich and varied collection, all judiciously distributed over and around a well-kept lawn.

GROUNDS OF JONATHAN HUNT.

These are kept, to some extent, as a nursery. We found here the best garden specimen of *Sequoia*, or “Big tree,” we had met with. It is full thirty feet high, with a spread of branches at the ground of twenty feet; a perfect tree in form; seed planted in 1857. *Cryptomeria elegans*, four feet high; a beautiful tree — almost equal to the Norfolk Island pine. Agave (“century plant”), in bloom; fourteen years old; stem thirty feet high. A beautiful hedge of myrtle, three feet high and three feet wide. *Pinus insignis*, two years from seed; ten feet high. Many roses and other plants, showing wonderful growth.

(To be continued.)

NOTES ON STRAWBERRIES IN CENTRAL MASSACHUSETTS IN 1870.

By JAMES DRAPER, Worcester, Mass.

CULTIVATION.

WE have had a trying season for this fruit, and the crop in general was unusually light — more so than any season before for many years. The severe drought had such a marked influence on the maturing of the fruit, that we could hardly count half a crop. But these failures teach us a lesson; for those cultivators who have adopted the hill system of cultivation, and mulched their vines heavily, have little cause for complaint, as there was but a small falling off in the yield, and, prices ranging higher than usual, the amount realized was equal to, if not in excess of, that of other years.

But the number that cultivate thus is very few, — hardly one in ten, — the bed system being the principal one in vogue; but it will not admit of this heavy mulching to any great advantage. Why these growers will not come out of the old beaten paths, and try, on a small scale, the culture in hills, I cannot imagine. That they should be content with a yield of seventy-five to a hundred bushels per acre of only ordinary sized fruit, when nearly double the quantity of the finest and largest fruit may as easily be obtained, seems equally as strange.

Too much land, undertaking more than can be done thoroughly, has a tendency to keep us forever poor in New England, and in the cultivation of strawberries in particular. I would reduce the number of acres by one half, and with the same amount of capital expended in labor and manure, obtain larger and surer crops, fruit of superior size and quality, that will command the highest prices, and always meet with a ready sale — an item of no little importance in a market that is often overstocked with this fruit.

Articles have appeared from time to time in our journals, on the cultivation of strawberries, that have encouraged a careless and slovenly

method of cultivating them, that is quite certain to result in disappointment and failure. In failure, because nearly every season our markets are filled with an inferior quality of fruit, the product of half-manured, half-cared-for land, and oftentimes raised at too great a distance from market to transport in good order; consequently, many buyers refuse them, the sales are small, and many are entirely wasted. In this loss the grower alone suffers.

In practising the culture of strawberries in hills, with clipped runners, we find many advantages over the usual bed system. The yield is much larger from the same space of land, the fruit is larger, and more even in size, much more easily gathered, the plants can be heavily mulched in the summer, — which is a good insurance on a crop, particularly in a dry season, — and a plantation thus grown will last many years longer without resetting, and can be as easily managed, all things considered, as by any other method.

After a thorough trial of the many ways proposed for the growing of this fruit, I am led to the following one as the most satisfactory: Select, if possible, land that is naturally a little moist, mellow and deep, free as possible from stones and noxious weeds, and plough to a depth of twenty to twenty-four inches, using a subsoil plough, thoroughly pulverizing the soil. Then apply the best manure that can be obtained, at the rate of forty-five to fifty cords to the acre, working it in by cross-ploughing, and then have the ground made as smooth as possible by harrowing it. This done, we are ready for setting the plants.

As this operation is one of the most important in strawberry culture, too much care cannot be exercised. Be sure and obtain plants of the best quality, and strictly pure. More failures have arisen from setting mixed, worthless plants, because obtained cheaper, than from any other cause. I do not consider the largest plants always the best, but prefer a medium-sized, well-rooted one, that can be set without cramping the roots. In setting them, carefully guard against planting them so deep as to cover the germ of the plant, lest it be injured and die.

The distance apart for setting the plants will depend upon the labor one can devote to the care of them. If to be done wholly by hand labor, set them eighteen inches apart each way, in beds, three rows in

each bed, with a space of two and a half feet between the beds. A still better plan is to set the plants in the middle row opposite the space between the plants in the outer rows, instead of opposite the plants. By adopting this quincunx method, the ground is more economically used, as the rows may be but fifteen inches apart, and still leave room for cultivating and gathering the fruit. If part of the labor is to be done with a horse, set them a foot distant, in rows two feet apart, which will require about twenty thousand plants to an acre, while the distance first mentioned will not require as many.

Having thus established a plantation, keep the ground clear of weeds, by all means. To effect this, ten or twelve hoeings the first season may be necessary. This frequent stirring the ground will have an astonishing effect upon the growth of plant, and prove a permanent benefit. As the runners begin to appear, keep them closely clipped the rest of the season. Once in ten or twelve days they will generally need attention. I have used many devices for this work, but find a sharp knife or shears the only effectual tool. A man without any bend to his back had better let strawberry growing alone, as there is no dodging aching backs.

When the ground becomes sufficiently frozen to bear up a team, cover the whole tract with a liberal mulch of straw or coarse hay to a depth of two or three inches, and then our first years' work is completed.

In the spring, when the weather becomes settled, remove the mulch carefully from the crown of each plant only, allowing the rest to remain until after the fruit is gathered. It is sometimes necessary to add more mulch in the spring, so as effectually to check the growth of weeds, as the less the ground is stirred before the time of fruiting, the better.

The fruiting season over, remove the mulch entirely from the field, giving the whole tract a liberal dressing of old compost, well-rotted manure, or wood ashes. The latter I consider by far the most valuable fertilizer for strawberries that can be found. Manage the same as the previous year: hoe often, and keep the runners closely clipped. A plantation thus managed will last many years, and a heavy, remunerative crop is a certainty.

The number of hills on an acre has already been stated. An average yield is a quart to two or three hills. A quart on a single hill is nothing uncommon. The amount realized per acre, at fair prices, can easily be estimated.

As to the proper time for setting plants, I have but one opinion, and that is, that the spring is the *only* time that it can be done successfully. A small bed may be set in early autumn, and possibly do something the next year; but the chances are, that it will not prove satisfactory to those who undertake it.

VARIETIES.

As to varieties, experience must be the teacher, as some varieties are better adapted to certain kinds of soil than others. For instance, the Jucunda, one of the best varieties for a clayey soil, is of no value on a light or sandy one. Downer's Prolific, French's Seedling, Ida, Green Prolific, and Wilson do well on light or sandy soils. The Wilson, in fact, succeeds everywhere, and is still the great market variety of the country. My experience with that variety, grown in hills as herein advocated, has shown it to be very uncertain after two or three years from time of setting. The Nicanor for early, Charles Downing for medium, and the Jucunda for late would be my preference. Where the Triomphe de Gand will succeed, I doubt whether any other variety grown, save the Jucunda, will prove as remunerative. If to be grown in beds, in the ordinary way, I should take Wilson, Lady of the Lake, and Charles Downing.

We are continually experimenting with the newer as well as other varieties, and the record of the past year can be briefly stated. My soil is a heavy loam, with subsoil inclined to clay; modes of culture, hills and beds.

Philadelphia. — Next in value to the Nicanor as an early variety, being of good size, showy, sweet, and good. Matures the whole crop in a very short time.

Ida. — Early and productive, but too small for market.

Downer's Prolific can always be relied on for a good crop, and will

stand neglect better than any other variety; of good size and fair quality, but a little soft for distant marketing.

Russell's Prolific.—Large, and very productive, but too liable to decay to be valuable here.

Green Prolific is a very vigorous grower; a heavy bearer; fruit very uniform and large, quite firm, and of excellent quality.

La Constante is a delicious fruit, but too little of it.

Brooklyn Scarlet.—The same.

Agriculturist has proved such an irregular bearer for several years past, that it must give way for other more desirable varieties.

Peak's Emperor (new), which many claim as identical with the above, has not so proved with me. It is similar in many respects—growth of plant, size and shape of fruit; but it has proved doubly as productive as the *Agriculturist* here, and very much superior in quality, and has not that disagreeable taste that the *Agriculturist* has when thoroughly ripe.

Colfax is a humbug without a competitor; a small, soft, pasty, insipid, good-for-nothing fruit. It will not be heard of after this year.

Romeyn's Seedling is so nearly identical with the *Triomphe de Gand*, that I have not as yet been able to find the difference.

Golden Queen.—Of no value. Very large fruit, but a shy bearer.

Lennig's White.—*Par excellence* the finest of strawberries in flavor; indispensable for family use, but too small and soft for market purposes.

Michigan (new). A hardy, healthy, vigorous plant; enormously productive; fruit of the average size, and fair quality. Very promising.

Napoleon III.—Delicious in every respect. Late; extra large; a good bearer; flesh white, rich, juicy, and of a sprightly, high flavor. Its color is against its becoming a popular market variety, being a light orange, and not very attractive, but as a garden variety it is indispensable.

Kentucky (new) I fruited to some extent, and I believe it will become one of the most popular late varieties on the list. Season very

late ; fruit very large, firm, of the finest quality, and enormously productive ; plant vigorous, healthy, and hardy ; satisfactory in every particular.

President Wilder (new) I have not fruited, but from all the parties that have, or have seen it in fruit, I hear but one report, and that is, that it is the most promising variety for market or home use on the list ; and my opinion, based on a visit to Mr. Wilder's original bed of them, will concur with theirs. I see nothing in the growth of plant, on my ground, that shows that "constitutional weakness," or inclination to sunburn, that some sceptical parties have imagined.

The Wilson, Nicanor, Lady of the Lake, Charles Downing, and Jucunda, have proved so valuable with me for market purposes, that I give them the preference over all others in cultivation up to the present time. Another year's trial with the varieties recently disseminated, and which are very promising in many particulars, may add some others to the already large list of valuable strawberries.

LILIUM POMPONIUM.

By FRANCIS PARKMAN, Jamaica Plain, Mass.

THIS fine lily belongs to the section known as *martagon*, or *Turk's-cap* lilies, because the petals are rolled back in such a way that they bear a certain resemblance to a turban. There are several varieties of *L. pomponium*, of which the most common is yellow, with small, blackish spots. This variety is often called the Yellow Martagon. There are others, of various shades of red. The flowers, which are small, have a peculiar and not very agreeable odor. They are borne in clusters on a tall stem, and open, in this climate, in June.

This lily is of uncertain and difficult cultivation in many soils and situations. It usually survives the winter, but, nevertheless, seems to suffer from it, and, after a few seasons, often dies out in New England.

We have tried, with success, keeping the bulbs in dry soil, in a cellar,



LILIUM POMPONIUM.

during winter, and planting them early in spring. It prefers a good sandy loam, well drained.

GOOD THINGS FOR A TIME OF NEED.

By C. B. DENSON, Pittsboro', N. C.

“LET us praise the bridge that carries us over;” this is philosophy and justice. Walking this evening in a garden above which the heavens have been as brass for many weeks, a promise to report the behavior of bedding plants in the long struggle with the sun of Carolina came back to me, and so you have what follows.

All who have cultivated tender out-door plants in the south, know how many are the annual disappointments. Too often February passes gayly enough, with bright bulbs, March has no lack of early shrubs, April and May give us a great burst of bloom, one vast carnival of floral delights, June sweeps by with lapful of gathered roses, leaving us verbenas dotting her path for a brief space, and then arid desolation settles down upon the garden, and one walks amid a sad Sahara until the September rains wash the tattered robes of the chrysanthemums and dahlias, to beguile into the offering of the parting cup of beauty before the frost tinkles the curfew bell of the year. Late July, all of August, early September are frequently seasons of utter abandonment, unless one is fortunate enough to have pot plants in the shade, and ample time to give them the great attention they require. Lilies, gladiolus, all the alpine plants, fuchsias, achyranthus, feverfews, coleus, most annuals, and even verbenas, too often either burn up outright, or look as though it would be charity to end their existence.

But some things are good for this time of need in southern latitudes. While nothing may dispute the right of the rose to the advance and the rearguard of our floral train, the Lantana, in its many colors, is the great resource to meet the hot days of summer. We do not presume to add anything to Mr. Rand's valuable description in the *Journal* (vide June, 1868), except the statement of its special value in the south. Formerly kept as a warm green-house plant, and of late years more popular as a bedding plant in the north, it is for us a perennial shrub with very slight care, and may be left to grow more and more beautiful with the

passing years. This seems heterodox to our northern friends, and perhaps to very many in the south, for we are wont to let Nature work alone, because she is so willing, forgetting that a little labor would preserve to us as many semi-tropic treasures as the same effort farther north retains of the riches of the temperate zone.

You get your plant from the florist in the spring, and after the summer bloom resign it to destruction. Ah! you know nothing of its real beauty. When frost first comes, cut it back to the ground, and cover with a compost of manure and earth, making a small, compact mound. It is the work of a few minutes. Spring arrives, and there is no sign of the resurrection of your chrysalis; you give it up as the weeks go by. Patience!—when summer has fairly taken possession, the green arms will stretch out two, four, six, or more feet in diameter, with such rapidity and vigor as is astonishing. But there are few flowers yet, and some fastidious friend calls it “weedy.” He is right: soon, however, the annual drought sets in, and straightway your plant is an illuminated pyramid, the rich bi-colored trusses dotting thickly every stem of the giant until the approach of cold.

Dealers are careless in naming the plants not unoften. Six, last year, of varied nomenclature, proved to be all Princess Clotilde. Perhaps the most satisfactory variety is Fulgens, brilliant reddish orange, and clear yellow; this seems stronger, and more profuse of bloom than any other. *Alba lutea grandiflora*, white and yellow, is good as a plant, but the florets drop too quickly for use in bouquets. A very lovely little sort (name lost, but believed to be *delicatissima*) has been a great favorite here this year. The leaf is very much smaller and more ovate than the usual shape; the stem is slight, dark colored, and trailing; bloom, pure lilac, with clear white centre; it is admirable as a bedder, the branches rooting freely as they trail, like a verbena. We like, also, Aurantiaca, Lenain, Mons. Boucharlat, and Monfek. Some new dwarf styles, heavily blooming, were objects of attraction to us in Baltimore during the past season. Once recognized as a plant to keep, a great future is opened to the Lantana in the south.

Seldom is refinement of style and color so embodied in a flower as in our next favorite, *Plumbago capensis*. This old habitue of the green-

house will sometimes become yellow, sickly, and spotted in confinement. Bring it into the open air, and cut away the old wood, you will be generously rewarded. When the earliest frosts betoken winter, cut it down, and mound it over, as for the Lantana, and you will have clean, vigorous growth next summer, with constant bloom. The mound being pulled a little away, serves both to mulch and to enrich; earth from the wood-pile is excellent. As might be expected from its native home, you will find the plant withstand the severest droughts.

Of course you will have pillars closely wound with *Manettia cordifolia*; nothing can be richer than its sparkling coral. Never disturb by moving; give only the covering of earth in the fall, over the vine, cut off at the root. The blooms will sometimes vary curiously in color. We have had them striped, and this season a flower of pure white in the glowing mass of red.

Tritomas are little known, yet how magnificent is their effect! They increase rapidly, and the slightest covering of earth is sufficient for them. Their flaming tints light up gloriously against a background of dense green. Positively nothing is required but to plant the root when first obtained; year after year they enlarge their summer bouquet. The only care needful is to tie up the heavy heads, to prevent the breaking of the succulent flower stems.

But we give the proudest place to Pampas Grass. How may it be better described than as a fountain, with its low-stretching lines of green, and the foam-tipped plumes shooting aloft in generous rivalry, to dance in the summer sunbeams. Here we have another servant that absolutely takes care of itself altogether: a small plant, put out three years ago, has this season thirty-six plumes. A few of the outer leaves will die annually, forming its covering, until they are cut off in March. A dressing of phosphate has a fine effect. Nothing could give a cooler and more cheerful aspect to the parched grounds in August than these plant fountains scattered over them. They will nearly treble their blooms yearly if not disturbed. North of Washington this plant is usually transferred to cellars in the winter, it is said; but it is hard for us to realize it, with whom it is so entirely hardy.

Arunco Donax is a fine pendant to pampas grass, and, like the other

plants named, needs only a small mound of earth over it in winter. The stalks should be kept short, and cut out freely, to keep them in their variegations, for when old they become fully green.

For bouquets in these months of trial, we must have fragrant leaves and neutral tints to mingle with the bright-colored blooms so heavily marked from Nature's palette. The former is supplied by that universal love of our people, the *Aloysia citriodora*, lemon verbena, or, as only known in the south, the *citrina*, or *citronalis*. The delicate little specimens in pots, or the "linked sweetness long drawn out" of the young shoots on the old wood after the winter's confinement, not unfrequently resemble a skeleton mantis, yet the catalogues of florists, even far south of Carolina, say nothing of its cultivation as a permanent out-door plant. Mound over as with the others, giving abundant manure; if you wish to save the entire woody stem, place a large barrel or cask over it, and fill up with the same compost. In the spring you will find every branch alive as far as the protection extended, and in a few days your plant will be a mass of healthy growth, giving you generous supplies of flowers from the densely-radiating spikes. Let no one undervalue the bloom of this delightful plant who has seen its airy effect in a vase of flowers.

Another desirable plant for the dry season, now in full bloom, is *Abelia rupestris*. Rich in green, and starry white in its delicate clusters, it grows vigorously on through the parching summer, and asks no protection at all in winter, although registered as a green-house shrub, even as far south as Baltimore.

Japan lilies and gladiolus are burned up, unless planted very early, when they will escape. The sun on the ground where the stalk leaves the bulb does the injury. Watering is hardly practicable on a large scale. Nearly all of many varieties were lost here a year ago. But this season, by means of perilla, the ground at the roots was shaded, and the effect of the spikes of color, stretching through the black leaves, was striking.

Cannas, caladiums, etc., we have not space to discuss. Double geraniums are not satisfactory, nor are many single sorts; Stella, Attraction, and Donald Beaton are best among the latter. Donald Beaton was

especially good this year, growing and blooming continuously without arrest. All pink sorts and silver or gold-leaved burn. The standing phloxes are very good, but should not be exposed to much direct sun. Among annuals, few things are better than double zinnias, double balsams, and petunias. Daturas look "weedy" through the day, but are delightful at nightfall, when they open their great vases, and swing out such gusts of perfume.

Let us keep the garden an ever-filled treasury of flowers; let day unto day utter speech, until all the land accept the ministry of beauty that God has sent us.

TWO NEW FOREIGN GRAPES.

By ROBERT BUIST, Philadelphia, Pa.

Madresfield Court Muscat.—There is a wide field for the improvement of foreign grapes, and to every one that is announced to us we are supposed to give a critical examination. Our present subject is one of the new muscats, and is in fruit with us now. The bunches are large, well-shouldered, and tapering, the berries slightly oval, jet black, and above medium size, a free setter, and excellent bearer; indeed, it sets too freely, the bunches requiring severe thinning. The flavor is of the muscat, and the taste is rich and juicy, though not so much so as the Muscat of Alexandria. Foliage smooth, and like all muscats, deeply three-lobed.

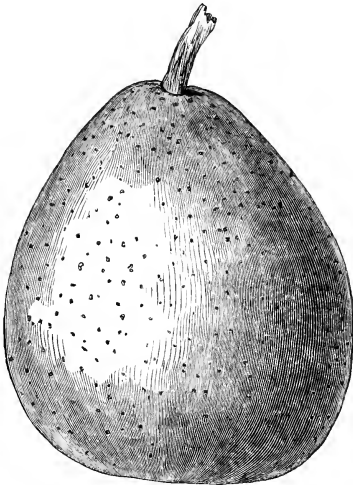
Royal Ascot.—Everbearing? This we question, though its tendency to produce profusely is evident. Bunches slightly-shouldered and tapering. Berries oval, medium size, jet black, and set freely. Its taste is sweet, rich, and juicy. The foliage is nearly entire, smooth, and of a dark green. Wood dark and very short-jointed.

The above descriptions are from vines in our cold grapery.

THE DALLAS PEAR.

By MARSHALL P. WILDER, President American Pomological Society.

SIZE rather above medium. Form obovate or short obtuse pyriform. Stem hardly an inch long, and rather stout, set without depression. Skin rough, almost completely covered with thick russet, becoming at maturity of a cinnamon color. Flesh yellowish-white, melting, and juicy. Core medium size, seeds plump, short, light brown. Flavor



DALLAS PEAR.

sweetish, vinous, aromatic, tolerably rich. Quality "very good." Tree of upright, vigorous growth, forming a fine pyramid, hardy and productive. The fruit adheres to the tree, and, when picked late in the season, proves to be a fine market pear, acquiring, as it ripens, that beautiful golden russet which is always so attractive in the market. The more we know of this variety the more highly we appreciate it. It was originated by Governor Edwards, of New Haven, Conn., about thirty years since.

UPON THE IMPROVEMENT OF AMERICAN GRAPES.

By GEORGE W. CAMPBELL, Delaware, Ohio.

At the present time, when the grape-growing interests of the country are, to some extent, depressed by a variety of causes, the most prominent of which appears to be the failure of many varieties, by reason of a succession of unfavorable seasons, the inquiry naturally arises whether we may not reasonably hope to produce a class of grapes of satisfactory quality, and yet of sufficiently hardy constitution to withstand the extremes and vicissitudes to which our climate is subject.

From many years of observation and experiment in this direction, I feel inclined at least to answer this question hopefully, if not positively; for, when we consider how nearly some of our most popular varieties approach to this ideal standard of excellence, and how little, in addition to their present characteristics, would be required to make them practically perfect, and add incalculably to their value, it would seem that the suggested improvement is not only possible, but highly probable.

Could we produce a grape combining the character and quality of the Delaware or the Iona with the robust constitution and hardy vine and foliage of the Concord, Hartford, or Ives, or could we originate a grape of the character of the Catawba, upon a vine having the healthy habit and early maturity of the Hartford, or could we produce a Delaware seedling simply retaining the present characteristics of that variety, combined with more hardy foliage, capable of resisting the attacks of mildew, what grape grower does not at once recognize the fact that these results would be the production of varieties of excellence and value yet unknown, and whose advent would place American grape-growing upon a basis where failure would be needless, if not impossible?

The belief that these or similar results were attainable, through seedlings, cross-breeding, and hybridizing, has induced me to persist through long years of patient and careful experiment; and although I have met discouragements, disappointments, and failures almost innumerable, I

still have faith in the possibility, and believe more than ever in the probability, of ultimate and complete success.

An account of my earlier efforts would be little else than a record of failures, interesting, doubtless, to those who have labored in the same direction, but probably not so to the general reader. The greatest difficulty I have hitherto met has been to originate grapes of fine quality, without at the same time producing vines and foliage of weak and tender constitution, unable to withstand our winters, and also liable, in unfavorable seasons, to attacks of rot and mildew. Indeed, I have at times been induced to believe that strong and absolutely healthy vines, with heavy and enduring foliage, capable of resisting mildew under all circumstances, *could not* produce grapes of fine quality, and that our sole resource would be to select locations and plant our fine grapes only in specially favored and sheltered spots, and use only the coarser varieties, such as Concord, Hartford, and Ives, for general culture.

But when I reflected upon the fact that I had produced many Delaware seedlings with strong and heavy foliage, nearly as impervious to mildew as Concords, notwithstanding the most unwelcome fact that this excellence of foliage had been accompanied with even greater deterioration of the fruit, and that the product was, in most cases, simply execrable, I still had faith that if seed from the Delaware could produce strong and healthy foliage, it *could* also produce fine grapes, and that it *might* produce both together, and upon the same vine.

I also came to the conclusion, after much observation and repeated experiment, that success might be attained by crossing varieties having the qualities desired; and none seemed more promising than cross-bred seedlings between Delaware and Concord. Both have nearly perfect hardiness against severe cold. The Concord has healthy, strong, enduring foliage and vigorous growth, and only suffers from rot in extremely bad locations, and in the most unfavorable seasons. The Delaware, in similar circumstances, mildews, loses its foliage prematurely, and ripens neither fruit nor wood perfectly, but *does not rot*. Now, if a happy combination of the good qualities of these two varieties could be effected, — the vigorous growth and mildew-resisting foliage of the Concord united with the admirable quality and freedom from rot of the Delaware, — we should have genuine improvement, and have made real

and substantial progress, the value of which would be to the grape-growers of America almost beyond computation. How far I have succeeded in attaining the results above indicated I may not now be able to demonstrate satisfactorily to others. I will, however, say that I am myself satisfied that I am, at least, in the way of improvement, and that I have made important advances towards the desired end.

In raising hybrids, cross-breeds, or seedlings, I have found that a large proportion are weak, tender in winter, and subject to mildew. All such are at once rejected, and often, after the first season, not one of a particular planting of seedlings will be left. If a few remain, having sufficient constitution to resist mildew, and sufficient hardiness to endure the winter, the probabilities are that if they are trained and cared for till they come into bearing, their fruit will be either worthless, or no better than that of hundreds of varieties already in cultivation. I feel that this is rather a dark picture, and not specially encouraging to the hybridizer and seeker for new and valuable grapes; but I rejoice to say it is not *all* dark, and that an occasional ray of light is permitted to brighten the otherwise cheerless way.

Among the Delaware seedlings produced many years ago, I had one which retained the form of the Delaware leaf, but had the thickness, together with the tomentose and rufous under-surface, of the Concord. It also resisted mildew nearly as well, and never rotted. It is strong-growing, and very productive; bunch and berry nearly identical with the Delaware; color a little lighter. It ripens about the same time, and is in quality nearly as good. Is not this progress? Is not this *the* grape for which we have been waiting? Is it not a glorious consummation of long-deferred hopes and "great expectations"? Alas, no! for the story is not all told. The berries fall from the stem at a touch, as soon as they are fully ripe.

Discouraging as this appears at first sight, I drew from it the most favorable auguries, and saw much of promise for the future; for it revealed the possibility, hitherto undemonstrated, of a grape, delicate, and of fine flavor, borne upon a vine with a coarse and heavy foliage, capable of resisting the attacks of mildew. And in this possibility I found encouragement for more earnest and determined perseverance in my efforts to attain the end desired.

Seedlings from this grape failed to show any further advance in the way of improvement. I afterwards received a quantity of Delaware grapes, grown far north, in Vermont, from the most perfect of which I selected and planted seed. The young vines grown therefrom were planted in open ground, and, as usual, fully exposed. At the end of the third year but two of the lot remained alive. A year or two later, one of them had gone. The solitary vine remaining had, from the first, been remarkably healthy and vigorous, with rather large, somewhat coarse and heavy foliage, resisting mildew well, and enduring uninjured the vicissitudes of climate and season which had destroyed all its companions. It seemed, indeed, an admirable vine; but what would be its fruit? According to my former theories and common experience, the vine was too good to produce anything better than the wild frost or fox grape of the woods; and I must confess that I had very little faith in its ever producing anything of value.

It first bloomed in the spring of 1869, and produced two small and compact, but rather unpromising-looking clusters, to which I gave very little attention. Early in September, I noticed in passing that they had changed from their somewhat hard and green appearance to a lighter hue, and had assumed the delicate amber tints of approaching ripeness. I picked one of the berries, and my astonishment and delight may be imagined when I say I tasted the only grape I had ever produced that I considered superior to our charming Delaware. Subsequent testing and careful comparison only confirmed this impression, and I am, therefore, not without hope that this grape will prove a real acquisition, and be found worthy of general cultivation. I may here say that the season of 1869 was, in this region, the very worst for grape growing within my knowledge. Mildew and rot reigned supreme. Catawba, Allen's, and all Rogers's Hybrids, — Salem included, — Hartford, Concord, Iona, and Martha, all rotted more or less. Delaware, in the same locality, mildewed and lost its foliage so badly that it did not ripen a berry. Now, when I say that this Delaware seedling, in a perfectly open and exposed situation, and in the very same locality, held its foliage till removed by frost, and ripened its fruit perfectly, early in September, all can understand my reasons for the belief that it will

prove truly valuable, and worthy of a name and place among our best American grapes.

Another season or two will be required to determine two points as to this grape which are not yet satisfactorily developed, namely, size and productiveness. The past season every available bud was cut from the parent plant for grafting and otherwise increasing the stock, and it again bore but two small bunches, not differing materially from those of the previous season. The first bearing of a seedling vine is, however, usually no correct indication of its subsequent character in this respect; for I have had seedlings increase more than four fold in size of bunch and berry after a few years' cultivation. So far, in size, this seedling has not been above that of the Delaware grape, though in growth of vine, and vigor, health, and luxuriance of foliage, it is greatly its superior.

Two other seedlings — crosses between the Delaware and Concord — may be regarded as promising, having both passed uninjured through the ordeal of the season of 1869. They are both black grapes, grown from Concord seed, which had been fertilized with pollen from the Delaware. They have the same general characteristics, though they are from the planting of different seasons. They have nearly the form of the Delaware leaf, but the substance and character of the Concord. The wood growth is more like Delaware, and they seem throughout to combine the qualities of both parents. In quality they are much better than Concord, but not equal to Delaware. In size, intermediate — not quite as large as Concord. One bears clusters formed much like Delawares; the other more nearly resembles the Concord. So far the indications are that both will be perfectly healthy, subject to neither mildew nor rot, while they are hardy, productive, vigorous in growth, and a marked improvement in quality upon our best perfectly hardy black grapes.

I have other seedling grapes which I may hereafter mention, together with many interesting facts connected with the raising of seedling grapes which are the results of some twenty years' experience in that line; but I regard the varieties above mentioned as the most promising, from the fact that they have always remained healthy under the most trying circumstances.

NUT TREES.

WE frequently meet with paragraphs advising the planting of fruit trees by roadsides and in the front yards of houses, on the ground that they are equally beautiful as the trees which are planted solely for ornament. The cherry, particularly, is recommended as combining beauty with utility. Now we admit the truth of these statements, yet we must dissent from the advice. Perhaps we are prejudiced; but it isn't in accordance with our ideas of the "eternal fitness of things."

"Among all the flowers of spring," said A. J. Downing, "there are few that surpass in delicacy, freshness, and beauty, that common and popular thing, an *apple blossom*; yet no one would plant an apple tree in his park or pleasure ground; for, like a hard day-laborer, it has a bent and bowed-down look in its head and branches that ill accords with the graceful bending of the elm, or the well-rounded curve of the maple."

We may be thought inconsistent, but these objections do not seem to us to apply to the trees which produce some of our most valuable nuts; and if we wished to combine beauty with utility on our lawns, we should plant these. What can be more stately than the column of green formed by a well-grown tree of the common Shell-bark Hickory? What more beautiful than the young trees, with their smooth, gray bark and gracefully curved limbs? The nut is well known as unsurpassed in flavor; but only a slight examination is needed to show much difference in the fruit of different trees, and, no doubt, by careful selection of the seed, trees may be produced combining the highest beauty of tree with the largest size and greatest excellence of the nut. An improved variety, called the Perkiomen Shellbark, is described and figured in Hovey's Magazine, vol. xix., p. 520, and vol. xxi., p. 137. It measured an inch and three quarters long, one and five eighths wide, and one inch thick. The shell is thin, and the kernel of the best quality. If planted too thickly, young hickory trees are valuable for timber as soon as they are of sufficient size for use, unlike many others which do not form heart wood until they have acquired considerable age.

The Pecan nut is of equally fine quality with the shellbark; but we are not informed as to its adaptation to northern climates. We have a single little tree, which we raised from seed, — the only one that came up of a dozen planted; but it does not show the vigor and hardiness we would like to see, though we must confess we have not been able to give it the care to which it is entitled. We think the seed came from Texas; but we should prefer nuts grown as far north as possible, and we think that trees raised from them would probably prove hardy in the latitude of Boston.

The English Walnut is easily raised from seed; and we had one tree which was beginning to come into bearing, when it was destroyed by a severe winter, which also killed two full-grown trees that bore by the bushel. We think it can hardly be trusted in the vicinity of Boston, though in ordinary winters only the ends of the young shoots are killed. We would not, however, discourage further experiments with it. There is said to be a dwarf variety, producing nuts when only two feet high; but the trees which we imported from France for this kind appeared in no way different from the common. We kept some of them twelve or fifteen years, until they were nearly killed by the winter; but they never produced a nut.

The Butternut is too well known for the excellence of its fruit, and its widely spreading top, to need particular notice. In riding through our New England country villages, we often come upon a fine specimen, with its arms outstretched over an old farm-house, by its entire harmony with the scene producing a most pleasing impression. A hybrid between the butternut and English walnut originated at Chevy Chase, the residence of Colonel Belt, near Washington, D. C., the nut from which it sprang having been produced on an English walnut tree in the garden of Mrs. Bowie, of Prince George County, Maryland, within a few hundred yards of which grew a number of butternut trees, the pollen of which, no doubt, had been wafted by the wind or conveyed by insects to the English walnut tree. It is noticed in Hovey's Magazine, vol. xix., p. 563.

Such *varieties* cannot be propagated by seed, like *species*, but must be grafted; and owing to the difficulty of performing this operation

with the walnut, these improved varieties have been but little disseminated. This difficulty of working the walnut arises from the excitability of its buds, because they exhaust all their organizable and alimentary matter before any adhesion can be formed between themselves and the stock; but by taking the small, fully matured and little developed buds found at the base of the annual shoots of this plant, time is given for an adhesion between them and the alburnum before they push forth, and they then take freely enough. Another successful mode, described by D'Albret, is to cleft-graft in the side of the young shoots, and it is said to answer well, whether performed in the solid or herbaceous state. In regard to stocks, it is probable that the improved shellbark might be grafted not only on the common shellbark, but on the other species of *Carya*, and the hybrid walnut above noticed on the butternut.

The Black Walnut is little known in New England. Mr. Levi Bartlett, of Warner, N. H., remarks, in a late number of the Country Gentleman, that there are one or more bearing trees in Hopkinton, eight miles west of Concord, N. H. There is a fine specimen which we have seen in Saugus, Mass. It has had ample room to develop, and shows a finely rounded head, resembling that of the butternut, but not flattened on top. We have also one or two trees, that we raised from seed, which produced a few nuts for the first time last year, when seven years old. It appears perfectly adapted to New England, grows fast, and is said to bear transplanting easily. Its value for timber is well known. It sometimes attains a large size. We daily pass, in a lumber yard in Boston, several trunks of at least four feet in diameter. The form of the tree is variable. We saw near Nashville, Tenn., trees partaking of the grandeur of the oak, and scattered over the ground, presenting a fine, park-line appearance.

The Chestnut is one of the most beautiful trees, whether its flowers, foliage, or fruit are considered. Old trees, growing singly in pastures, not unfrequently possess the grandeur of the oak, and are mistaken for it. Nothing can be more exquisite than the silky, silvery down covering the nuts and lining the husk before it is marred by the touch of rude fingers. The young trees, with their soft, thrifty bark, are always beautiful, and the value of the timber is too well known to need com-

ment. The one drawback on the value of the tree is the difficulty of transplanting; but this, it is said, may be obviated if frequently transplanted in the nursery while young. They thrive better on light, dry soil than on wet, heavy land. The Spanish or Marron chestnut is of much larger size, but perhaps hardly as sweet. It is very nutritious, forming a large part of the food of many people in Europe. We remember, in our youthful days, a fine young tree of this species, with smooth gray bark and pyramidal top; but it was transplanted when of considerable size, and we fear that was the end of it. We would suggest the possibility of grafting the marron chestnut on the common chestnut, as a means of introducing it more speedily than by seed.

The nut of the beech is of less importance than the above, but still not unworthy of attention. A fine specimen of the weeping beech, on Mr. Wilder's lawn, in the rear of his house, fifty feet high, and spreading thirty feet, with limbs twenty feet long drooping to the ground, so as to form a beautiful natural arbor, produced a crop of nuts the last year.

We speak now only of nut *trees*, and therefore defer any remarks on the chinquapin, or dwarf chestnut, and the hazel nut and filberts to another occasion, concluding with the advice to all who have the opportunity to plant nut trees and nuts, of the latter always selecting the largest and best specimens from the finest and most productive trees, thus laying the foundation for the production of new and improved varieties. If you have room for only a single tree, then pick out the best nut you can find, and plant it. Don't object that it takes a good while for it to come into bearing. So it does for a boy to grow to a man; but that is no reason why the human race should not be perpetuated. Your tree will be growing while you are sleeping, and some day will surprise you with a shower of ripe, brown nuts, which you will relish more than any you ever bought.

NOVEMBER.



NOTES AND GLEANINGS.

CRITIQUE ON THE OCTOBER NUMBER. — *Notes of a Horticultural Trip to California.* II. — The general conclusions arrived at by the California tourists in regard to fruit culture, that the trees grow and bear more freely there than on this side the continent, and are almost entirely exempt from disease and insects, are so fully confirmed by all we see and hear from other sources, that I am almost tempted to start off and engage in fruit growing in California at once. But a second thought, that Mr. Gould's pears, which were bearing so profusely as to cause fears for the future welfare of the trees, were not thinned, because the low price of the fruit would not justify it; the stories I have heard of Bartlett pears fed to hogs, the great pear orchard at Santa Clara, the fruit of which once sold for twenty-four thousand dollars now bringing but one hundred, while thousands of bushels rot on the ground, and hundreds of the trees have been cut down, and grapes thriving and bearing so as to be quite as unprofitable—these form another side to the picture; and I think I won't start to engage in fruit growing in California to-day. It must be a better business to can and dry, and otherwise preserve what already grows there; and it would seem a pity not to preserve just as much as possible of this fine fruit. But what an opportunity these great pear orchards, with so much fruit wasting, must afford our nurserymen to secure their stock of pear seed, if the trees are healthy and vigorous!

But how long is the almost entire exemption of fruit trees from diseases and insects in California to last? Not forever, nor, indeed, for long, unless the operations of the laws of nature are very different there from what they are in other places; and then the crops of fruit, instead of being as spontaneous as now, will be the reward of only the energetic fighters with these evil influences. Whatever consolation the fruit growers of California can find in the fact that, if fruit were not grown so easily, it would be more profitable to *somebody*, they certainly will have before long.

Ashes and Iron for Flowers. — Excellent advice, and, so far as regards the iron, easily carried out; for plants need but a small quantity of iron to produce the desired effect, and that little can be found wherever a blacksmith's shop exists. And if a few hoof parings and raspings are mixed with it, your plants will be none the worse for them. But wood ashes we want to apply more freely; and it is rather tantalizing to the dwellers in or near the large cities, among whom, perhaps, the majority of flower lovers are found, but who see no fuel except anthracite coal from one year's end to another, to be constantly exhorted to treat their flower beds to generous dressings of wood ashes. Excellent advice, but where to get the ashes? that is the question. If there is a bushel to be found, the soap boilers pick it up; and the demand for their leached ashes is greater than the supply. If there is no way for us to get wood ashes, and no perfect substitute, pray tell us what is the next best thing. A dressing of lime is no doubt excellent, but it won't supply potash.

Protecting Trees from Canker Worms. — Mr. Barker's story of his trials and triumph in the conflict with the canker worms confirms me in the belief that, while tar, or, what is better, printing ink, may be quite effectual in many cases, if thoroughly followed up, a trough of oil round the tree is better still, and once made, is, with comparatively little care, a perfect preventive of the ravages of this terror of the orchardist. But I have seen troughs made of wood at much less expense than the zinc ones, and which proved quite as effectual.

The Sap-sucker. — I have never seen the mischief done by this bird to the extent described by Mr. Flagg, though I have seen rows of holes punched by them in bark apparently as sound and free from insects as any bark could be; and I cannot hesitate to believe the stories of disappointed hopes caused by this evil bird. At any rate, I have heard enough of the sentimental nonsense that has been wasted on these "feathered songsters," of every kind and color, by oceans full; and I'm tired of it, and want to know the facts in the case, so that I can distinguish my friends from my enemies. Let us know what birds feed only on noxious insects, and preserve them carefully, and others who eat enough insects to pay for their keeping we will cherish, though they help themselves to some of our fruit; but if there are any who are only destructive, as the sap-sucker seems to be, let us know that, too, and act accordingly. I enjoy seeing and hearing birds as much as anybody does; but when these great saucy thrushes, that we call robins, begin with my strawberries, and as soon as those are gone attack my cherries, and won't be driven away, and then leave on the currant bushes only a parcel of strings where bunches of currants were, and then take the first ripe raspberries, and the second, and the last, and then gather my blackberries before they are ripe enough for me, and conclude by leaving me a string of stems, and cores, and calyxes, in place of my Tysons and Rostiezers, is it strange, Mr. Editor, that sometimes my patience hardly holds out? If we could only revenge ourselves by killing a few once in a while, and making them into a pie — that might be some satisfaction, after feeding them all summer; but here in Massachusetts the law won't allow anybody to kill a robin, even on his own grounds, or anywhere else, at any season of the year — which, it strikes me, is carrying sentimentality a little too far.

Beans. — Mr. Hyde writes of them *con amore*, and of course writes well, as a man always does when he puts his heart into his subject. Well, I am Yankee enough to love beans; but I shouldn't wish them to grace my table *every* day in the week, like Mr. Hyde's Massachusetts farmer, unless, indeed, they were Lima beans, which are truly the *ne plus ultra* among beans. Cannot somebody tell us how to grow Limas so as to have them ripen in this northern climate early enough to get more than one or two messes before frost? I don't mean the Sieva, or Small Lima, — a very good sort of bean, but not to be compared, for richness, to the large Lima, — that I know is earlier, but I want large Limas just as good as they are now, but two weeks earlier, or a month, if I can get them. Can't somebody invent an earlier variety of the large Lima without sacrificing any of its richness?

The White Riesling Grape. — I don't doubt a word of what Mr. Buel tells us of the success of the vine of this variety at Albany, though a bunch of out-door grapes weighing three and a half pounds is a pretty large story for these parts. But these cases of the success of European grapes are so exceptional, that I should be very cautious in planting the White Riesling, except in California; but there it is just what they want. And it is a coincidence worth noting that in this very number of the Journal the California explorers speak of the Riesling grape as grown extensively at Stockton for wine by Messrs. West.

A few more Summer Pears. — I am glad to see that you have given the Windsor pear another hit. Such showy good-for-nothing pears as this and the Belle de Bruxelles are my "favorite aversions;" and it is provoking to see people cheated into buying these falsehoods, however goodly their outsides. There is no reason in the world why orchardists and market men should not give us pears combining good flavor with good size; and they will, just as soon as purchasers refuse to be satisfied with a poor pear because it is large.

New Pears. — Now that great collections of fruits have gone out of fashion, people appear to be rushing to the other extreme, and neglecting too much the introduction of new varieties. There are a few, however, who still keep it up, and among them Colonel Wilder, the veteran President of the Pomological Society, who, we know, may always be relied on for whatever good work is necessary to the progress of his favorite science, whether it be introducing new fruits or originating them himself, and who seems resolved to have every year a still larger claim on the gratitude of his fellow-men for such services. I shall look with confidence for some valuable acquisitions among the new pears of which you, Mr. Editor, have given us a foretaste.

Bismarck.

FINE FLEMISH BEAUTY PEARS. — We have received from Mr. Charles H. Smith, of Northampton, Mass., some remarkably fine specimens of the Flemish Beauty, one of them the largest we have ever seen, weighing nineteen ounces, and measuring twelve and three quarter inches around the middle, and thirteen and five eighths inches around the eye and stem. It was finely colored, but, as very large pears are apt to, varied somewhat from the normal shape, approaching that of the Duchesse d'Angoulême. Eight specimens weighed seven pounds and five ounces, and were far superior to any we have seen of late years, except

those brought from California, and quite equal to the California pears. They grew on a "double-worked" dwarf, about twenty years old, and twelve feet high, in a heavy loam, which has always been kept very rich. The tree stands south of a large building, and bore this year forty pears, all large, and three or four of them as large as the largest one described above. The flavor was fully up to the standard of this variety. Our friends at Northampton are quite proud of their "Connecticut River valley pears," and well they may be.

THE MOUNT VERNON PEAR. — We lately paid a visit to the grounds of Messrs. Walker & Co., at Boston Highlands, for the purpose of examining this new pear on the trees, and were much pleased with its appearance. The original tree, which stands with its trunk against the office building, is now nearly twenty feet high, and at least eight inches through the stem. Besides this, we saw several trees which had been grafted in the limbs with this kind, and were bearing fine crops. The form of the fruit is quite variable, but the normal shape this year appeared to be rather more pyriform and less knobby than that figured in the *Journal* (vol. iii., p. 144). Nothing can be richer than the color — a smooth russet, taking a golden tint when ripe, and frequently with a warm brownish red cheek. The growth of the tree is vigorous, a little twisted. It has not yet fruited on quince stocks, but we saw several hundred three-year old dwarfs in the nursery; and as far as growth is concerned, nothing better could be desired.

We had no doubt, from the appearance of the fruit, that this fine pear was a seedling from the *Figue*, one of the richest flavored pears; and this opinion was confirmed by examination of the trees. The *Figue* was a favorite variety with the late Hon. Samuel Walker, the father of the present Messrs. Walker; and nothing would be more probable than that a seed of it should be dropped near his office door.

UNDERHILL'S GRAPE VINE LOCK. — We have received from our correspondent, Mr. Edward F. Underhill, of Brocton, N. Y., samples for trial of his new device for fastening grape vines to wire trellises. It consists simply of a piece of iron wire bent into a loop, to encircle the shoot, with the two ends formed into hooks, to hook on to the wire. When used, only one of these hooks is closed, so that the other can at any moment be unhooked, and the shoot released. An examination of the locks impressed us favorably with their value; and a trial confirmed our view that, when one had once got the knack of applying them, they would be the readiest, and at the same time the most efficient and durable, means of securing vines to the trellis. We have heard but one objection made to them, which was, that they became so entangled with each other, that it was difficult to pick out one for use. We did not, however, attempt to pick them apart; but if, on raising the bunch, there were no loose ones, a slight shake was sufficient to separate one or more. The samples received were of two sizes of wire, — Nos. 16 and 18, — but we thought the smaller quite sufficient to hold the vines securely; and it had the great advantage that only the fingers were required to apply it, while the hooks of the stouter wire could not be closed without a pair of pincers.

THE CHAMBERS PEAR is described in the Western Ruralist as above medium size, handsome in appearance (sometimes very beautiful), and in the market so much earlier than any other pear as large and good looking, that it can afford to be a little inferior in quality, especially as other very early pears are no better, or deficient in size. It has proved itself undeniably a valuable market pear. The crop of 1869 was large, insomuch that every fruit stall in Louisville was supplied with it, and yet the price maintained was seven dollars per bushel. The tree, however, has a bad habit. Its growth in the nursery is straggling and unsightly, and the nurserymen consequently advise grafting standard high, or putting new tops on large, unprofitable trees. It originated from seed sown at Middletown, Ky., by Captain William Chambers.

THE GRUB IN STRAWBERRY BEDS. — This formidable enemy to the growth of the strawberry in new lands, the larva of the dor-bug, or May-beetle, has been successfully destroyed by means of coarse salt applied to the beds in the month of April, at the rate of one bushel and a quarter to the one fourth acre of land, distributed evenly over the same. A few of the plants where the salt rested immediately upon the leaves were a little blackened, but not at all damaged to prevent fruiting and a vigorous growth. But, lo! the grub evidently was not accustomed to salt victuals — they all disappeared. A few weeks later the same amount of salt was spread broadcast over a piece of land that was to receive plants, before they were set, and was equally successful. *Rural World.*

CONTRIBUTORS TO THE JANUARY NUMBER. — Among the contributors for the January number of The Journal, will be Hon. Marshall P. Wilder, William Saunders, Francis Parkman, Edward F. Underhill, Parker Earle, C. H. Robey, Fearing Burr, William C. Strong, President elect of the Massachusetts Horticultural Society, Robert Manning, George Such, Edward S. Rogers, Priscilla Primrose, J. A. Donaldson, and Joseph Breck. These names are too well known to the horticultural world to require any further introduction from us; and we doubt whether any former periodical ever embraced articles by so many distinguished practical writers on horticulture, besides the Foreign and Domestic Notes and Gleanings, and Editor's Letter-Box.

KEEPING GRAPES UNDER GROUND. — Mr. S. Miller communicates to the Grape Culturist an account of a method of keeping grapes, by gathering as late as frost will permit, on a clear day, when perfectly dry, placing in a box about eight inches deep, with a layer of green vine leaves at the bottom, then a layer of grapes, then another of leaves, and so on, till the box is full, finishing off with a layer of leaves. The lid is then to be put on tightly, and the whole buried in a dry place below the reach of frost. The editor of the Grape Culturist approves this plan; but though the authority for it is so good, we should be shy of trying more than a few grapes in this way the first time.

IRRIGATION. — The Kansas Pacific Railway has a project of irrigating three million acres of the great country through which its road runs, by means of a canal from Platte Cañon across the plains.

THE EMPEROR AND COLFAX STRAWBERRIES. — MR. EDITOR: I notice B. Hathaway's notes on Strawberries in the September number of the Journal of Horticulture, in which he takes ground that the Emperor and Agriculturist are the same.

I simply *know better*. The originator of the Emperor is a poor, illiterate man, at South Bend, Ind. He saved the seed from Hovey's Seedling, crossed with Wilson, some eight or ten years ago — long before the Agriculturist was heard of or known. It succeeds admirably on the light, sandy soil at South Bend, Ind., and has a rank green foliage there, while, on the other hand, the Agriculturist does *not* do well — sun-burning badly, and yielding no fruit.

I have in my hands testimonials from all parts of the country as to its value, and *distinctness* from the Agriculturist. Among them are such men as P. C. Reynolds, C. L. Van Duzen, Miller, Hance, Hendricks, and others — men as practical and as well qualified to judge as Mr. Hathaway. He speaks very highly of his own seedling — the "Michigan." In nine cases out of ten, it has been condemned as a "soft," "pasty," insipid fruit. It has given me good satisfaction; and I only thus refer to it to show that soils, climate, cultivation, etc., make a vast difference in the character of any fruit, and that we should not be too hasty in condemning one sort, or show too much egotism in praising another, especially if it be of our own raising and dissemination. As to the Colfax, we have never claimed it as a market sort, or good flavored, but simply as a *reliable, enormous* bearer on *every* soil and in *every* climate. A person who has the time to grow the finer sorts, and give them the care required, does not need the Colfax nor the Michigan Seedling, as they both are generally disliked as to quality.

I find the flavor of one is as fully appreciated as the other by the generality of visitors to my grounds. Then why be so hasty to condemn one and praise the other?

PALMYRA, N. Y., Oct. 8, 1870.

A. M. Purdy.

We publish the above note from Mr. Purdy, because we believe in giving a hearing to both sides of a question. It will be seen that his statements in regard to the Emperor are confirmed in Mr. Draper's article in the present number. As to the Colfax, it has been so universally condemned, that we could not advise planting it under any circumstances. — *Ed.*

WINTER PROTECTION OF FIG TREES. — Where the climate is too cold to allow of leaving fig trees in the ground during winter, even with a covering of earth or straw, they are generally planted in tubs or boxes, and placed in cellars on the approach of winter. A better way is to plant them in the ground, and in the fall to take them up and "heel in" in the ground in the cellar. This avoids the lifting and carrying of a heavy tub of earth; and in spring the trees are again planted in the open ground, where they require much less care in watering than if in tubs. The frequent transplanting operates like root-pruning, to produce a mass of fibrous roots; so that the trees may be moved with perfect safety, and also to bring the trees into the most fruitful condition. When treated in this way, the late crop of figs will sometimes hang on through the winter, and in spring begin again to grow and ripen off. This method has been successfully pursued by Messrs. Walker & Co., whose Brown Turkey Figs have received the highest premium of the Massachusetts Horticultural Society.

THE ABSORPTIVE POWER OF SOIL.—It is an important discovery of recent date, that soils have the power of separating not only ammonia, but other bases also, from their solutions, and of holding them with great tenacity after their absorption. Thus, one hundred grains of clay soil, taken from the plastic clay formation of England, absorbed ten hundred and fifty grains of potash from a solution of caustic potash containing one per cent. of the alkali. It is interesting to observe that the liquid was not, in this case, filtered through the soil, but the cold solution was merely left in contact with it for twelve hours.

It has been further shown that soils have the ability to separate the alkaline bases from the acids with which they are combined. When saline solutions were slowly filtered through soils five or six inches deep, the liquids which passed through were deprived of their alkaline bases, as potash, soda, ammonia, and magnesia, and only the acids were to be found in combination with some other base. Thus, when muriate of ammonia was filtered through the soil the ammonia was removed, and a corresponding quantity of lime, in combination with muriatic acid, was found in the filtered liquid. In the same way sulphate of potash was deprived of its base, and the liquid collected gave sulphate of lime.

Those soils which have the greatest amount of capillary porosity will condense the greatest amount of manurial substances on their internal surfaces, will retain them longest against the adverse solvent action of water, and will give them out most readily to the rootlets of the growing plant.

A mass of adhesive clay will absorb but a very slight amount of available manure; but if this same mass is rendered friable, by mechanical processes, its power of absorption is amazingly increased. In view of what has been stated, it is very clear that one way in which ploughing increases the fertility of land is by increasing its porosity by pulverization.

Again, many manurial substances exist in the soil, which, being insoluble, exercise no action on the growth of plants, and contribute nothing to their nutrition; but by the slow, though regular action of the frosts and the rain, the air and the sunshine, insoluble and refractory compounds are reduced to a soluble state, and are appropriated and held on deposit by the soil to the credit of the next cultivated crop. This explains the well-known fact that soils, which have been cropped to the very verge of barrenness, will recover their fertility if allowed to remain long enough under the action of climatic influences to saturate the soil with the necessary plant-food, which they have unlocked from their chemical combinations, and given to the soil in a proper physical condition. These changes are brought about more rapidly when certain mechanical changes of condition are wrought upon the soil.

Carbonic acid is one of the most active of the agents employed in bringing the insoluble organic matter in the soil into that physical condition in which it becomes available as plant-food. In order that this acid may be formed, it is essential that the carbonaceous matter in the soil should be brought into direct contact with the atmosphere, from which they procure the oxygen necessary to convert them into carbonic acid. So long as stagnant water remains in the soil, or so long as the soil is in a dense or a very compact condition, it is impossible for the carbon to be converted into acid.

DEPTH OF ROOTS. — MR. EDITOR: In looking over the Notes and Gleanings in the March number of the Journal, on page 184 I find the details of an experiment in relation to the depth to which roots run. The experiment is all well enough in its way, as going to show that roots may be *attracted* to almost any depth, provided the conditions are favorable, as they evidently were in the case cited. A glazed case filled with earth, standing above ground, with the filling kept moderately wet, the temperature, it would seem, must be very nearly that of the surrounding atmosphere, in which event the fact that the roots extended downwards six feet should surprise no one.

Let it not be inferred, however, that for that reason it is necessary to work the soil six feet deep in our fields in order to obtain a good crop of oats.

In our experience, we have learned that the degree of moisture, tenacity, and temperature of the soil has much to do with attracting the roots of plants downwards or otherwise.

In a soil naturally open and porous, with subsoil to match, and, consequently, rather dry and warm, the roots of corn or grass will penetrate deeply in search of food and moisture. Pine plains, so called, are of that character.

On the other hand, we have sometimes planted corn late, for cattle feed, or for the purpose of having late sweet corn, on wet and heavy soil, when we ascertained that scarcely a root penetrated deeper than four inches, while on our sandy soil, with an open subsoil, the roots run twelve inches below the surface in many cases.

A. Clement.

We agree with our correspondent, that the experiment mentioned is interesting chiefly as showing how far roots will extend under favorable circumstances. We remember a remark by one of the best and most extensive cultivators of foreign grapes that we have ever known, that he believed that, by proper manuring, he could draw the root of a grape vine out half a mile in length.

It is fortunate that it is not necessary to work the soil six feet in depth, for it would not be very likely to be done with our present implements. Still, the roots of vegetables undoubtedly do run much deeper than is generally supposed; for, by the ordinary methods of digging or pulling up, a large part of the fibres must be left in the ground. If dug up and washed carefully, they would show a much greater length than is generally supposed. We have seen a carrot four feet in length, about half of which was a thread-like tap-root, when no special effort was used to draw it down, though the soil was no doubt naturally favorable to its descent. We think that in this case a broken end showed that the whole root was not drawn up, and how much longer it was it is impossible to say.

DRAINAGE FOR FRUIT TREES. — It is useless to talk about "fruit in a frog pond." We might as well expect our children to be healthy with wet, cold feet the year round, as to expect it of our apple or other fruit trees. Drainage, either natural or artificial, and protection, are *indispensable* requisites of a healthy and productive orchard.

Correspondent of the American Agriculturist.

THE DORCHESTER BLACKBERRY. — We are pleased to find, by the following note in the Iowa Homestead, from Mr. D. Morris, Eldora, Hardin Co., that this variety, which is still a favorite here, where it originated, promises so well in Iowa: —

“In the spring of 1866 I procured of Messrs. Purdy & Hance, South Bend, Indiana, one dozen of the above-named variety of blackberry, which was recommended by these gentlemen as hardy and prolific. The first season's growth gave some protection during the winter. The next winter, which was that of 1867 and 1868, I gave them no protection whatever, and they came out sound and healthy, and bore a full crop the past season, fully verifying all the good qualities and noble characteristics ascribed to it by the said P. & H. Fruit large, oblong, oval, slightly pointed, black, sweet, rich, and excellent; leaves broad, oval, do not sunburn; ripens early; berries quite firm for good market variety. From this one season's trial, I am inclined to think that it will prove just the thing for this section of Iowa. I would not, however, pass a final and certain decision upon it, in this respect, without further trial. The most of my canes of this berry are unprotected this winter; have covered a few for experiment. My faith in it is strong enough to recommend it for *trial* at least, by all lovers of this delicious fruit.”

NEW HARDY DWARF EVERGREENS. — At the winter meeting of the Western New York Horticultural Society, T. C. Maxwell named the New Dwarf Norway Spruce also the dwarf pine. Some of the newer dwarf arbor vitæ had proved hardy and very ornamental. There was a great variety in the shade and color and in the form of the trees. G. Ellwanger named the *Abies Nordmanniana* as the handsomest of the new evergreens, and likely to prove extremely desirable. H. E. Hooker regarded the *Pinus cembra* as one of the hardiest and best of the pines of moderate growth; and he had seen the prostrate juniper at the west, covering large patches of ground by its luxuriant growth, and presenting a fine ornamental appearance. G. Ellwanger named the Chinese juniper as very hardy, and quite handsome. Information being called for in relation to the rhododendrons, several members said that the *R. catawbiense* was the only sort that had proved perfectly hardy.

Country Gentleman.

IOWA is larger than New York or Pennsylvania, — larger than New England without Maine, — and more productive than all of them put together. She has thirty-five million acres of rich black mould, and to-day a clean furrow can be turned over thirty million of these acres. Although less than five millions are under cultivation, they produced, last year, eighty-five million bushels of grain.

THE SCUPPERNONG GRAPE. — The original vine of the Scuppernong grape is said to be growing on Roanoke Island, and was first discovered by the colony landing with Sir Walter Raleigh, in 1654 or 1655, and is probably the oldest vine known at the present day. The product of a single Scuppernong grape vine in Jacksonville, Fla., was sold, last fall, for one hundred and ninety-two dollars.

Rural Carolinian.

BARK FOR TIES. — The bark of the Linden tree is prepared for tying grape vines by peeling, tying in bundles, and putting in a pool of water. Let it lie in the water until the inside becomes loose, so that it will come off in pieces like ribbon ; then take it out, peel off all that is loose, tie up the second time, put it back in the water, let it stay until it becomes loose again, strip off and throw the outside away.

The Pawpaw, managed in the same way, is better than the Linden or Bass tree. *Rural World.*

HARDY CANADIAN APPLES. — Mr. P. C. Dempsey, of Prince Edward County, reports two very valuable and perfectly hardy varieties of apples, which originated in that county. The one he calls "Redner's Seedling;" size medium to large; form oblong; stem short; color green, becoming yellow at maturity, with red stripes on the sunny side; basin small, shallow, nearly even; flesh yellowish-white, juicy, rather acid; ripe in September. Tree, a good grower, with a spreading top; productive and hardy.

"Albury" he suggests as the name of the other, also raised by Redner. This apple is rather large, ovate conical; color, yellow with a dull brown in the sun; covered with light spots; stem an inch long, slender, inserted in a small cavity; flesh tender, rich, acid, of fine flavor; ripens in September. Tree is very productive, perfectly hardy, and a good grower. Mr. Dempsey esteems it the best and most profitable apple of its season that they have.

Another fall apple is mentioned by another person as growing on the farm of Mr. Buck, in Darlington, so much valued that Mr. J. P. Lovekin, of Newcastle, has propagated it. The tree is one of the first trees planted in those parts, and the seed was brought from Virginia by the early settlers, upon the close of the revolutionary war. *Canada Farmer.*

ORCHARDS. — After selecting a dry, rolling piece of land, as large as you wish to set to trees, the first thing to do is to put a good and substantial fence around the same, with a gate or pair of bars for entrance. The neglect of a good fence around the orchard is an annual loss, to the farmers of Michigan alone, of thousands of dollars. I passed a farm lately with three acres set to trees in the corner of a ten-acre lot, and I counted sixteen sheep, half that number of cows, and two colts feeding on the trees. This man makes an annual purchase of trees, but his orchard looks very sickly, and I think will never need any pruning; and the fruit it will bear will never overstock the market; when, with a good fence surrounding his trees, and with good cultivation, he and his family could have had an abundance years ago. *Western Rural.*

THE SHOCKLEY APPLE. — One peculiarity of this apple is, that it is better when grown upon the sandy soils of the cotton lands of South-western Georgia than it is in clay lands of higher latitudes. *Southern Farm and Home.*

BROOM CORN was introduced into our country by Dr. Franklin. While examining a corn whisk (imported), he accidentally discovered a single seed, which he planted in his garden, and from which the corn was propagated.

THE WHITE DOYENNE PEAR. — Extremes always meet; and yet it seems strange that the best specimens of this pear — than which, when produced in perfection, modern pomology knows nothing finer — are grown either in the latest settled parts of the country, or else in the heart of a city. These remarks are suggested by a fine specimen, which has been given us by Mr. Barney Cory, raised by him in his garden in Boston, and which is so large that it might well be taken for a Doyenné Boussock. It is as fair, and has ripened up as handsomely as in the youthful days of this variety.

When we find a fruit with a long list of synonymes in several different languages, showing that it has been widely cultivated in many countries, we seldom need anything further to attest its value; and such is the case with this variety. Including the names of St. Michael, by which it is known at Boston, Virgalieu of New York, and Butter pear of Philadelphia, Downing gives no less than thirty-four synonymes in English, French, and German.

BOUWARDIA VREELANDI. — We are indebted to Mr. S. B. Vreeland, the originator of this new bouvardia, for specimens of the flowers. Several good judges, to whom we have shown them, were much interested in it; and all agreed in pronouncing it a charming flower, and a valuable acquisition to our list of white winter-flowering plants. The trusses of flowers are of fine size; the foliage resembles that of its parent, *B. Hogarthi*. It was described and illustrated in the Journal of last April.

THE GRAPE EXHIBITION AND TEST AT HAMMONDSPORT, N. Y. — Agreeably to the circular issued by the Pleasant Valley Wine Co., a meeting, numerously attended by grape growers and vintners from different parts of the country, was held at Hammondsport on the 12th of October. The object of the meeting was to test the wine-making qualities of the many different varieties of grapes now grown in our country. Such a test was thought especially desirable in this remarkable season, which will go down in history as by far the most favorable to the grape of any ever yet known. The varieties presented for examination were numerous, embracing almost all those of any repute as wine grapes; and the specimens, in many instances, were of superior character — such, for instance, as the Iona, weighing a pound and two ounces to the bunch.

A special committee to examine the grapes was appointed, consisting of Hon. Marshall P. Wilder, for New England, chairman; Hon. John Stanton Gould, of New York, secretary; Dr. John A. Warder, of Ohio, chemist; Charles Downing, and James H. Ricketts.

The first day was devoted entirely to the test by the saccharometer, the second to the acidometer — the former showing the quantity of sugar, and the latter the acid contained in the fresh juice. We give below the result of the saccharometer test of some of the varieties, and where more than one test of the same variety was made, the result given is the highest obtained.

Catawba, 96; Isabella, 84; Diana, 94; Iona, 102; Delaware, 115½; Walter, 105; Raritan, 112; Eumelan, 103; Putnam (black), 100; Clinton Seedling (white), 86½; Norton's Virginia, 98; Clinton, 97; Concord, 80; Theodosia (a new variety), 64; Adirondac, 83; Israella, 86.

The following is the result of the test for acid, the numbers denoting that the must contains so many one hundred thousandth parts of acid. As with the saccharometer test, when more than one sample was tried, the highest result is given.

Catawba, 775; Isabella, 710; Diana, 675; Iona, 775; Delaware, 560; Walter, 375; Raritan, 560; Eumelan, 400; Putnam, 400; Norton's Virginia, 900; Clinton, 1000; Concord, 550; Theodosia, 1330; Israella, 500.

The meeting was one of great interest, as well as benefit to the grape-growing community, in obtaining and recording facts in regard to the grape crop of this remarkable year, which in future time will be of great interest in the history of grape culture. What added much to the pleasure of the occasion was a collation and speeches at the close of the first day, and still more, the presence of the ladies at a collation in the middle of the day.

For this report, we are under obligations to the chairman and secretary of the special committee. The official report of the secretary will contain, besides the result of all the tests, a statement of the soil, exposure, cultivation, distance apart, mode of pruning and training, age of vines, and time of picking, from which it is hoped that useful deductions may be drawn.

GRAPE EXHIBITION IN NEW YORK.—As we have no horticultural society in New York city, B. K. Bliss & Son, 23 Park Place, have run a private society on their own account. In June last they held a strawberry exhibition, which was a great success; and now we have to record a similar report in regard to a grape show held at the same place on September 27–30. Two hundred and fifty dollars were offered in premiums, which had the desired effect, bringing the choicest fruits from all points of the country. The judges made the following report and awards:—

NEW YORK, Sept. 28, 1870.

The committee who were selected to examine the grapes on exhibition respectfully submit the following awards, as in their judgment deserving of the premiums offered. In making the awards for the best new native seedlings, the committee wish to state that their merits were decided upon from what they saw of the fruit on the tables, they knowing nothing of the character or habits of the vines.

CHARLES DOWNING.

A. S. FULLER.

P. T. QUINN.

Native Grapes.—For the best and largest collection of correctly named varieties, four bunches each, twenty dollars, to John Dingwall, Albany, N. Y.; for the second best, ten dollars, to John Knox, Pittsburg, Pa.

For the best six bunches Allen's Hybrid, three dollars, to Horace Eaton, Boston, Mass.

Best six bunches Catawba, three dollars, to H. W. Murtfeldt, Newburg, N. Y.

Best six bunches Canada, three dollars, to John H. Ricketts, Newburg, N. Y.

Best six bunches Creveling, three dollars, to Horace Eaton.

Best six bunches Croton, three dollars, to S. W. Underhill, Croton Point, N. Y.

Best six bunches Clinton, three dollars, to E. H. Clark, Newburg, N. Y.

Best six bunches Delaware, three dollars, to John H. Ricketts.

Best six bunches Diana, three dollars, to John H. Ricketts.

Best six bunches Iona, three dollars, to Henry Cornell, Newburg, N. Y.

Best six bunches Isabella, three dollars, to Horace Eaton.

Best six bunches Martha, three dollars, to G. W. Campbell, Delaware, O.

Best six bunches Mottled, three dollars, to G. W. Campbell.

Best six bunches Rebecca, three dollars, to John H. Ricketts.

Best six bunches Salem, three dollars, to J. W. Helmer.

Best six bunches Senasqua, three dollars, to S. W. Underhill.

Best six bunches Walter, three dollars, to L. M. Ferris & Son, Poughkeepsie, N. Y.

Best six bunches Wilder, three dollars, to Horace Eaton.

Best six bunches Adirondac, three dollars, to Horace Eaton.

Best six bunches any other sort, three dollars, to John H. Ricketts, for Elsingburgh.

For the best seedling (never before exhibited), white, ten dollars, to Dr. Weeks ; black, ten dollars, to John H. Ricketts.

Foreign Grapes grown under Glass.—For the best three bunches of any black sort, not a Muscat, five dollars, to L. L. Hyatt, New Brunswick, N. J., for Black Prince ; second best, three dollars, to R. B. Campbell, Mamaroneck, N. Y., for Black Hamburg. Best three bunches of any white sort, not a Muscat, five dollars, to L. L. Hyatt, for White Syrian ; three bunches of any other sort, five dollars, to L. L. Hyatt.

The following is a description of Mr. Rickett's seedling, which received the premium for the best black grape: Bunches large, occasionally shouldered ; berries large, slightly oval, nearly black, with slight bloom ; flesh tender, breaking somewhat like the foreign sorts, although there is a perceptible toughness near the centre, which shows that there is native blood in the variety. In flavor it is first rate, being sweet, with just sufficient sprightliness to prevent cloying the palate.

The vine, of course, was not exhibited ; but we saw it a few weeks since, and it appeared to be a healthy and vigorous grower. The leaves were very large, of good substance, and also healthy. It was raised from the Concord, fertilized by Black Hamburg, and it shows the good qualities of both parents.

Rural New Yorker.

MASSACHUSETTS HORTICULTURAL SOCIETY. — August 20, a fine display of fruiting grape vines in pots was made by A. G. Peck, of Arlington. The varieties were Sweetwater, Black Hamburg, Grizzly Frontignan, and White Frontignan. A gratuity of five dollars was awarded.

The prize for the best collection of apples, not less than three varieties, was awarded to Asa Clement, for Bemis Sweet, Gravenstein, Early Sweet Bough, Foundling, Cole's Quince, Red Astrachan, Summer Sweet Paradise, Williams, Connecticut Sweet, Early Joe, Spalding's Early Seedling, and Summer Rose. The prize for the best dish of twelve specimens to Warren Heustis, for Red Astrachan ; second, to Asa Clement, for Williams ; and third, to Benjamin G. Smith, for Early Sweet Bough. For the best dish of pears, to Davis & Bates ; second, to Henry Vandine ; and third, to John C. Park — all for Clapp's Favorite.

Henry Vandine exhibited Green Gage, Ives's Seedling, Apricot, and Earle's Yellow Gage Plums, which received a gratuity of two dollars.

A. Wellington received a gratuity of two dollars for Phinney watermelon, planted and grown in the open ground, without any protection. From Ridge Hill Farm, Trophy tomatoes, one specimen, weighing one pound and two ounces.

The prizes for petunias were awarded, first, to A. McLaren; and second, to James Nugent. For the best display of *Lilium lancifolium* and *auratum*, to Francis Parkman.

Herbert Gleason made a fine display of Balsams, receiving a gratuity of two dollars. From J. G. Barker, a beautiful vase of ferns and orchids, receiving a gratuity of two dollars. Joseph Breck exhibited *Dianthus Hedderwigii*, Mrs. John Ruggles double Japan lilies, and Mrs. M. B. Rolf a Turk's Head cactus. A gratuity of three dollars was awarded to Mrs. W. S. Horner for two hundred and sixty varieties of native plants, and two dollars to E. H. Hitchings for the following rare wild flowers: *Parnassia caroliniana*, *Gerardia quercifolia*, *Sabatia chloroides*, — a most beautiful flower, but which, unfortunately, does not take kindly to cultivation, — *Mikania scandens*, and *Cassia Chamæcrista*. To George C. Craft, a gratuity of three dollars, for a fine stand of gladiolus, including La Candeur, Romulus, Stella, Ornement des Parterres, etc., and the same to J. S. Richards for seedling gladiolus, among them a white one, thought to be of finer form than La Candeur.

August 27. — The prize for the best collection of plums, not less than four varieties, was awarded to Mrs. T. W. Ward for five specimens of Columbia, Washington, General Hand, Imperial Gage, Jefferson, Yellow Gage, and one unnamed variety. For the best single dish, to Henry Vandine, for Jefferson.

For the best dish of peaches, open culture, to J. E. Hodgkins, for Hale's Early; second, to Davis & Bates, for Hale's Early; and third, to J. C. Park, for Cool-edge's Favorite. For the best dish, under cold house, or pot culture, to Mrs. Ward, for Crawford's Early, and the second, also to Mrs. Ward, for Troth's Early.

For the best dish of figs, to Walker & Co., for Brown Turkey.

For the best dish of pears, to Galen Merriam, for Clapp's Favorite; second, to Amos Bates, for Clapp's Favorite; third, to J. B. Loomis, for Rostiezer; and fourth, to Davis & Bates, for Clapp's Favorite.

Benjamin G. Smith exhibited the finest dish of Early Sweet Bough we have ever seen, and also fine Williams; he received a gratuity of three dollars.

G. F. Waters exhibited Miller's Burgundy grapes, and a seedling peach of fine quality, for which a gratuity of one dollar was awarded.

Joseph H. Bell, of Malden, exhibited four green flesh melons, weighing thirty-five pounds, which received the first prize.

Daniel Clark received the first prize for muskmelons.

Fine displays of vegetables were also made by James Comley and Daniel Duffy, gardener to A. Lowell.

The first prize for the best twenty named varieties of gladiolus in spikes was awarded to A. McLaren, for Le Poussin, Milton, Sir J. Paxton, Mons. A. Brongniart, Molière, Brilliant, Bernard de Jussieu, Princess Mary of Cambridge,

Norma, Agatha, Felicien David, Urania, Hector, Isabella, Etendard, Cherubini, Mozart, Eugene Scribe, Elizabeth. For the best ten named varieties, to George Craft, for Lutea, Lucia, Lieutenant Stearns, Celia, Cherubini, Eulalie, Finette, Eleonora, Impératrice Eugénie, Mrs. Sherwin. For the best display of named or unnamed varieties, to George Craft.

D. Duffy, gardener to A. Lowell, received a gratuity of five dollars for a fine display of *Amaryllis Belladonna*.

September 3. — The prize for the best collection of pears, not less than three varieties, was awarded to Henry Vandine, for Brandywine, Clapp's Favorite, Omer Pasha, and Tyson; second, to William A. Craft, for Andrews, Bartlett, Johannot, St. Ghislain, and Golden Beurré. For the best single dish, to Davis & Bates, for Bartlett; second, to George H. Jones, for Clapp's Favorite; third, to Alexander Dickinson, for Moore's Pound; fourth, to S. Phipps, Jr., for Andrews.

For the best dish of peaches, to Davis & Bates, for George IV.; second, to J. C. Park, for Cooledge's Favorite; third, to R. L. Hodgdon, for George IV.; fourth, to J. E. M. Gilley, for Hale's Early. S. A. Nelson exhibited two fine seedling peaches, one of which, a white-fleshed variety, was thought by the committee to be equal in flavor to George IV.

Josiah Crosby received the first prize for Large Round Purple Egg Plants, and the second for Black Pekin.

Andrew Wellington received a gratuity of two dollars for Cassabar melons (green flesh).

The prize for the best twenty varieties of verbenas was awarded to James O'Brien for Norval, Radiant, Leopard, Flirt, Ball of Fire, William Dean, Black Diamond, Nondescript, Richard Cobden, Miss Bliss, Quadroon, Brunette, Bird of Paradise, Craigmiller, White Fawn, Meteor, Rustic Beauty, William Parker, Ella, and Diana.

For the best thirty asters, not less than ten varieties, to James Comley; second, to J. B. Moore; third, to A. McLaren. For the best twenty asters, not less than six varieties, the second prize to James Nugent. For the best sixty blooms of Pompon asters, not less than six varieties, to Hovey & Co.; second, to James Comley; third, to James Nugent.

Hovey & Co. received a gratuity of two dollars for the following novelties: *Stokesia cyanea*, *Zephyranthes atamasco*, *Ipomœa pandurata* and *hederifolia*, *Vallota purpurea superba*, and *Arum orientale*.

September 10. — The premium for the best four bunches of grapes of any early variety was awarded to Alexander Dickinson for Adirondac; second, to Eben Snow, for Delaware. For the best two bunches of any variety, to Davis & Bates, for Iona; second, to J. C. Park, for Adirondac; third, to Eben Snow, for the Creveling.

For the best dish of apples, to John G. Barker, for Wormsley Pippin; second, to Warren Heustis, for Gravenstein; third, to John Owen, for Porter; fourth, to A. Wellington, for Foundling.

J. W. Adams, of Springfield, exhibited a fine dish of apples marked Early Congress, which were decided by the committee to be Gravenstein.

W. C. Strong showed the Bullard Crab, a beautiful Siberian, of a dark purple color, with a thick blue bloom.

W. H. Wilcox received a gratuity of two dollars for Eumelan grapes, Mrs. Ward a gratuity of three dollars for a large and handsome collection of plums, and Ernest S. Benson two dollars for a fine dish of Gravenstein apples.

A new grape, called the Amber Queen, was tested by the committee, and regarded as promising.

E. U. Sewall exhibited a white-fleshed seedling peach, of fine quality. J. W. Foster and F. B. Wallis also exhibited excellent seedling peaches.

The prize for the best pair of watermelons was awarded to Daniel Clark; his specimens weighed thirty-three and thirty-eight pounds; second, to George Hill, for Mountain Sprout.

James Comley exhibited nine varieties of tomatoes; also, Turban squashes, and Bresee's Peerless potato, receiving a gratuity of two dollars.

Benjamin G. Smith received the first prize for Large Lima beans, and C. E. Richardson the second.

The prize for the best thirty double zinnias, not less than six varieties, was awarded to Hovey & Co.; second, to Joseph Breck; third, to James Nugent. For the best twenty, of not less than four varieties, to George Craft. For the best double white zinnia, to James Nugent. For the largest and best display of wild flowers, to E. H. Hitchings, including *Sarracenia purpurea*, *Sabbatia chloroides*, *Liatris scariosa*, *Limnanthemum lacunosum*, *Parnassia caroliniana*, *Sagittaria*, sp., *Coreopsis rosea*, and a species of *Isoetes* — a curious plant, bearing its seed at the base of the leaves. Second prize for wild flowers to Miss M. E. Carter.

Mrs. T. W. Ward exhibited two superb dishes of exotic plants; also *Crocea grandiflora*, superb double pelargoniums, and *Amaryllis Belladonna*, receiving a gratuity of four dollars.

Andrew Wellington received a gratuity of one dollar for *Cliaanthus Dampieri*, grown in the open air.

George Craft, J. S. Richards, and Curtis & Cobb made fine exhibitions of gladiolus.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

NEW PLANTS. — *Cymbidium canaliculatum* (Bot. Mag., t. 5851). — This interesting orchid was sent to England by Mr. John Veitch during his collecting voyage in Australia and the Western Pacific. It is a variable plant, widely distributed from the temperate climate of Hunter's River, in latitude thirty-three degrees south, to the torrid and arid shores of Arnheim's Land, in thirteen degrees north, and Cooper's Creek, in Central Australia, where, according to Mueller, it is the only known orchid.

Miltonia Warszewiczi (Bot. Mag., t. 5843). — "This appears to be one of the most copious-flowering species of *Miltonia* in cultivation." It is a fine plant, and a perfect harlequin in coloring.

Arenaria purpurascens (Bot. Mag., t. 5836). — A lovely Alpine plant, native of the Pyrenees. It has red stems, bright-green ovate leaves, and pale pink star-like flowers.



CAMPANULA RAINERI.

Campanula Raineri (Flore des Serres, 1908). — An exquisitely beautiful hardy herbaceous plant, found wild on the borders of the Lake Como, in Lombardy. The growth is dwarf and compact, the flowers clear-azure blue.

Cyclonema myricoides (Bot. Mag., t. 5838). — A small stove shrub, allied to *Clerodendron*, flowering in spring. It may be roughly described as having leaves like a hibiscus, and flowers like violets, but with long, projecting, curved stamens.

Primula cortusoides amœna grandiflora (Flore des Serres, 1925). — A fine large-flowering variety of one of the most beautiful of hardy herbaceous plants.

Houlletia odoratissima, var. *antioquiensis* (L'illust. Hort., 3, xii.). — A fine orchid, native of Columbia, and therefore adapted for "cool" culture. The flowers occur in bold racemes, dull brown in bud, but, when expanded, of the deepest shade of brownish maroon.

Paranephelius uniflorus (Bot. Mag., t. 5826). — A fine, hardy herbaceous composite from Peru. It may be likened to a *Gazania* in growth, and in its fine, bold, orange-colored, star-shaped flowers.

Eritrichium nanum, Dwarf Alpine Eritrichium (Bot. Mag., t. 5835). — An exquisite little plant, which would defy the most cunning pencil to portray its beauty faithfully. "In intensity of color, the blue of *Eritrichium nanum* is equalled only by that of the Alpine gentians, whilst it is of a much more azure hue than any of these, approaching most nearly to the deepest blue of the sky at a point of the heavens opposite the sun's position as seen on a cloudless day from the elevation the plant itself inhabits. This species is found along the whole range of the Alps, from the South of France to Carniola, always growing in stony places fed by snow-hills, at elevations of from six to twelve thousand feet, thus attaining a locality equal to or exceeding that of any other European dicotyledonous plant. Mr. Backhouse's specimens flowered in May of the present year." *Floral World.*

ON THE GROWTH OF TIMBER TREES. — The following account of the comparative growth, or increase in height and circumference of stem, of some of the various coniferous plants which have been introduced into this country within the last half century, may be found interesting at the present time, when the question of the adaptability of such trees to cultivation on a large scale, with a view to profit, as timber, is occasionally cropping up. In the dimensions given, the circumference of the bole or stem has been invariably taken at a height of three feet from the ground-level, and the height by measurement.

1. *Cedrus Deodara*. — Planted in 1832; height in 1837, six feet; in 1850, thirty-two feet, ten inches; in 1870, sixty feet; circumference of bole, seven feet. This is evidently a cutting plant, and not a seedling, and has very much the character of the Cedar of Lebanon.

2. *Abies Morinda*. — Near the above, and planted at the same time; height in 1837, seven feet; in 1850, twenty-seven feet; in 1870, fifty-seven feet; circumference, seven feet, six inches. It is a very handsome plant when in good foliage, and well feathered to the ground.

3. *Pinus ponderosa*. — Also planted in 1832. This has a very fine bole, which carries its thickness well upwards. It is sixty-five feet high, and the circumference of the stem is eight feet. I calculate that there are now quite seventeen feet of timber in it. This appears to me to be one of the most likely conifers to make a valuable timber tree in situations similar to those in which the Scotch fir flourishes, and, no doubt, the quality of the timber will be quite equal to, if not superior to, that of the Scotch fir, if the accounts which have been given of it are correct.

4. *Abies Douglasii*. — Planted in 1832; height in 1837, fifteen feet, three inches; in 1850, forty-eight feet. In the frost of 1860-1 eight or ten feet of the leader was cut off, but it has now recovered, and is sixty-five feet high; circumference of bole, seven feet, six inches. It carries its thickness up well, and appears likely to be equal, if not superior, to the spruce.

5. *Pinus insignis*. — Planted in 1842; two feet, four inches in height; in 1850, twenty-five feet, six inches, and now sixty feet, with a circumference of the bole, at one yard, of eight feet, four inches. This is a very noble plant, and is the only one out of many which was not injured in the frost of 1867. The branches,

which are proportionately very large, radiate from the stem in a peculiar manner, extending to a great length — nearly thirty feet ; and, from their weight of foliage, they gradually bend down to a horizontal position. Should this tree be spared to become aged, I have no doubt whatever that it will be one of the most striking and picturesque of the whole tribe ; but I should almost fear that its very rapid growth would militate against its intrinsic value as a timber tree until very old.

6. *Abies cephalonica*. — Near to, and probably planted at the same time as, number 5. It is a very handsome specimen, nearly fifty feet high ; circumference, six feet.

7. *Sequoia sempervirens* (*Taxodium sempervirens*, Lambert). — From a cutting struck in 1848, planted in 1850 ; is thirty-five feet high, and six feet in circumference of bole. A Douglas fir, planted near this on the same day, is thirty-five feet high, and three feet, six inches in circumference, and a *Cedrus Deodara*, thirty feet high, and two feet, four inches in circumference.

8. *Sequoia* (*Wellingtonia*) *gigantea*. — Planted in March, 1855 ; pulled up by a boy, with an eye to the beautiful, in May ; discovered in a bedroom window ; brought back and replanted, minus its splendid roots. It is now thirty-five feet high ; the circumference of the stem, at three feet, is six feet, and round the base, nine feet. I am sorry to add that the foliage, both of this specimen and of most of the coniferous plants about the place, has suffered very much indeed from the piercing east winds, accompanied with severe frost, which occurred on February 12, of the present year ; but I hope they will recover in due time. Such a combination of wind and frost is by far the most severe that has occurred during my experience, and I shall be very agreeably surprised if we do not find, as the season advances, that more injury than we expect has been done.

9. *Cryptomeria japonica*. — Planted in 1847 ; is forty feet high, and has a circumference of three feet, four inches. The timber of this tree is said to be very valuable ; and certainly the slow rate at which the stem increases, in comparison with others of the same age, might lead to the inference that its timber would be closer grained and stronger, as a larch which is grown slowly in an exposed situation is of better quality than one grown much faster in a low and sheltered place.

By way of comparison, the following authentic facts with regard to the present size of older trees may be useful as a guide : A Scotch fir, planted in 1808, is now sixty-five feet high, with a circumference of stem of eight feet at a yard from the ground. A Silver fir, planted at the same time, is eighty feet high, with a circumference of nine feet, six inches. Three Cedars of Lebanon, also planted in 1808, have each a full circumference of nine feet, and an average height of sixty-five feet. The timber of this tree is valueless where strength is required, being very brittle, and incapable of bearing any strain ; it has a powerful and very agreeable odor, and pieces of it placed among the clothes in a wardrobe help to keep the moths in check. A Turkey oak (*Quercus cerris*), planted in 1808, is sixty feet high, with a circumference of eight feet. A Cork tree (*Quercus suber*), planted in 1808, is nearly seventy feet high, and has a circumference of seven feet, nine inches. A birch, planted at the same time as the last, is sixty feet in height, and has a circumference of six feet, six inches. Lastly, a common oak, the acorn of which was sown in the place where the tree now stands in Novem-

ber, 1807, is about sixty feet high, and the bole is six feet, two inches in circumference at a yard from the ground.

John Cox, Redleaf, in Florist and Pomologist.

PROPAGATING GLOXINIAS. — Insert the leaf-stalk like an ordinary cutting, or cut the principal ribs into short lengths, with a portion of the parenchyma attached, and insert these edgewise, like ordinary cuttings, in silver sand, in well-drained, properly prepared cutting-pots. Place them in a hot-bed or warm propagating pit, shade and water moderately; or cut through the midrib at intervals, fix the lower end of each portion with a peg, run some silver sand about the cut, and keep shaded in a close, moist frame, with a brisk heat. They should root from every cut.

Gardener's Chronicle.

HEDYCHIUM GARDNERIANUM. — This fine plant grows to a height of six to ten feet, and flowers gloriously if well managed. The principal requisites of success in the cultivation of the plant are five in number, namely, a light, rich, sandy soil; a sufficient temperature when growing, say, seventy to eighty degrees; abundance of water while growing; a thorough rest, with small allowance of water, in a temperature of forty-five to sixty degrees; full exposure to light at all seasons. Propagation is effected by division. The best compost for them is one consisting of equal parts mellow loam, leaf-mould, thoroughly rotten hot-bed manure, and sharp sand.

Floral World.

THE CHATSWORTH CONDUIT EDGING TILE. — In the midst of the drought of the last summer, — the severest known within the present generation, — there fell in two hours' time *five inches* of rain, one ninth of the average annual rainfall. This shower was quite limited in extent, as such ones generally are; but where it reached, houses and streets were flooded, and in gardens and fields a large part of the water must have flowed away on the surface, without affording the slightest benefit to vegetation. This was, no doubt, an extreme case; but how many times, when thoughtful cultivators have seen a surplus of rain flowing away, have they said to themselves, "If we could but store up this water against a time of need!"

We suppose there is hardly a spot in the country where the rain-fall is not sufficient to afford an ample supply of water to every plant, if it could only be distributed over the season; and here is an invention that seems to be just what is wanted to utilize it. It is contrived by two English gardeners, but in our hot summers must be even more useful than in England. It has occurred to us that the upper part of the tile might be made with slight projections, by means of which the two parts could be cemented together, and which would leave narrow openings to receive the water, without the use of the zinc mentioned in the description, which is from the *Florist and Pomologist*.

"In a season like the present, when the supply of water to our gardens is of more than usual importance, it is gratifying to find that the Messrs. H. Doulton & Co., of Lambeth, the eminent earthenware manufacturers, have brought out a new form of border-edging tile for gardens, the Chatsworth conduit edging tile, which promises to be a very material aid in securing a supply of water of the

best kind for gardening purposes, namely, that which falls from the heavens. This tile is the joint contrivance of Mr. Speed, the Duke of Devonshire's talented gardener at Chatsworth, and myself. Mr. Speed, on noticing after a storm that a quantity of water stood inconveniently upon a garden walk, and in a place where water was always scarce, thought, 'Why could not that water, and all the water that falls upon the walks, be stored in tanks underneath them, ready for use when wanted?' The notion was mentioned to me when I happened to call

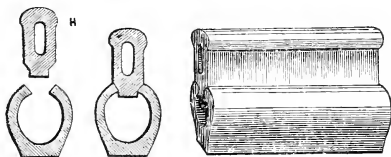


FIG. 1.

shortly afterwards, and the result is the tile now presented to the public, and of which fig. 1 shows a section and perspective view.

"The tile consists of two parts; first, a flat-soled conduit, with a slot along the upper side, into which the tile, H, fits, and which is held in its place by means of a little weak cement. At the time of fixing the tiles, a piece of thin zinc or tin is placed between the parts on the lower side until the cement becomes set, and through the chink thus formed, when the pieces are withdrawn, the water finds its way into the conduit, and thence to the tanks provided to receive it, or, if not wanted, passes away into the general drains of the garden.

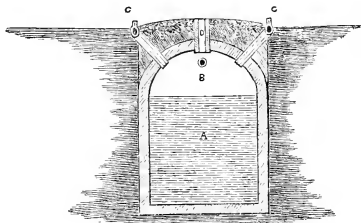


FIG. 2.

"As will be seen by the section of the tank and walk (fig. 2), the latter covers the conduit completely; and if the walks are formed of superior materials, as all walks ought to be, it is clear that the greater part of the water which falls upon them must be carried into the tank, A. The conduits are connected with the tanks, as shown at C, while at D is a cast-iron pipe, with a plug, through which the feeding-hose of the garden engine may be dropped to draw up the required supply of water. At B is shown the end of a common drain-pipe, through which, when the tanks are full, the waste water passes from the highest to the lowest

point of the garden, and thence to the main drain. The advantage of this arrangement is, that if there is an extra supply of water from any outside source, it is only necessary to convey it to the tank at the highest point of the garden, and from it all the other tanks which may be connected with this upper one will be filled.

“It is not necessary to dilate upon the importance of these arrangements. Too many of us have felt during the present season the want of a copious supply of water; and it may be safely averred there is no labor of the garden so liable to be scamped as that of watering, be it the washing of wall trees, or the soaking of their roots, when the water necessary for the purpose has to be carried or wheeled a considerable distance prior to use. Here, as will be seen by the annexed plan of a garden (fig. 3), the tanks are so placed as to admit of the water being distributed with the greatest ease; and it is not too much to assume that, with an arrangement of this kind, two men, with a garden engine, or a lady, with her ‘handy-man,’ would do more effective watering in a few hours than half a

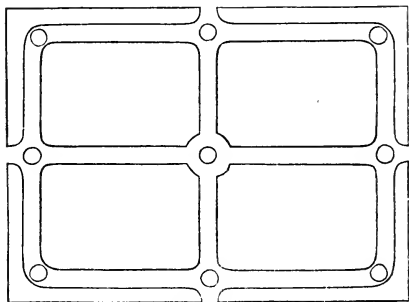


FIG. 3.

dozen men with the usual means would in a day. If it is desired, a pound or two of guano, or any other concentrated manure, can be dropped into the tanks, and there will be a supply of liquid manure, or, by the same rule, lime may be thrown in, and there will be a supply of lime water in a few minutes.

“Whether, then, we look to the palatial gardens of the nobility, or the simple plots of the artisan or laborer, the new conduit tile will confer a great boon upon the gardening public. Of course, its form may be varied to suit the requirements of designers; but the conduit itself will be as useful to the architect in the forecourt, or in the elaborate geometric garden, as it will be to the gardener. Tiles for edging grass verges are in preparation; and these once properly fixed will do away with the edging-knife, and the raw, dark edgings which are such a dis-sight in most gardens every spring, and will secure what has long been desired, a perfectly true and even grass verge to our walks. The tiles are manufactured in terra cotta, and, considering the material employed, are sold at a reasonable price.

W. P. Ayres, Nottingham.”

LARGE PLANTS IN SMALL POTS. — Many an amateur would offer his head to know how to grow large plants in small pots. Not one, however, of those who would make the offer would be ready for decapitation when the time arrived, for each would want to keep his head in order to see and understand the very business for payment of which a decapitation fee was offered. At all nurseries, and in all well-kept private gardens, large plants in small pots are to be seen in perfection. In many cases the most remarkable thing about them is, that they stand on their feet like peg-tops, without help of rotary motion to keep them steady. The best example we have had in that way was a plant of *Rochea falcata*, with a head measuring eighteen inches square (or more), in a small sixty pot. That plant passed into the possession of a friend in Somerset, and, no doubt, is a bouncing specimen by this time. One of the best hands at the horticultural peg-top business is our able coadjutor, Mr. Fairbairn, of Sion House, who grows an immense number of plants for table decoration. It is of immense advantage to have large plants in small pots for this purpose, because they have to be put into ornamental receptacles when placed on the table, and the smaller the pot the greater the convenience for the decorator. You should see some of Mr. Fairbairn's palms grown for the table, — *Latania borbonica*, for example, — with heads consisting of about twelve fully-developed fronds, two feet or more across, the plants being in 32-size pots, and only three years old. But the reader who is interested in this note cares much more to know how it is done, than to hear of measurements and eulogies. The matter may be summed up in a word, as *good cultivation*; but that is not enough. The drainage of the pots should be perfect, without employing over-much material: the soil should be exactly such as the plant will enjoy, and in the best condition as to texture and grittiness. As all kinds of soils are used for pot plants, it is impossible to give a rule; but in every case the soil should contain a due proportion of some lasting staple, like loam or sound peat, with plenty of vegetable fibre, and a considerable proportion of sharp sand, to prevent pastiness. If manure is allowed, it should always be used in a thoroughly decomposed mellow state. Finally, as to this part of the business, the plants must be potted firmly, for this checks a too rapid growth in the first instance; and also promotes the cramming into the pots of the largest possible quantity of pabulum. Granting the potting is properly accomplished, then the whole life and soul of the affair depends upon the watering. The supplies should be moderate and regular. As all the water that runs out of the pots carries away some of the goodness of the soil, care should be taken not to confound watering with deluging, for they are not commutable terms. It is not necessary to give manure-water until the pots are quite filled with roots; but when they once become quite pot-bound, it should be given constantly in a very weak state. My doctrine of watering will, perhaps, not be generally accepted by this generation, although it is as sound as any other doctrine I have ever promulgated. I hold that the water for pot-plants should always contain some slight amount of manurial matters, in suspension or solution. It matters not how faint may be the dash of sewage so that there be a dash, and this the plants should have from first to last; but at the last, when the soil they are growing in has been washed a thousand times, they should have a stronger solution, to make amends for the poverty of the stuff their roots are fixed in. Lastly, it must be remembered that it is an easy matter to renew a considerable part of

the soil without shifting the plants into large pots. Turn them out, remove the crocks, break away, by the action of the thumb on the ball, as much as possible of the old stuff at the top and bottom, leaving the sides of the ball undisturbed. Now put into the pot one large and hard piece of tile, hollow side downwards, then a few bits of brick of the size of walnuts, next a few crumbs of rich soil. Lower the ball into the pot, and fill up with fresh rich soil, and press firm. It scarcely matters what sort of plant it is, if the rule of refreshing be to put crumbs of tough peat over the crocks, and fill up over the roots with rather fat but quite rotten hot-bed manure.

S. H., in Gardener's Magazine.

TREE MIGNONETTE. — As a winter decorative plant, for baskets, in the house and the conservatory, this is a special favorite here, not only on account of its graceful appearance when grown in a tree-like form, on stems two feet high, with heads from two feet to three feet through, but also on account of the fragrance it diffuses around. Indeed, our plants are the admiration of all who see them.

To have plants in bloom by November, the seed should be sown by the middle of March. We use three-inch pots, thoroughly cleaned and well drained, with a thin layer of moss over the crocks. The soil should be rather free, and put through a half-inch sieve. The pots are nearly filled, the soil gently pressed down, and a few seeds placed in the centre of each, covering them over with soil to about the thickness of the seeds. We give a good watering, and place the pots near the glass, in a temperature of sixty degrees; if the surface is shaded until the plants make their appearance, so much the better. At this stage of their existence, the young seedlings don't relish being often watered.

As soon as the plants are large enough to show which is the strongest, we take all the others away, and put a small stick to the one left, and to this it is tied, as it grows, in order to keep it from breaking at the neck. When about six inches high, it will require another shift into a six-inch pot, observing the same care as before in regard to drainage at this and all future pottings; the soil, moreover, should be only chopped, and some leaf mould, a good sprinkling of sand, and a little soot should be well intermixed throughout the mass. A little of the soot sprinkled over the moss on the top of the drainage, will be beneficial in keeping worms from getting into the pots during the summer.

We find eleven-inch pots large enough for making fine heads. The leading stem should not be stopped until it has reached the height required, and then the six top side shoots will be found to make a fine head if properly attended to, in regard to pinching and tying down to a small trellis made of wire, of the shape of an umbrella. In pinching out the side shoots, a pair of grape scissors will be found best, as they do not injure the stem leaves, which must be taken great care of all through. By growing in a temperature of sixty degrees, near the glass, giving manure-water twice a week after they have filled the last pots with roots, and daily syringing overhead, they will by the month of November amply repay all the labor bestowed upon them.

The same treatment applies to pyramids, only none of the side shoots must be pinched away. We have at present (December 28) plants which, when staked, will be three feet high and as much through.

A. Henderson, Thoresby, in Florist and Pomologist.

CULTURE OF THE MUSHROOM. — In an elaborate article in *The Field*, Mr. Robinson reviews all the methods practised and recommended in the cultivation of the mushroom, and arrives at the following conclusions : —

1. That very careful preparation and frequent turning over of the manure under cover, are not necessary to success, and that it is quite needless to prepare the manure under cover, except when it is gathered in very small quantity, so that a heavy rain or snow would saturate it. But, as it is in the earlier autumn months that it is generally gathered for mushroom beds, there is usually little need of putting it under cover.

2. That carefully picked droppings are not essential, though they may be more convenient. Excellent crops are gathered from beds made with ordinary stable manure, droppings, and long materials mixed as they come ; but when the manure is used as it comes from the stable, it should be allowed to ferment before being used.

3. That the best way of preparing manure for the general culture of mushrooms indoors, is to gather it in some firm spot, and allow it to lose its fierce heat. As it is usually gathered in an irregular way, precise directions as to turning over cannot well be given ; but we are convinced that one turning will suffice when it has arrived at a strong heat, and then it should be thrown together for a week or so, when, in being disturbed and removed to make the bed or beds, its strong heat will be sufficiently subdued. Where large quantities of stable manure are in a fermenting state, there should be little difficulty in selecting material to form a bed at any time. Should it have spent its heat overmuch, it would be easy to vivify it with some fresh droppings.

4. That stable manure may be used when fresh, but that it should be used as short and as dry as possible, and then always mixed with more than a fourth of good loamy soil. If this be kept under cover, or stacked so that it may be had in rather a dry condition, so much the better, especially if the fresh manure, etc., should be too moist. Beds made thus are most suited for cool sheds and the open garden.

5. That a portion, say nearly one fifth to one third, of good and rather dry loam may always be advantageously mixed with the stable manure : the fresher the materials, the more loam to be used. In all cases it helps to solidify the bed, and it is probable that the addition of the loam adds to the fertility and duration of the bed.

6. That a thickness of one foot for the beds, in an artificially heated house, is quite sufficient. Fifteen or eighteen inches will not be too much for beds made in sheds, though we have seen excellent crops on beds only a foot thick, in common sheds with leaky sides. All beds made indoors should be flat and firmly beaten down, though the absence of firmness is not, as some think, sufficient to account for want of success.

Floral World.

THE WISTARIA SINENSIS was introduced from China by the London Horticultural Society, in 1818. The first living plant received is now an aged tree, in the society's garden.

INFLUENCE OF THE STOCK ON THE GRAFT.—It is recorded in a recent number of the *Sud-Est*, an agricultural and horticultural journal published at Grenoble, that a gardener near that place has contributed another interesting observation on the question of the influence of the stock on the graft. He grafted the pear called *Deux Yeux* and *Poire de St. Pierre* on the common Hawthorn, *Cratægus Oxyacantha*. In due time fruit was produced possessing the flavor of the *Deux Yeux* pear, but resembling that of the Hawthorn in a certain amount of roughness, and especially in form. The *Deux Yeux* pear is naturally elongated, slightly twisted, and rather pointed; the graft-hybrid is of shortened oval form, almost precisely like that of the *Cratægus*. The color has also been changed,—it is deeper; as to the flesh, it is firmer, and the fruit keeps better. In commenting on this case, M. Verlot, confirming his own opinion by a reference to that of M. Paul Mortette, remarks that although the pear succeeds for a time when grafted on the hawthorn, it is not of long duration, because as the growth of the pear is more vigorous than that of the hawthorn, there is formed at the junction of the scion with the stock a large swelling. M. Verlot, while admitting that the nature of the stock may influence the flavor of the produce of the scion, is sceptical as to its producing any effect on the form of the fruit. Practically, the use of the hawthorn as a stock for the pear is condemned, owing to the limited duration of the graft, and its use for this purpose should only be had recourse to in cases where the soils are unfavorable either for the free stock or the quince. We cannot shut our eyes to the increasing number of cases of alleged graft-hybridization. Very few of these cases have been submitted to the rigid scrutiny of competent observers; nevertheless, the number of the alleged cases is now so considerable, that the necessity for inquiry and direct experiment becomes urgent. So many interests are involved in this question, that it must not be pooh-poohed because it runs counter to general experience and belief. Admitting, for the sake of argument, that some of the recorded cases are what they pretend to be, it must still be granted that they are quite exceptional, but this very circumstance renders further investigation all the more desirable. In our search after the why and wherefore of the exception, we may perchance be able to light upon some of the “reasons why” for the general rule — itself greatly standing in need of further elucidation.

Gardener's Chronicle.

NEW GRAPE.—Another new grape, *Melville's Perfumed Muscat*, has been raised by Mr. Melville, Dalmeny Park. It is said to be a good deal like the White Muscat of Alexandria, both in bunch and berry, but more golden in color when fully ripe, and sharper, richer, and more perfumed in flavor; very thin-skinned, tender-fleshed, and dissolving in the mouth. Its most striking peculiarity is the delicate, agreeable perfume which it possesses. It is said to have sprung from Snow's Muscat Hamburg, *alias* Black Muscat of Alexandria.

Florist and Pomologist

A “PATRON OF HUSBANDRY” IN THE OLDEN TIME.—St. Fiacre is the patron saint of gardeners. He is said to have died about the year 670.



THE Editors of Tilton's Journal of Horticulture cordially invite all interested in the various branches of horticulture, to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard 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.

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.

ROTTING OF GRAPES IN A GRAPERY.—From the statement, it would not appear probable that the disease originated at the roots. The foliage is said to be vigorous and beautiful. Blackening of the stem of the bunch and rotting of the berries would seem to indicate dampness in the atmosphere of the house, and possibly minute fungous growth. Syringing the vines with the common solution of sulphur and lime, together with a dry atmosphere during the ripening process, would doubtless remedy the evil.

J. C. J., New Martinsville, W. Va. — We know of no remedy for rot in grapes. The best preventive is to plant on dry, well-drained soils, avoiding wet, heavy ones and over-manuring, especially with fresh animal manure, preferring well-decomposed animal or vegetable matter, wood ashes, phosphates, etc. Avoid, also, such varieties as, like the Catawba and its seedlings, are particularly subject to rot. Do not prune too closely in summer, nor overcrop your vines. By observing these precautions you will probably steer clear of the rot.

T. P., Cedar Rapids, Iowa. — You say you have leaf mould and sand. Mix a good quantity of the former and some of the latter with good fresh loam, and your pot plants will grow very well in it. If you have a little thoroughly rotted manure from an old hot-bed or elsewhere, to mix with the rest, so much the better.

E. S. B., Nassau. — Ashes, with a mixture of salt, may be advantageously applied to cabbages for protection against the attacks of the maggot to which the roots are liable, and it will also promote their growth. They may be mixed in the hill at the time of transplanting, or applied about the plant, from time to time, in the process of cultivation. But if by "cabbage worm" you mean the *Pieris rapæ*, which in England does immense damage to the cabbage and other allied plants, by boring into their very hearts, and which has recently been imported into this country, and during the past summer and autumn has devastated the cabbage crop in the vicinity of New York, where it has been often referred to by the city press as "the cabbage worm," we find the following recommendation in the American Entomologist: "If boards are placed among the infested plants, about two inches above the ground, the caterpillars, when about to change, will resort to them, and there undergo their metamorphoses. They may then be collected by hand on the under side of the boards, and destroyed. As the butterflies are slow flyers, they may be taken in a net and killed. A short handle, perhaps four feet long, with a wire hoop and bag-net of muslin or mosquito netting, are all that are required to make this useful implement, the total cost of which need not be more than 50 or 75 cents. The titmouse is said to eat the larvæ, and should therefore be protected and encouraged." The whole article from which we have made the above extract is worthy of your study.

Mr. Quinn, at a late meeting of the New York Farmers' Club, gave his experience in regard to this insect as follows: "I have tried no less than 15 different powders or decoctions, and find the best result from the application of a mixture composed of 20 parts sulphate of lime, 1 part carbolic powder, and 3 or 4 parts of quicklime. This I sprinkle in small quantities upon the leaves and parts affected, making the application in early morning, before the dew is off, or after a shower. Frequent repetition is sometimes necessary." Salt is also a common remedy.

T. D. — Your phlox seed will produce colors more or less distinct from those of the parent. Sow this autumn, and they will germinate far better than if sown in the spring.

AMICUS, New Brunswick, N. J. — The seeds of pines, spruces, junipers, etc., are better sown in the fall. If to be sown in the spring, they should be kept in boxes of earth, so as not to become dry. The following excellent directions are from Hoopes's Book of Evergreens: "For growing the common varieties of evergreens, all that is needed is a simple cold frame with sash. The soil should be dug in the autumn, and prepared very nicely by working sand and well-rotted manure through it, but never, under any circumstances, fresh manure from the stables. The surface should then be raked evenly and smoothly, and the seeds *thinly* sown. We prefer pressing them into the fresh soil with the back of the spade, and covering with a thin layer of earth, then moistening with water from a fine rose. Care must be taken through the winter to prevent the attacks of mice, which are exceedingly partial to oily seeds. An occasional airing on mild days will be beneficial; and should the soil become dry, a slight sprinkling will be necessary. As the warm days of spring approach, the young seedlings will commence showing themselves above ground, and the attention of the gardener is demanded at this particular period. A slight lifting of the sashes during the warmer portions of the day, careful syringing, and an occasional watering will be necessary. As the plants mature their wood, the sash may be dispensed with, for the critical season will be past." An excellent plan recommended by Mr. Meehan, editor of the Gardener's Monthly, is to "place under each corner of the frame, which should be covered with a shaded hot-bed sash, a prop, raising the bottom about three inches above the ground. The advantages of this contrivance will be appreciated when we consider that the most essential conditions in raising evergreens are to obtain a moist atmosphere, protection from the direct rays of the sun, and at the same time a free circulation of air through the plants."

J. R., 114 East Twenty-Second Street, New York. — Your flower is a *Cleome*, and, as nearly as could be determined from the small piece sent, and in the absence of all information as to its habit and place of growth, and the source whence received, probably *Cleome dendroides*. We have repeatedly desired correspondents sending flowers or fruits for name to give us all the information possible on the points mentioned above, and any others that may occur to them; but if they withhold it, and send only a little bit instead of the whole plant, we can only make the best guess possible under the circumstances. The necessity of something more than a flower, and a few adjacent leaves nearly changed into flowers, will be seen from the fact that the leaves on the lower part of *Cleome dendroides* are digitate, while those at the top are simple. *Cleome dendroides* is a native of Brazil, and is figured in Curtis's Botanical Magazine, vol. 61, pl. 3296.

YOUR correspondent S. H. asks if the copper beech ever bears seeds. Two years ago I gathered a quantity of seeds, perfectly ripened, from a copper beech, planted eighteen years. This is the only year, however, in which I have observed seeds upon it.

J. J. D.

P. G., Peterboro', Canada. — Your plant is *Cestrum aurantiacum*. It is a native of Chimalapa, in Guatemala.

S. P. B. complains that his early pears which he allowed to ripen on the trees were mealy and worthless, and wants to know why we cannot have pears which will ripen on the tree. There are a few good pears (and, if you will plant a Rostiezer, you will have one of them) which ripen best on the tree; and perhaps, if we were to try for it, we might gain others: but only a little experience is needed to convince a fruit-grower, that, instead of a disadvantage, it is a great advantage, for a pear to possess the property of ripening when picked early; and our correspondent will think so when once he learns to pick his pears in season. If it were not for this property of early pears, it would be impossible to transport them any distance to market without much more care than they now require; and the trouble and waste of gathering the whole crop is far less than when picked a few at a time as they ripen.

ALICE O., Buffalo. — Your question, "Why the plant-lice (*aphis*) increase so?" is easily answered. An *aphis* comes to maturity in a fortnight, and each one produces about a hundred young. It has been estimated that the progeny of one *aphis* will, in a single summer, amount to a *quintillion*. Bonnet proved by a series of interesting experiments, by isolating an *aphis* immediately after birth, that it was capable of producing young spontaneously; and this property continues even to the ninth generation. When we consider this extraordinary fecundity, we need not wonder at the multitudes of aphides.

N. S. N. — The best and quickest way of testing the fruit of a new seedling is to graft it into the limbs of a bearing-tree. The doctrine promulgated by Mr. Knight, that fruit could not be obtained in this way any earlier than from the original tree, has been proved incorrect in many instances.

M. F. complains of a Duchesse d'Angoulême pear-tree which blossoms annually without setting fruit. If the tree is of sufficient age to bear, we would dig around it, and prune off a portion of the roots, beginning at a safe distance, and coming as close as is judged proper. It is difficult to give precise directions how close to cut without seeing the tree; but the roots generally extend as far or farther than the branches, and they may be shortened in about the same proportion as in shortening in the top. It is characteristic of this variety not to set its fruit well, especially when young; and it is said that the owner of the original tree, which attained a large size without bearing, though it had blossomed full for many years, became tired of waiting, and was about to destroy it, and had actually laid bare the roots, and was putting the axe to them vigorously, when a gentleman passed by who inquired why so fine a tree was condemned. Ascertaining the cause, he said the wounds inflicted on it would probably cause it to set its fruit; and accordingly the tree was spared, and produced a fine crop of its magnificent pears.

If M. F.'s tree is still young, and growing vigorously, we would defer the operation until it at least approaches maturity, and then, if it does not bear, prune the roots sufficiently to give a material check to its growth.

The Glout Morceau pear is also extremely apt to fail of setting its fruit.

MR. EDITOR: Your correspondent "Bismarck," who seems to understand almost everything, was a little at a loss, in the September number, in regard to the "useful and ornamental gourds;" but he is correct in his suspicions that the writer of the interesting article on those vegetables includes our squashes among the "eatable gourds." The name of one of these reminds me of an anecdote of an American gentleman, who, visiting a friend in England, was informed by his host, with much satisfaction, that he had for dinner an American vegetable, which he thought would be very acceptable to his guest. The American inquired the name of the vegetable, and the reply was, that it was a "noy squash" (the first word pronounced like the French *noyau*, and the second to rhyme with *ash*.) The American was much puzzled, as might be supposed, until a careful comparison of notes revealed the new vegetable as an "Ohio squash."

T. G.

L. E. — Any pear of good size and quality will be good to can. They should not be of too melting varieties or too ripe, and those with white flesh present the best appearance. Mr. Martin, the extensive pear grower at Mercersburg, Pa., has found the Howell superior to any other. See Journal of Horticulture, vol. viii., p. 4.

J. B. — The best peach for forcing or for the orchard house. Hale's Early has been found superior to any other for these purposes, and, when grown under glass, appears to be entirely free from the rot which attacks it under out-door culture, and as to size, flavor, and productiveness, is excellent.

H. R. — The little bunches of white down are the woolly aphid (*Aphis lanigera*). It is a terrible scourge of the apple in Europe, where it is, singularly enough, called "American blight," though unknown here till introduced from Europe. They collect about the buds, and other prominences of apple trees, and cause a warty, granulated appearance. We have also noticed them on young elm trees, where limbs had been trimmed off, in the hollow formed by the growing lip. Various applications have been recommended to destroy them; but when there are only a few, as with you, the best way is to crush them. Take a piece of cloth, and rub the infested spots till you are *sure* that *every* insect is crushed, and not a live one left in any cranny or crevice. We have by this means kept them from multiplying; and you cannot do it too promptly, as they increase with great rapidity.

F. R. — Strawberries do not mix their pollen so as to affect the fruit of the current year, but the vines raised from seed fertilized with pollen of other varieties will show the effects of it, and very probably an improved variety will be the result. If you have allowed the runners of different kinds to run together in the beds, so that you cannot now dig up plants for new beds with any certainty of knowing what they are, that is another thing, and you have done what only careless cultivators do. The only way for you to get out of your trouble is to mark some plants when in fruit, and set by themselves to propagate from, or else to send to some careful and honest grower for such varieties as you want.

D. P. I. — Your pears are No. 1, probably Beurré d'Amanlis; No. 2, Andrews; No. 3, probably Sheldon; No. 4, Doyenné Boussock; No. 5, Beurré Clairgeau.

The plant with white and green leaf is *Euphorbia variegata*. The other is *Chenopodium atroplicis*.

L. S. — Crystallizing grasses, or, indeed, crystallizing, as it is called, anything else, depends for its principle on the fact that warm water will hold in solution more alum than cold. Make a saturated solution of alum in hot soft water, and place the grasses in it. When cold, the alum will be deposited in crystals on the grasses. The alum and water must be as pure as possible, a newly-glazed earthen vessel should be used, and great care should be taken in placing the grasses in the solution. We must confess, however, that these crystallized grasses are not to our taste, any more than bouquets of dyed amaranths. A tastefully arranged bouquet of dried grasses is very graceful and beautiful; but when it comes to dyeing them, or covering them with crystals, it is rather too much like "painting the lily."

CAN you tell me the reason of my failure to raise the *Celastrus scandens*, and the different varieties of woodbines, from seed? *Lonicera.*

We have met with precisely the same trouble, and never could discover the cause, while a neighbor succeeded with the greatest ease. We sowed the berries in autumn, before they were dried, in a well-dug bed, but not one came up; and we should be glad to be informed by those who have been more fortunate of the method pursued.

I AM trying various experiments with grapes this season, the result of which your readers may learn if successful. Among these is the making of raisins out of some of our best varieties. In your latitude, you cannot have an idea of what perfection grapes come to out here. *S. M.*

BLUFFTON, Mo., Sept. 12, 1870.

GRAMINEUS. — You will find directions how to make a lawn, in an excellent article by Mr. Breck, in our vol. v., p. 216. To put the whole thing in a nutshell, we might say that deep trenching (or subsoil ploughing) and thick sowing are the indispensable requisites to success. Autumn is a good time to prepare the soil for sowing in the spring.



NOTES OF A HORTICULTURAL VISIT TO CALIFORNIA. IV.

By MARSHALL P. WILDER, CHARLES DOWNING, GEORGE ELLWANGER, and P. BARRY.

GROUNDS OF DR. MERRITT.

WE drove hastily through these beautiful grounds, the doctor being absent. He has done and is doing much for Oakland. Besides his own fine residence and grounds, he has erected a large number of handsome cottages, and is now engaged in improving the grounds around them. Such men are public benefactors.

NOLAN'S BOTANIC GARDEN.

One of our most interesting and instructive visits in Oakland was to the nursery of Mr. Stephen Nolan. The grounds comprise about six acres of good soil, very eligibly situated for the business. It is well laid out in compartments, compactly planted, and kept in excellent order. The collection of trees, especially of coniferæ, is very large, and embraces all the more important California species that have been brought to notice.

We will name only a few of the more conspicuous objects that

attracted our notice: *Pinus tuberculata*, twelve feet; *P. Coulteri*, eight feet; *P. monophylla*; *P. Torreyana*; *P. ponderosa*; *P. contorta*. *Cupressus chinensis*, a silvery, beautiful tree; *C. nepaulensis*, twelve feet; *C. excelsa*, fine; *C. glauca*, twelve feet; Dwarf Cypress of Monterey, beautiful; *C. Macnabiana*; *C. funebris*. *Eucalyptus stricta*, one of the best species. *Acacias*, *mollissima*, *implexa*, and *melanoxylon* are very interesting in their foliage. *Pittosporum eugenoides*, a very handsome and popular shrub, found in the best gardens, cemeteries, etc. *Dracæna australis*, ten feet high. *Juniperus glauca*, from Japan, very handsome. *Arbutus Menziesi*, a native tree called the "Madrone," very plentiful on the mountains. *Arctostaphylos fragrans*, the "Manzanita," which everywhere abounds on the hills. Beautiful canes are made of its wood.

Mr. Nolan has a fine collection of California lilies and other bulbs and plants not in bloom at the time of our visit. We regretted that he had no complete catalogue of his plants, and hope he will soon have one.

We visited several other places in Oakland, where we found handsome, well-kept grounds; but the trees and plants noted are such as we have already described, and a repetition would be useless. Through the courtesy of Mr. Nolan we had an interview with Professor Bolander, a well-informed botanist, who gave us much information regarding the trees and plants indigenous to California.

AT THE SUMMIT.

On our return home we spent one day at Summit, the highest station of the Pacific Railroad on the Sierra Nevada. This locality is rich in coniferæ, and is a rich botanical region generally. We found here in the woods, occupying a deserted miner's cabin, Professor A. Kellog, of San Francisco, collecting plants, and he had already a large herbarium prepared for distribution among botanists and institutions at the east. The *Abies nobilis* is the prevailing tree, and with it we found *amabilis* in the forest at this point. The prevailing pine, Dr. Kellog said, was *Jeffreyi*. *Pinus contorta* is also plentiful.

Before reaching the summit we found all up the Western Slope great quantities of *Pinus ponderosa* and *Libocedrus decurrens*. Although

the railroad has been so recently constructed, trees of these species two and three feet high were growing thickly over the sides of the embankments. We found here many interesting plants — a beautiful Dwarf *Spiræa Menziesi*, with red flowers, a Dwarf Mountain Ash, a handsome dwarf-growing Elder, with delicate white flowers (*pubescens*); Penstemons, many species; *Menziesia taxifolia*, great masses of it in bloom; several lilies, and many other plants. Professor Kellogg had found the *Abies Williamsonii* at a short distance up the mountain, just at the snow line. We would have visited the locality, but our places were engaged for that night, and we had to forego the pleasure.

Before leaving the summit we had a pleasant dinner party with friends who accompanied us from San Francisco, and after dinner a snowballing — rather a rarity on the 21st of July. The snow is said to fall here sometimes to the depth of fifty feet in certain localities. The great snow sheds are here, and a wonderful work they are.

SALT LAKE CITY.

Our next stop was at Salt Lake City, Utah. This place is about two hours by rail from Ogden, the junction of the Central and Union Pacific Railroads and the Utah Central. The road runs through a flat country bordering the great Salt Lake, which is in view the whole distance. The villages and farm-houses we pass are of a very humble character, and do not betoken a great degree of prosperity. Salt Lake City contains some twenty thousand inhabitants. It is situated on a plain surrounded by high hills, some of them covered with snow all the year round. The streets are wide, one hundred feet, we think, most of them planted with trees, generally the locust, and on each side is a small stream of water, which supplies every family what they want to use in their houses, and for the irrigating of their gardens. The business part of the city contains some handsome stores, and in the other streets we saw a few good dwellings.

In all the gardens we saw fruit trees looking well, although the grasshoppers had done much damage before our arrival.

The President, W. Woodruff, and Secretary, Robert L. Campbell, of the Deseret Agricultural and Manufacturing Company, met us, and

very kindly gave us all the information in their power about fruit culture in their state. They gave us a statistical report, published in 1867, showing the fruit culture in thirteen counties, as follows: Apples, six hundred and ninety-three acres; peaches, ten hundred and twenty-nine acres; grapes, one hundred and eight acres; currants, one hundred and fifty acres. There are other parts of the state said to be superior to Salt Lake for fruit culture. The season there is not much, if any, in advance of ours.

We were politely received by President Young and his sons and many of the leading men. We were shown through Mr. Young's private garden. Apples, pears, peaches, figs, apricots, plums, and raspberries all looked well. The grapes were trained on sloping trellis, at an angle of about forty-five degrees. The trellis is five feet high, double, about six feet apart at bottom, and two at top, like a roof. The plan was said to succeed well, and is certainly very convenient, and agreeable to look at.

Near the city, and within its limits, is a fine hot sulphur spring. A statistical report on irrigation shows that in nineteen counties nearly four hundred thousand dollars have been expended on canals, dams, ditches, etc., and nearly one hundred and twenty-five thousand acres of land irrigated.

It is twenty-two years since the Mormons came to this place. They were to celebrate their twenty-second anniversary the day we left. All things considered, they have certainly made great progress.

AGRICULTURE.

Although our attention has been mainly given to the Orchard, Vineyard, and Garden, our numerous journeys through the interior of the state have afforded us opportunities of learning something of its Agricultural character. We were everywhere impressed with the immense extent of the fields, and farms, and flocks of cattle and sheep. At the railway stations, too, in many cases, we saw grain bags by the mile, waiting transportation.

We visited one dairy, Millbrae, that of D. O. Mills, Esq., President of the Bank of California, of six hundred cows, only an hour by rail

from San Francisco, on the San José Railroad. The buildings for the accommodation of the stock here are arranged in the best manner, and have a handsome exterior, and the stock is carefully selected, and is being constantly improved. The milk is all sent to San Francisco. The ranch contains thirty-five hundred acres. We met one day a flock of sheep numbering three thousand, being driven to fresh pastures in the mountains.

We were told of one firm, Flint & Bacon, from Maine, who, in 1852, crossed the mountains with two thousand sheep, and now shear one hundred thousand, having a ranch of two hundred thousand acres. We were told of one firm having thirty-five hundred head of milch cows. One gentleman of Sacramento informed us that in 1869 he sold forty thousand dollars' worth of wheat. He farms thirteen thousand acres of land.

One of the evils complained of by many people we met with, is the holding of such large tracts of land by individuals, who refuse to sell at prices which immigrants can afford to pay. We saw it stated in a newspaper by a well-known public man, that in Los Angeles County one might travel twenty-seven miles of highway through one man's land. The valley lands are wonderfully rich and productive, and the climate so mild that farm stock is rarely housed. This accounts for the rapid increase of agricultural production.

It is but little over twenty years since the discovery of gold there, and it was not until many years after that any considerable degree of attention was given to agriculture. For several years the want of experience in that peculiar soil and climate was a great hinderance, and therefore it is safe to say that the last ten or twelve years have produced the results we now witness. The value of the agricultural products in 1869 is stated to be thirty million dollars. This, considering the population of the state,—less than six hundred thousand,—is very great. Indeed, the growth and commerce of the cities of California, and the increase of agricultural and manufactured productions, and of mines, in a period of twenty years, are amazing.

The variety of crops which may be grown in this state is wonderful — including all the farm and garden products of the north. The for-

eign grape produces more abundantly than in any part of Europe. The fig, the orange, and the olive come to great perfection. Silk production promises to be successful. Canals in the Sacramento Valley are projected to promote the culture of rice. The culture of the tea-plant has also been commenced, and is likely to succeed.

ACKNOWLEDGMENTS OF COURTESIES.

These commenced with the reception of a telegram at Omaha requesting our party to meet the California Committee on Monday morning, June 20, at sunrise, on the "Summit" of the Sierra Nevadas. This invitation was immediately accepted, and our answer despatched over the wires. On our arrival at this station, ere the sun had gilded the tops of these snow-clad cliffs, the committee and their ladies came on board the cars with flowers, and fruits, and wines.

This committee consisted of Colonel Warren, Editor of the California Farmer; Professor Carr, of the California University; S. W. Shaw, President of the Fruit-Growers Society; A. P. Halladie, President of the Mechanics' Institute, and other gentlemen, who accompanied us down the mountains to San Francisco, where we found lodgings at the Cosmopolitan Hotel all ready for us. And here we would render to the committee our grateful acknowledgments for this act of courtesy; also for the elegant and appropriate entertainment on the road, and for oft-repeated attentions extended to our party while in California. Our thanks are also due to others for special courtesies — to D. O. Mills and W. C. Ralston, Esqs., of the California Bank, for excursions in the country, especially for the splendid reception and hospitable care of us over night at the palatial residence of the latter at Belmont; to the Hon. Mr. Phelps, Collector of the Port, by whose invitation we visited, in a government vessel, the various forts and other objects of interest in the harbor, and on which occasion we were honored with the company of his Excellency Governor Haight, Major General Ord, military, naval, and other gentlemen and ladies, with a full military band, salutes from the ordnance, and sumptuous provision on board of the boat and at the forts. We desire also to acknowledge the attentions of Mr. Jackson, President of the California Pacific Railroad Company, and other rail-

road and steamboat corporations; of William Blanding, Esq., President of the Buena Vista Vinicultural Company of Sonoma; of General Evans, Mayor, and President Doak, of the Agricultural Society of Stockton; of Judge Crockett, of Sacramento, and Thomas H. Hyatt, of San Francisco. Our grateful thanks are also tendered to the following persons for cordial invitations and elegant collations: to F. D. Atherton, of Fair Oaks; to Messrs. Barron & Bell, of Manor Park, who, although absent, made bountiful provision for us; to Simpson Thompson and family, of Suscol, R. B. Woodward, of Napa, Dr. John Strenzel, of Martinez, Dr. E. S. Holden, of Stockton, Colonel Warren, E. J. Cummings, and Professor Carr, of Oakland. Nor would we forget our obligations to Edgar Mills, C. W. Reed, A. P. Smith, W. R. Strong, and other gentlemen of Sacramento, for bountiful supplies of fruits, which contributed largely to our comfort while on our journey home. And last, not least, we would remember with gratitude the services of Messrs. E. J. Hooper and James B. Saul, who accompanied us on several of our excursions, and especially of Colonel Warren, who, from our first meeting to the last parting on the Sierras, bestowed unwearied pains to promote the pleasure and advance the objects of our visit.

CONCLUSION.

Our tour has been one of continual interest and unalloyed gratification; but these brief notes will not permit of more particular allusion to what we witnessed, — to the heaven-piercing mountains, the fearful passes, and the almost fathomless canyons beneath, — to the majestic monarchs of the forest, towering in awful grandeur over all around them, — to the mammoth products of the field, and the ocean-like plateaus, waving with the golden harvest on every side, — nor to those immense stretches of desolate plains, over which we travelled. Even these impressed us with a sense of sublimity and surprise, suggesting the thought that, although now apparently so barren, they might yet be made fertile, and become the abodes of civilization. Some of these, with alkaline soil, may never be susceptible of cultivation; but it is believed that large areas give unmistakable evidence of fertility, and we were glad to perceive that the good work of planting

forest trees had in some instances commenced on the line of the Pacific Railroad. A vast amount of these waste lands may be made to produce good timber, which will serve as shelter to the crops, improve the climate, add charms to the scenery, give comfort to the traveller, and induce emigrants to locate where, without these evidences of fertility, a state of desolation would exist for ages to come.

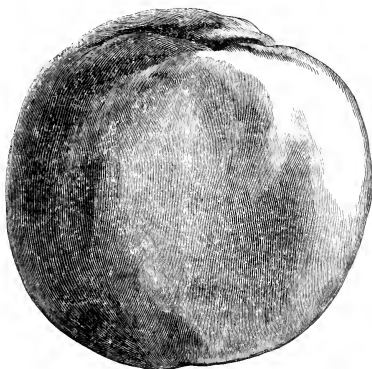
Nor would we close these remarks without expressing our peculiar satisfaction with the construction and management of this great trans-continental Pacific Railroad, and with the comfort and pleasure of travel on the hotel train of the Pullman cars; and although we are for the present deprived of these cars on the Central Pacific Road, we cannot but entertain the hope that this much-desired accommodation may soon be restored.

[We cannot, in closing the account of this horticultural exploration of California, refrain from expressing our satisfaction in being able to record it in a form adapted to permanent preservation. As the successive parts have appeared, we have received from all quarters expressions of the deepest interest in the narrative; which may well be; for if the best possible commission to report on the horticulture of California had been selected from the whole country, and paid for the service, a better one could not have been found than the four gentlemen whose report is now concluded. — ED.]

THE RICHMOND PEACH.

OUR figure of this new variety is from a specimen sent us last year by Thomas J. Pullen, of Hightstown, N. J., and grown in his orchard-house. Mr. Pullen thought it promised to be a valuable acquisition, supplying us with a good yellow peach, ripening before Crawford's Early. This year we have received additional specimens from the originator, Dr. E. Ware Sylvester, of Lyons, N. Y., who states that it was one of two which, in a lot of five hundred seedlings, were the only ones retained for dissemination, and who claims for it that it is as large,

as handsome, and as firm for marketing as the Early Crawford, while more hardy than that variety, and as sweet as any first-rate white peach. As to the last point, we must say that no yellow-fleshed peach that we have ever tasted was equal in quality to George IV. and some other white varieties, but the Richmond is fully up to the first quality among yellow-fleshed peaches. Its hardiness cannot be judged until tested by out-door culture in different localities. In size it is, perhaps, not quite up to the Crawford, but as to beauty and firmness we are disposed to admit all that its originator claims for it.



THE RICHMOND PEACH.

Our description is as follows: Full medium size, or above; roundish; suture slight; mamelon sometimes small and sometimes quite prominent; stem deeply sunk in a narrow depression. Skin yellow in the shade, dotted with red, thickening and deepening to a crimson cheek in the sun; in some places obscurely streaked with dark red, on a ground of lighter red. Flesh a little fibrous, melting, and juicy, sweet, and at the same time sprightly, reddened at the stone, which parts freely from the flesh. Stone pretty large, rough, with a sharp point at the apex. The specimens from Dr. Sylvester were tested September 9.

The leaves have small reniform glands.

CULTURE OF THE MUSHROOM.

By JOHN ELLIS, White Plains, N. Y.

THE culture of this very delicious vegetable in the United States is on but a very limited scale. We must go to France to see it grown extensively; there we find they are cultivated by the mile, in vaults or caverns beneath the earth, and sold in the various markets to the million.

Many persons, no doubt, think that it requires a taste to be cultivated before this delicate luxury can become palatable; but we have yet to learn how it can be possible for a person, when tasting a mushroom stew for the first time, to declare that it could not be repeated, and as often as he sits down to his regular meals. That peculiar flavor given to the Worcestershire sauce, and so highly prized by the epicure all the world over, is derived from the mushroom. We have several imitations of the "Worcestershire" manufactured here, but they all lack that peculiar, rich, delicious *something* that is invariably found in the old original Worcestershire sauce; this, as we have previously stated, is nothing else than the rich mushroom of the English sheep pastures.

Now, mushrooms vary in richness of quality as much as cabbages do; for in the growth of the latter, a number that were grown on poor soil, with but barely enough manure to insure their heading, would, when boiled, be tough and tasteless, and almost impossible to masticate; whereas those grown on deep-trenched and highly-manured ground would be just the reverse, — crisp, soft, and tender, — and would boil in half the time fit for dishing up.

Now, what we wish to call the reader's attention to is the growth of rich mushrooms, and how to get plenty of them, in winter as well as in summer. The situations, or places where the mushroom can be grown, are many and various. For winter culture, of course, the place selected must be clear of frost. Any cellar, where there may be a little spare room, is an excellent place. Underneath a stage of a green-house is a

good situation, provided something be placed under the stage to keep off the water that would soak from pots watered on the stage.

Mushrooms are not so particular as other vegetables as to *where* they are grown. If we cannot give them daylight to grow in, they will grow equally as well in the dark; but it is a mistaken notion to suppose that they *must* be grown in the dark, and nowhere else. When mushrooms are grown in the open light, the spawn never comes to the surface of the ground; but when the beds are in dark cellars, or covered with hay to exclude light, we always find the "spawn" running along the surface. In the former condition the beds are not so productive, but retain their power to produce to a greater length of time. Now, it seems most gratifying to our little bit of selfish nature to cultivate the mushroom in that manner by which we can obtain the greatest possible number from the smallest bed or piece of ground, and we shall endeavor to describe how this can be done successfully.

We have been asked more than once, in the course of our life, "how mushroom *seed* is obtained." Mushrooms never produce seed, in the ordinary acceptation of the term, but are propagated from the spawn before mentioned. This spawn is the root, stem, and branches of the plant, or at least what takes the place of these parts of other plants. The spawn is itself produced from spores (which correspond to the seeds of other plants), and which are borne on the gills found on the under side of the cap of the mushroom.

Now, if we take two or three bushels of horse droppings in a fresh state, and then add to it about one fourth of turfy loam, and mix this together, and then put it into a box, and let it remain for a month or six weeks, we shall find, at the end of this period of time, that we have obtained this amount of spawn, the spores having been eaten by the horse along with his other food. It can be generated in this manner, and if it remain still longer, it will produce the mushroom: that is, if the conditions are made favorable; and to this end, both as regards the spawn in the first instance, and secondly the mushroom, the compound so put together must not be allowed to get heated unduly. This is one reason why soil is added to the droppings. As a general rule, there should be no more heat in it than the hand can feel quite comfortable

in. It requires some experience to be able to judge accurately of the good quality of spawn. If in its appearance it resembles white threads, interwoven through its substance, gardeners call it poor, or useless, as it has "ran;" but when its appearance resembles a fine mould, somewhat like the kind of mould we see on various things through the summer in dwelling-houses when the season is a little damp,—this, then, is the kind of spawn that is good, and readily bought up by the connoisseur. When perfectly dry, and kept dry, such spawn will keep good for several years. Then, again, we have what is termed "patent" spawn,—for there is "patent" to mushrooms as well as to everything else. We, however, shall tell you how to make it independently of "patents," and hope you will succeed if you try, and then there will be no need to *buy* the "patent."

Take, for instance, a given quantity of horse droppings, add to it about one third of loam, and the same quantity of cow manure; add water, and incorporate the whole together; well work it until it is got to the consistency of stiff mortar; make a pattern similar to that for brick making; then go to work and model off the bricks, set them on boards to dry, the air passing through them, and turn as often as required to facilitate the process. Before the mould is taken from the brick, two holes should be made with the thumb, one near each end, and about half way through. This is the place where the spawn is to be inserted hereafter.

When these bricks are *nearly* dry, they should be *spawned*. Here we come to some necessary explanation, for it is the most difficult part of the process to beginners, and requiring some judgment and care. If these are dried thoroughly hard all through (every particle of moisture evaporated), it would be very difficult to get the spawn to run through them, because there is scarcely anything that will grow in a substance that is as dry as a flour-barrel. Then what is meant when we say that the bricks should be well dried, is simply this—dried to the same consistency all through, but to be removed from this drying process before the whole moisture is evaporated; and this condition can be ascertained by the use of the thumb or finger, and pressing the nail of either into it. When the nail can be easily pressed into it, and the external parts

are found to be of the same consistency, the bricks may be considered in a proper condition to receive the spawn. The next process is to take pieces of spawn about the size of your thumb, and press tight into the holes already made in the bricks, when this much of the work is finished.

The next operation is to put the bricks to *work*, as termed in common phraseology; or, in other words, to get the spawn to run through, and incorporate itself thoroughly through the whole of the brick. This can be done in the following manner: Use a pit with sash roof, into which put some heated manure, having depth enough to it to insure a little heat, say seventy degrees, tread it down tight, and let it remain till the heat is produced. Push a stick into it to test the heat, and when found to be what is required, place the bricks on its surface, and cover the whole over with hay, and watch the process by examining every three or four days, and it will soon be found that the spawn is working through the bricks by the mouldy appearance seen on their surface. To know when the bricks are fully spawned, break one or two into several pieces, and see if it has worked all through it, and if so, take them out, and keep them in a *dry* place, to be afterwards used as wanted. We now come to the formation of

THE MUSHROOM BED. — Take a given quantity of horse droppings, say one or two cart-loads (let the groom save clean), keep them in some covered situation, so that wet is kept from them, add to two loads about five bushels of finely-chopped straw, and mix the whole up together into a heap, and let it stand till it begins to warm up, and as it begins to heat, begin and regularly turn it over *every day*, until the strong heat has worked out of it. Do not forget a day's thorough turning, or the heap may over-heat, and burn, as the gardeners call it; for on this working of the manure will depend the after results. When the whole of the heap has all the same color, — a very dark brown, (the straw in it must be got soft and dark) — and the fiery heat is exhausted, take it to where you intend the bed to be made. Now, fifteen or sixteen inches of depth given to the bed is quite sufficient. In making the bed, beat it down as firmly as it can be got. Tread down with the feet, and then take the back of a spade and beat down again even and smoothly, as

well as level, cover up with hay, put a stick into it having thickness enough to it so that the heat can be felt readily, and watch it for two or three days. It will rise to about one hundred degrees; and when it has declined to ninety-five or ninety degrees, the bed is ready to receive the spawn. Now make holes, about nine inches apart, regularly all over it, and about five inches deep, and put into these holes a piece of spawn about two inches square; place on the top of this bed about three inches of maiden loam, and beat it down with the back of the spade, firmly but gently; keep the gauge-stick in it for the use already stated, cover up well with fine hay, and the work is done.

If the soil should get dry, or approach to dryness (this should never be allowed), take a fine-rosed water-pot and water lightly and evenly all over the bed, first taking off the hay. In about three weeks from the time of spawning the mushrooms will appear; and we have seen beds thus made so thickly studded with mushrooms that you could not get the point of your finger between them. The treatment given in this article is intended for winter culture; but where they are required for summer and fall use, the beds may be made of the ordinary short fermenting manure; but it should be worked as here directed, with the same management of the bed. Beds in spring, summer, and autumn can be made in cellars or out of doors, but if the latter they should have some protection to keep off the heavy rains.

BOUVARDIA JASMINIFLORA.

By ROBERT BUIST, Philadelphia, Pa.

THE very finest white-flowering, winter-blooming plant that you can introduce to your readers is *Bouvardia jasminiflora*. The flowers, which appear profusely, are of alabaster whiteness, of very easy culture in a warm green-house or for window ornament — charming for bouquets, and very easily propagated. In fact, it is a lady's plant, and puts all white bouvardias in the shade, blooming in clusters from October to April.

“TRIMMING UP.”

By GEORGE JAQUES, Worcester, Mass.

A SUMMER tour through the best cultivated regions of New England would hardly fail to leave a certain disagreeable impression upon any number of intelligent men. Differing otherwise as they might, they would concur in this, that farmers' clubs, and horticultural societies, and the publications receiving their special patronage, have as yet accomplished but little of what the nineteenth century demands from them. In every direction, not only in the Eastern States, but all over the country, there are offensive evidences of unthrift, poor economy, and slovenliness in general agriculture, and especially of mismanagement and bad taste in fruit and ornamental arboriculture. Putting this assertion in another way, the crops of hay, grain, fruit, etc., annually harvested for the past few years, especially in New England, have not been worth one half what, under better management, they might and ought to have amounted to. This is greatly owing to the fact that no inconsiderable proportion of the ordinary routine work indispensable to good cultivation is almost everywhere either neglected altogether or else unseasonably and improperly performed.

The *pruning*, for instance, that trees receive, or ought to receive, annually, is generally undertaken in a random sort of way, — when the fit comes on “to slick up a little,” — not only without definite purpose, and at any convenient time of year, but with a bungling application of dull saws, axes, and knives, so at variance with good usage, that — what with the amputation of limbs which ought to remain, and the retention of such as ought to be removed — many trees suffer about as much from the *care* they receive as from the insects that are allowed to prey upon them. There certainly can be no impropriety in referring, for an illustration, to the “Rural Cemetery” in this city, which was a few years ago one of the best specimens of these peculiar American burial-places anywhere to be seen. Its varied and tasteful, but for the most part not extravagantly costly, monuments, half concealed by masses of drooping foliage, presented the appearance of a beautiful

mosaic of funereal marbles set in a combination of all the appropriate adornments of a park. The graceful spruce, the cedar, and the whispering pine stretched their broad, feathery arms close along its surface, as if protecting the very turf that shielded the loved ones sleeping beneath, and an admirable arrangement of well-kept drives and walks winding through the grounds, was in perfect harmony with the rest.

The whole scenery, indeed, was just such as might have inspired the melancholy Gray, when he penned those exquisite lines that, through misappreciation of their merit, or lack of skill to interweave them smoothly among the other stanzas, he rejected from his immortal *Elegy*: —

“ There scattered oft, the earliest of the year,
By hands unseen, are showers of violets found;
The redbreast loves to build and warble there,
And little footsteps lightly print the ground.”

The visitor to this home of the dead, though a stranger, yielded pensively to its hallowed influences, and felt his heart touched by its mysterious seclusion. But, a few years ago, in an evil hour, a vandal pruner, misunderstanding his instructions, destroyed, with his saw and axe, a considerable portion of the finest features of this park-like scenery; so that, since that time, the cemetery, “trimmed up” and laid bare to the blazing sun, seems stiff, smart, and raw, almost like a newly-built Yankee village. So many of its finest trees have been spoiled by pruning, so much of the former sweet retirement and suggestiveness of repose has been swept away, that it is incredible how a well-meaning man — honestly intending to *improve* the grounds, as doubtless he did — could have wrought so much mischief. It would afford some encouragement to believe that this is the only burying-ground that has been in this way despoiled of its beauty; but all over the Eastern States, if not more extensively, in private as well as in public grounds, the barbarous practice of “trimming up” evergreen trees continues disgracefully prevalent.

In the case just cited, some thinning out had undeniably become necessary, in order to save the marbles from discoloration. What *ought* to have been done was *not* to trim up, but to cut down and

shorten in, until the desired object should have been attained. There is a certain consolation, however, in feeling that the mischief that has been wrought here may be remedied, although only by the slow process of digging up and clearing away the trees disfigured by "trimming up," and then replacing them — in as far as new trees may be desirable — by trees that shall never again be pruned at all, except when there may be some good reason to shorten, or head them in; as in cases where their branches obstruct the paths, or are of such feeble growth as to need the stimulus that this method of pruning imparts.

It is, perhaps, not too much to affirm that nine tenths of all the pruning attempted in this country — wherever professional gardeners are not employed — is after the detestable fashion above condemned. To an artist, to a landscape gardener, to any one of a cultivated rural taste, the very phrases "trim up" and "prune up" are odious. The legitimate sphere of pruning, indeed, hardly extends beyond three operations; for, as a general, almost exceptionless, rule, nothing ought to be done, especially to the branches of ornamental trees, beyond heading in, shortening laterally, and thinning out. As for evergreens, the denser and more vigorous their limbs close to the very ground, and the more completely they conceal every part of the entire trunk of the tree, the greater their beauty. The rule admits of still broader application, since the trimming up of any tree or shrub, ornamental or fruit-bearing, under any circumstances, ought to find its sole justification in some sheer necessity — as in the case of sidewalk trees, whose limbs obscure the street lamps or impede passing, or trees in pastures or orchards, where they cannot otherwise be protected from being broken by cattle. Even in some of these situations, the *entire* removal of the lower branches is not always unavoidable. An evergreen, for example, obtruding into a walk or drive, may be cut to a perpendicular wall of living green; and, if it have an opposite neighbor, the two may be managed, by skilful shortening, etc., so as to form overhead a beautiful verdant arch; and thus we have something pleasant to look upon, instead of such results of the ordinary mode of pruning as would be perpetually offensive to the eye.

Different species of trees, different varieties, and, indeed, the same

variety in different situations, require different treatment. A maple on a sidewalk must be pruned so that its branches shall obstruct neither the light nor the conveniences of travel; whereas on a lawn its broad spread down to the very ground should be carefully preserved, as contributing most essentially to its beauty. The American elm, until of considerable size, not unfrequently requires to be headed in, in order to render its future growth more compact, and also as a preventive against its breaking down beneath a weight of snow or ice in winter. To apply this treatment to an oak would be ridiculous. Then, again, there are other processes of pruning of which the limits of the present article admit no explanation — as pruning to stimulate growth, pruning both of roots and branches, in order to enforce fructification, etc.

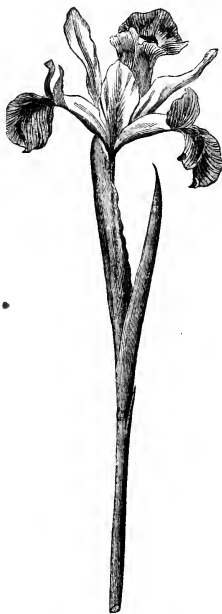
A man of pruning-up propensities ought never to be employed about a hedge. The reason is obvious. A well-kept hedge, evergreen or deciduous, should always be trimmed by shortening in the sides and top, so that a cross section of it should be like an inverted V, that is, widest at the ground, and regularly narrowing to an edge at the top. Any approach towards the reverse of this form — wherever and as often as it may be seen — is sure to result in the loss of all the beauty and utility that a living fence can have; for, deprived of necessary light by the growth above them, the lower limbs inevitably perish, and the hedge no longer serves any purpose but as an illustration of the foolishness of pruning.

THE SPANISH IRIS.

By FRANCIS PARKMAN, Jamaica Plain, Mass.

THE Spanish Iris (*Iris xiphium*), like the so-called English Iris (*I. xiphoides*), is a bulbous species, remarkable for the beauty and delicacy of its colors. It is less tall and robust than the English Iris, but generally bears a New England winter if planted in a light, well-drained soil. It ought, however, to be removed once in two or three years, when the leaves have withered, and replanted during the autumn.

Its prevailing color is violet, with a yellow stripe down the middle of the petal, but its varieties present a great diversity of hues — blue, brown, brownish yellow, greenish yellow, clear yellow, white, olive,



THE SPANISH IRIS.

gray, pearl, and cream-color ; and some are curiously shaded, spotted, or marbled.

It blooms early in June, and is easily increased by separating the bulbs in autumn.

MULCHING.

“No practice, founded on principle, has lately come into general use so beneficial as mulching.” Thus (we quote from memory) wrote A. J. Downing nearly twenty years ago. The practice of mulching is not new, but has long been recommended in English works on gardening; and, whether for protection from excessive heat, cold, or drought, might well be expected to be more beneficial in this country, where the extremes of all three are so much greater than in England.

Yet, strange as it may appear, the question is even now discussed whether mulching is advantageous; and, among those who recommend it there is much disagreement as to the best method to be pursued, some contending that straw, leaves, tan, or similar substances, should be placed around the tree, while others are equally sure that grass growing around them is more effectual in keeping the ground in proper condition as regards moisture, temperature, etc., than anything else.

The main cause of these differences undoubtedly is a deficiency of careful and accurate observation. We know, in general, or at least we believe, that trees thrive best when the soil is kept cool, to a certain degree, by being sheltered from the direct action of the summer sun. But who can state what is the best temperature of the soil for the roots of fruit trees in any given place for any one month of summer? We say the soil should be kept cool; but there is such a thing as keeping it too cool, for, undoubtedly, it might be so heavily mulched in winter, or early in spring before the frost is out of the ground, as to remain frozen all the year round. Don't, however, understand us as saying that anybody ever proposed to do such an absurd thing.

But assuming that in summer the soil is liable to become both too hot and too dry, and that frequent and sudden changes in these conditions are injurious, — a position which we think no one will be disposed to question, — what is the best way to keep it at the right degree of warmth and moisture? Plant your trees in grass, is the ready answer of some; and if all that is wanted were to keep the ground

cool, perhaps no better answer could be given, though we have a suspicion that grass is least effectual in this respect in a severe drought, and that is just when it is most wanted.

As to the action of grass in keeping the ground moist, it certainly does serve this purpose so far as it shades it; but, on the other hand, the grass is continually drawing up moisture and evaporating it from the surfaces of its leaves. Now, only a very slight examination is needed to convince any one that the aggregate leaf surface of a close sod of even the shortest grass is greater than the surface of the ground, and assuming the amount of evaporation from a given leaf surface to be equal to that from the same surface of soil, it is hard to see the gain in moisture from grass. We have no doubt that evaporation would be greater from the leaf surface than from the soil; but on this point, again, we have no exact experimental knowledge.

But it is urged by the advocates of grass, that by keeping it short, like a lawn, the roots will descend only to a short distance, and consequently the quantity of moisture abstracted will be small. We doubt whether this is the case; we believe that the roots of the shortest grass often descend to a considerable depth; but admitting this point for the sake of the argument, it is plain that the shorter the grass is kept, the less serviceable it becomes as a shade; and so, after being at the pains of keeping our grass short, that it may not suck up the moisture of the ground, we find that we have defeated our purpose to use it as a shade.

The same objections that we make to grass, as depriving the soil of its moisture, may be urged against it as robbing the trees of the food needed by them for growth and fruitfulness. We are told, however, that in excessively rich or damp soils, grass will be of service in preventing too rank growth; and, certainly, if a man has food enough for two, it is better to share it with a friend than to attempt to eat it all himself; but when he has no more on his table than is sufficient for his own family, it is hardly worth while to invite company; and the latter, rather than the former, is generally the case with our fruit trees. Where manure is as scarce and costly as it is here, it would be a most irrational proceeding to make ground too rich, and then sow grass to absorb the excess; but on the naturally rich soils of our western prairies this

might be done to great advantage, as has in many instances been proved.

We have thrown out these suggestions mainly for the purpose of showing the need of further and more accurate knowledge of many points connected with this subject. But many of our readers cannot wait until every point is settled, and will want to know what to do in the mean time. To such we say, that we agree exactly with the paragraph at the beginning of this article from Mr. Downing, who when he spoke of mulching, meant mulching, and did not mean growing grass around trees. We should no more think of planting young trees in the garden or orchard without mulching, than we should of planting the tops in the ground and the roots in the air. We have in many instances, when transplanting large trees in the autumn, mulched heavily with leaves, on top of which stones were placed to keep the trees steady, and the whole allowed to remain until the leaves decayed, with such effect that we should certainly do it again. And in our experience the slight injury from insects harboring in the mulch is far outweighed by the advantages derived from it. We should prefer to delay mulching until the ground has become warm, when we would fork up the surface lightly, and place around a sufficient quantity of coarse litter to keep the ground moist, and no more, *excluding the sun, but not the air. This is the true principle of mulching.* Still, if in planting trees, whether in spring or autumn, we found it most convenient to mulch at the time of planting, and have our job finished up, we would do so.

As to the material for mulching: avoid, if possible, meadow hay, or other substances which will fill the ground with seeds of weeds. Spent tan we have found to bring in sorrel; probably it contains some acid which favors the growth of that weed, but it is an excellent mulch for all that. There is nothing better, where it can be procured, than the coarse reed grass found on the banks of salt water creeks and inlets in New England, and known among farmers as "thatch." Sea-weed, straw, leaves, pine-needles, the Spanish moss of the South, coarse stable manure, cornstalks cut fine, all are good. Use the best material obtainable, though you may have an idea of something better, rather than let your ground go without mulching.

RAISING SEEDLING FRUITS.

By HENRY T. HARRIS, Stanford, Ky.

Too little attention is given to the raising of seedling fruits. Very few of our American nurserymen and amateur horticulturists make it an object of interest to any serious extent. Not one of them, we believe, makes it a "specialty."

We must confess, however, that much more has been done in this direction within the last half century than in all the years preceding. In truth, it may be said that American horticulture, prior to the last thirty or forty years, occupied but little of the attention of our people. We account for this by the fact that we were a new country—just fairly recovering from a long and bloody revolution, and disturbed, from time to time, by subsequent conflicts of scarcely less importance. Ours was a vast territory, embracing almost every kind of soil and climate, and but sparsely populated.

The titles to our estates were, to say the least, in an unsettled condition. The formation of territories, with a view to the ultimate creation of them into states, with all the powers, immunities, etc., of the original "Thirteen," was the central idea of the American politicians, who, as the representatives of the people, made everything else subservient to this. The twin sciences of agriculture and horticulture had but few exponents; and those few were not sufficiently skilled in their respective sciences to enable them to press forward with that spirit of progress which has been exhibited during the last quarter of a century.

In addition to the drawbacks heretofore alluded to, our people have been divided in political sentiment—the northern half having abrogated, while the southern half were clinging to and fostering, the institution of slavery. This troublesome and vexed question was a continual thorn in our national pillow, and its ceaseless agitation for a long time greatly retarded our progress as a nation. We were a "house divided against itself." We were all, to a greater or less extent, politicians. All our

industries, especially those of the soil, were crippled; and too little thought was given to our advancement as an agricultural and horticultural nation. The capabilities of our diversified soils and climates had not been tested to any special extent. Foreign fruits had been found to succeed only partially, in the very few experiments made. The native fruits were good, but nothing to compare in excellence to our native seedlings of the present day, or our grafted and budded fruit which originated therefrom. Nurseries and experimental gardens were absolutely out of the question. The extreme north and the extreme south were first largely populated. The north relied more upon her commercial advantages, as a means of prosperity, than anything else — having no article of commerce grown upon her soil that was not common to all other parts of our country — and better grown elsewhere; while the south, with her cotton, and sugar, and rice fields, gave not only abundant labor to all her people, but furnished other nations much of their real wealth, and ourselves with abundant riches. With them, too, many tropical fruits were indigenous to their soil and climate, and these furnished all the fruits they seemed to desire, and the *cultivation* of them, to say nothing of other fruits which have been found of late years to flourish there, would have been considered by her people a “piddling” business. Cotton, rice, and sugar-cane were the all-absorbing staples. Everything else was discarded and neglected for these. The reason was obvious, but should not have been wholly enforced, as a diversified agriculture and horticulture constitute the basis of perpetual success. Sometimes these crops wholly or partially failed, and it would have been far better for these growers had they had other crops to look to for supplying any temporary deficiency in their staples. In consequence of the facts above indicated, coupled with a skill and forethought eminently characteristic of the people of the north, they became the pioneers of American horticulture and a diversified agriculture. To them is our country indebted, not only for our rapid advance in agricultural and horticultural science, but for many, very many of those implements which to-day render these pursuits profitable, pleasant, and comparatively easy. To them are we indebted for the large majority of our new fruits, and their nurseries for the propagation and dissemination of

fruit trees, plants, vines, shrubs, etc., are second to none in the civilized world, and are more reliable than those of foreign countries.

They have gone out to our new states and territories, and made branch or original nurseries, green-houses, etc., and to-day all parts of our common country are enabled to supply themselves from these reliable and extensive establishments. Even Kansas, at the national exhibition of fruits last year, made such a show of excellence as to astonish the horticultural world. But yesterday, as it were, Kansas was a vast prairie, overrun with buffalo and Indian, a virgin waste, where the hand of civilization had never wrought; to-day she takes a front rank among the fruit-producing states of the American Union. Florida, which, prior to the late war, grew only oranges and other fruits in their uncultivated and neglected condition, is now made to occupy her proper sphere in this humanizing and health-giving industry. Hundreds of orange groves have been planted, and thousands more, under the skilful manipulations of northern and native horticulturists, will, ere long, cover long-neglected wastes, and the streams will be fringed with blooming groves of golden fruits.

I am aware of having neglected my "text" in what is here written, but I deem it proper to lay these suggestions before your readers, as incidentally bearing upon the subject of raising seedling fruits. I wish that every one who raises fruits would make it a leading feature to raise a seedling from one or more of our many native fruits. For instance: let some try the berries, some the stone fruits, some apples, pears, peaches, etc., and, as an experiment, the persimmon, huckleberry, cranberry, etc. In this way much might be accomplished, and before the next quarter of a century goes by, such results will have been accomplished as to astonish the veriest sceptic.

What the Experimental Garden at Washington is doing, if anything, in this direction, I am not advised; but it strikes me as eminently proper and essential that a Seedling "Bureau" should, if it is not already done, be made one of its primal features. No greater good could be done by any one of the many American gentlemen of means, than by establishing an experimental seedling fruit orchard, having for its leading object the propagation of seedling fruits of all kinds. Such an

establishment would, after a series of years, if not almost immediately, be entirely self-sustaining, if not a means of direct and immense profit. It would, of course, be no friend or ally to "humbug" fruits — disseminating nothing but real and desirable "advancements" in the science of horticulture. Let the fruits thus propagated be tried in various sections of our country, and reported upon by men of known veracity and integrity of character. If such a course as this would be considered impracticable or chimerical, then surely we can, each for himself, try our own home experiments, and do what we are able to advance the useful and beautiful science of horticulture.



CRITIQUE ON THE NOVEMBER NUMBER. — *The Notes of a Horticultural Visit to California* continue to abound in marvels; and now the marvel seems to be the astonishingly rapid growth of forest trees. *Eucalyptus globulus* fifty feet high when only six years old! At this rate it would take less than fifty years for it to grow to the height of four hundred feet, which some of the species of *Eucalyptus* attain in their native home. And *Pinus insignis*, growing thirteen feet in a single year, and averaging nearly nine feet each year! Such extraordinary growths so overthrow all my previous notions of tree growth that it takes me some time to recover from the shock. But how about the quality of the timber of these fast-growing trees? The general impression is, that timber is solid and durable in proportion to the slowness of its growth; and I should like to know whether these youthful California giants form an exception to this rule or not.

Notes on Strawberries. — I suppose we must have every year's experience from different cultivators, with the Jucundas, and Philadelphias, and Triumphes, and, no doubt, it is very valuable and necessary; but I, for one, must own that I do sometimes get a little weary in reading it, and I suspect that a good many others do, if they were only honest enough to own it. But I never tire of directions how to cultivate well; and when Mr. Draper tells us how to get, instead of seventy-five or a hundred bushels of ordinary fruit per acre, double the quantity of the finest fruit, we recognize a man who tells us just what we want to know. Of course you can't cultivate as many acres highly as you can in the slipshod, slovenly style; but what of that? Cultivate half as many, and save half the expense of picking, and half the cost of baskets and crates, and half the expense of marketing, and (no mean item) half the fatigue of travelling over your ground,

and still put just as much, or twice as much, money in your pocket for your one or five acres of large, handsome fruit, as you did before for your two or ten acres of ordinary fruit. Is not this true policy? And yet, as Mr. Draper says, hardly one in ten adopts it; it is hard to get cultivators out of the old beaten paths. But never mind; don't be discouraged: keep on hammering at them till they can't help seeing that an acre well cultivated *pays* better than two or ten half cultivated.

Good Things for a Time of Need.—I recognize in Mr. Denson's capital article the same poetry and eloquence as in his description of the beauties and glories of his Green-house for a Short Purse, in your Journal last winter. His enthusiastic descriptions make me want to go right off to North Carolina, or South Carolina, or some other place where we could keep our Lantanas, and Plumbagos, and other green-house plants, through the winter with only a little earth and litter thrown over them, and the Pampas Grass, like "a fountain, with its low, stretching lines of green, and the foam-tipped plumes, shooting aloft in generous rivalry, to dance in the summer sunbeams," without any protection whatever. Couldn't we do the same thing here by making the covering a little thicker, or a good deal thicker? or must we take up our plants, and shelter them in the green-house, or the pit, or the cellar? If any one can answer these questions, I hope he will give us the information.

The Dallas Pear.—This is a fine instance of the way in which time sifts out the wheat from the chaff. Governor Edwards originated, and named, and introduced, at the same time with the Dallas, I don't know how many other pears, which, though, no doubt, possessing some merit, fell far short of the standard even in those days. Where are they now? Nowhere but in the pages of Downing, with the single exception of the Dallas, which is the only one that could ever be said to be worthy of general cultivation.

The Improvement of American Grapes.—There are some men whose writings always carry evidence of the carefulness and trustworthiness of their writers; and Mr. Campbell is one of these. I don't see how anybody who cares a fig for horticulture can read over this article, and not sympathize with the encouragements and discouragements of one who is laboring so patiently, and so diligently, in pursuit of a perfect grape, which shall join to the vigor, and hardiness, and ease of cultivation everywhere of the Concord, the excellent quality of the Delaware; nor do I see how he can help sharing Mr. Campbell's faith that this desideratum will sooner or later be reached. Certainly the statements of this article give most abundant ground for such faith, and it is not one alone, but hundreds of men, who are seeking the same object, though not all by such well-directed and judicious efforts as Mr. Campbell's; and his article will give most valuable information to those who are desirous to enter on this most fascinating pursuit.

The Growth of Timber Trees.—I am very glad to see such an increasing attention to the growth of timber in our country, both east and west. There is need enough of it. I don't know how far these English notes may be of utility to cultivators of trees for timber in this country; but they are of much interest to those who intend planting for ornament on a small or a large scale, as enabling

them to form some idea of the effect which will be produced in a generation or two, when their trees are at least approaching maturity. Will not the proprietors of the largest trees of the same species in this country tell us the age and size they have attained, for comparison with these notes? It seems that the average annual increase in diameter of the *Pinus insignis* for twenty-eight years was a little over an inch, and in height more than two feet. This is far short of the specimen referred to in the California notes; but it is very rapid growth, and the latter will not continue to grow at the same rate for a quarter of a century. What a pity that this magnificent tree is not hardy in the Northern States! It seems that it is liable to occasional injury, even in the mild winters of England.

The Chatsworth Conduit Edging Tile.—This device is so simple and so admirably suited to effect its object, while serving also as a border between the walks and beds, that one wonders why it has not been thought of before, especially as—as you, Mr. Editor, well remark—the want of such a device has been perceived a thousand times. I cannot doubt that the time will come, when, with the increase in population, and the necessity of making every inch of ground produce its utmost crop, a system of storage of surplus water will be used not only in gardening, but in farming operations. The advantage of watering flower gardens is well known; but there is no doubt that it would be of just as much benefit to fruit gardens—indeed, some of the best pears that I have seen in this season of unprecedented drought were produced in gardens which had the advantage of water from city water-works. Why should not each garden have its own little system of water-works for a dry time? And why should not these tiles be made of common brick clay at a much cheaper rate than in “terra cotta”? Certainly, Mr. Editor, you are right in thinking that these tiles must be even more valuable here, where the rain-fall is greater, but less evenly distributed, than in England.

Well, Bismarck has held his monthly chat with the readers of the Journal for nearly two years, and now, with the close of the volume, he must say “Good by.” I know not how these critiques have been received by the majority of those who have read them,—perhaps some have thought me presumptuous in undertaking to gossip on almost every subject,—but I do know that from some they have brought returns of kind expressions, without which I certainly should not have continued them so long. For every kind word I proffer my sincere thanks, and so—exit

Bismarck.

THE FRUIT CROP OF OHIO.—The Ohio State Board of Agriculture report for 1869 was 10,457 acres in vineyard, giving a yield of 3,794,899 pounds of grapes gathered, from which there were pressed 156,025 gallons of wine. This falls short of the product of 1867. The orchard crop was exceedingly good. From 346,828 acres in orchard, there were produced 15,518,685 bushels of apples. The peach crop amounted to 1,444,523 bushels, and the pear crop to 2,147,022 bushels. The report for 1868 was 342,212 acres, with 11,637,515 bushels of apples, 599,499 bushels of peaches, and 66,712 bushels of pears. The crop for 1869 shows so great an increase in the peach, and still more in the pear crop, as to lead us to suspect some inaccuracy in one of the reports.

NOTES ON STRAWBERRIES IN ALABAMA.—The strawberry season being now over with us, we conclude that it will not be amiss to give our readers the benefit of our experience with the different varieties that we have in cultivation near Mobile.

The spring having been unusually cold and backward, our first picking for market was not made until the 25th of April—ten to fifteen days later than usual. The season, since, has been, on the whole, favorable, giving us a fair and continuous crop up to the very last of June. The market has been more abundantly supplied, and prices in consequence have ruled lower, than ever before. The first sales were made at fifty cents per quart, but the price soon went down to twenty-five, and even twenty cents, the bulk of the sales having been made at twenty-five. These low prices caused a largely increased consumption, the quantity sold being, we imagine, four times greater than in any previous season. The stock upon the market has been composed almost exclusively of the *Wilson's Albany*, which fully maintains its reputation as the most prolific, most reliable, and, all things considered, the best market berry. Of uniformly large size, handsome appearance, good but not high flavor (much better, however, than at the north), firm texture, hardy, and vigorous even in our hottest and driest seasons, it still remains without a rival as *the* strawberry for "the million." However, as second only to the Wilson in this respect, we esteem *Longworth's Prolific*. Indeed, in consequence of its earliness, being fully a week earlier than any other variety we have grown, and ten days earlier than the Wilson, we consider it an indispensable accompaniment to that standard variety. The fruit is about the same size, of better flavor, and the plant equally hardy. Longworth, therefore, should not be omitted in any southern collection.

Triomphe de Gand is still one of our special favorites. Although not so prolific as the Wilson, and, the fruit being more tender, not so good a market berry, yet it is decidedly larger, of superior flavor, and of more splendid appearance. The plants are also perfectly hardy and very vigorous, and, in good soil with high culture, may be relied upon for a fair crop of the most magnificent fruit in all seasons.

Russell's Prolific is another splendid variety, inferior to the Triomphe in no quality except in the hardness of the plant. In this respect, however, it has the present season, in a great measure, retrieved its character by the production of a fine crop of fruit of unrivalled beauty and excellence. All that is necessary to place the Russell at the head of the strawberry list, is an assurance that the plant will stand the climate.

Agriculturist has also done well this season, and, in its general characteristics, is entitled to a place alongside the Russell. It is, however, not quite so productive, nor even so hardy. In size, beauty, and flavor, however, it is fully equal.

Peak's Emperor is, with us, a new variety, for the first time tested. In the appearance of both plant and fruit, it is similar to the *Agriculturist*, and, we think, will prove identical. If there is any difference we cannot "see it."

Barnes's Mammoth is another new variety of very great promise. Of immense size, good flavor, and great beauty, the plant hardy and productive,

we look upon it as a candidate for the "highest honors." It is, without exception, the most magnificent fruit in our collection.

Charles Downing, Seth Boyden No. 30, Durand's, Starr's and Stinger's Seedlings, have all been partially tested, and are certainly very promising. All seem to stand the climate, having yielded fair crops of very large fruit of the finest quality. We commend them, with a great deal of confidence, as varieties of decided merit.

Green Prolific, Fillmore, New Jersey Scarlet, Hooker, French's Seedling, Eclipse, Downer's Prolific, Hovey, McAvoy's Superior, Bartlett, Romeyn Seedling, Mary Stewart, Trollope's Victoria, Imperial Scarlet, and Walker's Seedling—some old and some new—are all varieties of merit, but have more or less defects, which, in comparison with the superior varieties above named, render them unworthy of cultivation.

Nicanor grows quite vigorously, producing a fair crop of very good, medium-sized fruit; but, as it is under size, and nothing extra any way, we "vote it out."

Napoleon III. started off nobly in the spring, exciting "great expectations;" but the plant quailed under the first hot sun of May, and "fizzled out."

Jucunda is a dead failure. The last of a hundred plants, obtained from Mr. Knox three years ago, has departed. The plant will not stand our climate.

Colfax is small, soft, and sour—as utterly worthless as it is possible for a strawberry to be. We have spaded all our plants a foot under ground.

President Wilder.—Of this celebrated variety we procured from Tilton & Co., Boston,—by virtue of our subscription to the Journal of Horticulture,—two separate instalments of plants, one of two, and the other of six, plants. But they were so exceedingly small and feeble that, notwithstanding our careful planting and tender nursing, all "have gone where the woodbine twineth." We must try again.

We have tested many other varieties, but the foregoing are all that we deem worthy of mention.

Thorough Cultivation.—In conclusion, we desire to urge upon all who are engaged in the cultivation of this most delicious fruit, the importance, now that the crop has been gathered, of giving the plants an immediate and thorough cultivation. The last few weeks of the season have been attended with almost daily rains, in consequence of which grass and weeds have taken possession of the strawberry beds. These must now be removed, no matter at what labor, and the ground thoroughly cleaned and worked. Each cultivator must decide for himself how he can best accomplish this work—whether by plough, hoe, or spade, or by all combined; but it must be done, and done now, if a crop is expected next season. This is the heaviest labor attending strawberry culture, and therefore apt to be neglected. The grass has got so strong a hold that it seems impossible to subdue it. It looks like, and really is, a big job; other work is pushing; the cotton needs working; there is no time to devote to strawberries, and the conclusion is, to leave them unworked, and let them take their chances with the grass. The latter, of course, appropriates to its own use all the substance and moisture in the soil, leaving the strawberry to starve. The plant struggles along through the grass, grows up slender and sickly, and next

spring will yield a slender and sickly crop of slender and sickly fruit; and then the wonder will be that I cannot grow strawberries equal to my neighbor. "I never could have any luck with strawberries." Why, amiable friend, there is no luck about it! It is all labor and brains — to know how to apply the right kind of labor, at the right time, and *then do it*.

Common sense teaches, that, after a plant has exhausted itself in the production of a crop, it needs recuperation. It is a demand of nature that cannot be disregarded with impunity. Therefore, as soon as the strawberry crop has been removed, everything calculated to rob the plant of its legitimate food must be destroyed, and an additional supply be provided. Either remove, or plough or spade in, all the grass; cultivate thoroughly; apply a good dressing of appropriate fertilizer — say, bone-dust and ashes, with a little salt; or the "Langdon Fertilizer," which is better; keep the ground clean and mellow during the summer; clip off all the runners as fast as they appear, and next fall the plants will be large, strong, and healthy; and the reward will be a heavy crop of fruit next spring that will please the eye, delight the palate, and fill the pocket.

C. C. Langdon, in Mobile Register.

BLACK HAMBURG GRAPES IN NOVA SCOTIA. — Being desirous of testing the point whether the Black Hamburg Grape would ripen in our climate in the open air, without the aid of glass or artificial heat, I beg to send you a bunch of them produced by me this season, without any artificial assistance of heat whatever.

The vine is four years old, and has a south-eastern aspect, the sun being shut off from the vine by my house at about one o'clock in the afternoon. Last year it did not fruit, and I was enabled to prune some fine and well-ripened canes for fruiting this season. The season being favorable, and with keeping down all running foliage, etc., and girdling soon after the grapes were well set and formed, the bunch I send you is the result of my trial, which, with us, is considered something wonderful. I presume this could not be done every season.

The Isabella, Hartford Prolific, Diana, Concord, Delaware, and other grapes, with attention to their proper culture, do pretty well with us in the open air. This season they are all remarkably fine. Please accept them from me.

CORNWALLIS, N. S., Oct. 20, 1870.

C. E. H.

[The bunch of grapes came to hand in excellent order, and was of fine size as to bunch and berry, and well ripened and colored. We were much surprised at the statement that it was grown in the open air so far north, and, though the marvel was lessened by the fact that the vine was *girdled*, which is considered hardly a legitimate means of improving the quality of grapes, yet, even taking this into account, it was a remarkable bunch, and, withal, of fine flavor, which is not generally the case with girdled grapes.

Another interesting feature of this cluster was a little shoulder, consisting of a tendril, divided into two parts, and curled, like any other tendril, but with a few grapes of small size borne at the end of each division. We have never seen so striking an illustration of the fact that the whole bunch is but a modification of the tendril. — Ed.]

MASSACHUSETTS HORTICULTURAL SOCIETY. — The forty-second annual exhibition was held September 20, 21, 22, and 23. The display of fruits, especially pears and grapes, was unusually fine. Among the pears we particularly noticed as extra fine specimens, of which the growers might justly be proud, Messrs. Davis & Bates's dish of Sheldons, J. S. Farlow's Doyenné du Comice, and G. Train's Beurré Gris d'Hiver Nouveau, and Bartletts — the latter, twelve specimens, weighing eight pounds and five and one quarter ounces. The special prize, open to all competitors, of the society's silver cup, valued at twenty-five dollars, for the best twelve specimens of Duchesse d'Angoulême, was awarded to Stephen Hill, of Arlington.

The first prize for the best twenty varieties of pears was awarded to Alexander Dickinson, for Andrews, Bartlett, Beurré d'Anjou, B. Bosc, B. Clairgeau, B. Diel, B. Hardy, B. Langlier, B. Superfin, Dana's Hovey, Duchesse d'Angoulême, Howell, Lawrence, Louise Bonne of Jersey, Marie Louise, Seckel, Sheldon, Swan's Orange, Urbaniste, and Winter Nelis.

Second, to Davis & Bates, for Andrews, Bartlett, Belle Lucrative, Beurré d'Anjou, B. Clairgeau, B. Diel, B. Easter, B. Hardy, B. Superfin, Dana's Hovey, Duchesse d'Angoulême, Lawrence, Louise Bonne of Jersey, Marie Louise, St. Michel Archange, Seckel, Sheldon, Swan's Orange, de Tongres, and Winter Nelis.

Third, to Hovey & Co., for Andrews, Bartlett, Beurré d'Anjou, B. Bosc, B. Hardy, B. Superfin, Dana's Hovey, Doyenné Boussock, Doyenné du Comice, Howell, Lawrence, Marie Louise, Merriam, Moore's Pound, Paradise d'Automne, Pratt, St. Michel Archange, Sheldon, Swan's Orange, and Urbaniste.

Fourth, to J. C. Park, for Bartlett, Belle Lucrative, Beurré d'Anjou, B. Bosc, B. Clairgeau, B. Diel, B. Hardy, Buffum, Dana's Hovey, Duchesse d'Angoulême, Doyenné du Comice, Flemish Beauty, Fulton, Lawrence, Louise Bonne of Jersey, Seckel, Sheldon, Urbaniste, Winship, and Winter Nelis.

For the best fifteen varieties, to Jacob Nudd, for Andrews, Bartlett, Beurré d'Anjou, B. Bosc, B. Clairgeau, B. Diel, B. Langlier, Dix, Doyenné Boussock, Duchesse d'Angoulême, Lawrence, Louise Bonne of Jersey, Seckel, Sheldon, and St. Michel Archange.

Second, to M. P. Wilder, for Andrews, Bartlett, Beurré d'Anjou, B. Bosc, B. Clairgeau, B. Hardy, B. Superfin, Clapp's Favorite, Doyenné Boussock, D. du Comice, Howell, Merriam, Paradise d'Automne, Sheldon, and Urbaniste.

Third, to S. G. Damon, for Bartlett, Baronne de Mello, Beurré d'Anjou, B. Clairgeau, B. Diel, B. Langlier, Duchesse d'Angoulême, Flemish Beauty, Louise Bonne of Jersey, Marie Louise, des Nonnes, Swan's Orange, de Tongres, Urbaniste, and Winter Nelis.

Fourth, to John L. D'Wolf, for Andrews, Bartlett, Belle Lucrative, Beurré d'Anjou, B. Bosc, B. Easter, B. Hardy, B. Superfin, Duchesse d'Angoulême, Glout Morceau, Howell, Louise Bonne of Jersey, Seckel, Sheldon, and Winter Nelis.

For the best ten varieties, to Jesse Haley, for Bartlett, Beurré d'Anjou, B. Bosc, B. Hardy, Dana's Hovey, Doyenné du Comice, Duchesse d'Angoulême, Howell, Louise Bonne of Jersey, and Sheldon.

Second, to W. T. Hall, for Bartlett, Beurré d'Anjou, B. Clairgeau, B. Superfin,

Duchesse d'Angoulême, Flemish Beauty, Lawrence, Louise Bonne of Jersey, Urbaniste, and Vicar of Winkfield.

Third, to S. A. Carleton, for Bartlett, Belle Lucrative, Beurré Clairgeau, B. Langlier, Lawrence, Seckel, de Tongres, Urbaniste, Vicar of Winkfield, and Winter Nelis.

Fourth, to C. N. Brackett, for Andrews, Doyenné du Comice, Duchesse d'Angoulême, Fulton, Howell, Lawrence, Louise Bonne of Jersey, Paradise d'Autonne, Seckel, Sheldon.

For the second best five varieties, to Jacob Eaton, for Beurré d'Anjou, Doyenné du Comice, Duchesse d'Angoulême, Louise Bonne of Jersey, and Winter Nelis.

Third, to H. P. Kendrick, for Duchesse d'Angoulême, Jalousie of Fontenay, Louise Bonne of Jersey, Seckel, St. Michel Archange.

Fourth, to John Mahoney, for Bartlett, Beurré d'Anjou, B. Bosc, Duchesse d'Angoulême, and Merriam.

A silver medal was awarded to F. D. Atherton, San Mateo, Cal., for fine Bartlett, Seckel, and Flemish Beauty pears. One of the smallest of the Flemish Beauties measured eleven and one half by ten and one half inches in circumference.

The prize for the best twenty varieties of apples was awarded to Asa Clement, for Baldwin, Danvers Winter Sweet, Foundling, Gravenstein, Haskell Sweet, Holden Pippin, Hubbardston, Kilham Hill, Lyscom, Maiden's Blush, Mother, Nodhead, Northern Spy, Porter, Pound Sweet, President, Pumpkin Sweet, Rhode Island Greening, Roxbury Russet, and Summer Sweet Paradise.

Second, to C. C. Shaw, Milford, N. H., for Baldwin, Black Gilliflower, Danvers Winter Sweet, Esopus Spitzenberg, Fall Pippin, Fameuse, Golden Ball, Golden Russet, Golden Sweet, Gravenstein, Hubbardston, Hurlbut, Northern Spy, Porter, Red Russet, Rhode Island Greening, Roxbury Russet, Washington, Williams, and Yellow Bellflower.

Third, to Amos Bates, for Andrews, Baldwin, Beauty of Kent, Blue Pearmain, Brewer, Burr Sweet, Coggswell, Cole's Quince, Danvers Winter Sweet, Golden Russet, Hubbardston, Mother, Northern Spy, Ortleigh, Porter, Pumpkin Sweet, Rhode Island Greening, Seeknofurther, Squirrel, and Yellow Bellflower.

For the best fifteen varieties, to Samuel Hartwell, for Baldwin, Foundling, Gilliflower, Golden Ball, Gravenstein, Greening, Hubbardston, Newbury Sweet, Orange Sweet, Pippin, Porter, Pumpkin Sweet, Scraper, Washington Sweet, and Weston.

Second, to Josiah Newhall, for Baldwin, Belmont, Ben, Black Gilliflower, Danvers Winter Sweet, Golden Sweet, Gravenstein, Green Sweet, Hubbardston, Pickman Pippin, Porter, Red and Green Sweet, Twenty Ounce Pippin, Washington, and Winter Greening.

For the best ten varieties, to John G. Barker, for Alexander, Baldwin, French Pippin, Hubbardston, Maiden's Blush, Newtown Pippin, Northern Spy, Remick's Red, Roxbury Russet, and Wormsley Pippin.

Second, to Francis Skinner, for Baldwin, Danvers Winter Sweet, Gravenstein, Greening, Hubbardston, Kilham Hill, Ladies' Sweet, Lyman, Porter, and Seedling.

Third, to C. N. Brackett, for Baldwin, Blue Pearmain, Danvers Winter Sweet, Gloria Mundi, Gravenstein, Greening, Hubbardston, Hunt Russet, Ladies' Sweet, and Seaver Sweet.

For the best five varieties, to John B. Moore, for Hubbardston, Hunt Russet, Morrison's Red, Northern Spy, and Ramshorn.

Second, to John L. D'Wolf, for Devonshire Quarrenden, Gardner Sweet, Hubbardston, Rhode Island Greening, and Roxbury Russet.

Third, to Charles Stearns, for Baldwin, Gravenstein, Hubbardston, Pippin, and Pumpkin Sweet.

For the best single dish, to Asa Clement, for Gravenstein; second, to J. B. Moore, for Hubbardston; third, to Warren Heustis, for Gravenstein; and fourth, to Samuel Hartwell, for Pippin.

The prize for the best collection of native grapes, four bunches of each variety, was awarded to S. G. Damon, for Adirondac, Agawam, Allen's Hybrid, Barry, Blood's Black, Concord, Cottage, Creveling, Delaware, Diana, Essex, Goethe, Hartford, Iona, Israella, Ives's Seedling, Lindley, Massasoit, Maxatawney, Merrill's Amber, Merrimack, Rogers's No. 2, Salem, Telegraph, and Wilder — all fine specimens.

Second, to Davis & Bates, for Adirondac, Agawam, Allen's Hybrid, Barry, Concord, Creveling, Delaware, Diana, Framingham, Hartford, Iona, Isabella, Israella, Massasoit, Perkins, Rebecca, Salem, Union Village, Wilder, and Winchester.

For the best five varieties, four bunches of each, to Davis & Bates, for Adirondac, Concord, Delaware, Iona, and Rebecca — all very fine specimens; third best, to Josiah Newhall, for Agawam, Clinton, Concord, Delaware, and Wilder.

Of the many new seedling native grapes shown, the most noticeable was from E. F. Arnold, Braintree — a dark grape, with handsome bunches and berries, and of fine quality, altogether giving promise of great excellence.

The prizes for foreign grapes were for the best three bunches of any Black, not a Muscat, to Mrs. T. W. Ward, for Black Hamburg; second, to R. S. Rogers, for Barbarossa; third, to C. M. Atkinson, for Black Hamburg; fourth, to R. W. Turner, for Lady Downes. Best three bunches of any Muscat, third prize to William Wilder; fourth, to E. Gage. Best three bunches of any White sort, not a Muscat, to C. M. Atkinson, for Syrian; second, to R. W. Turner, for Golden Hamburg; third, to Mrs. Ward, for Royal Muscadine; fourth, to E. Gage, for Sweetwater. Best two varieties, two bunches each, to C. M. Atkinson, for White Frontignan and Black Hamburg; second, to George B. Durfee; third, to R. W. Turner. Best six varieties, two bunches each, to R. W. Turner, for Buckland Sweetwater, Champion Black, Lady Downes, Victoria Hamburg, White Frontignan, and Wilmot's No. 16; second, to G. B. Durfee, for Black St. Peters, Red Chasselas, Sweetwater, Syrian, White Frontignan, Zinfundal; third, to Augustus Torrey, for Black Hamburg, Golden Chasselas, Grizzly Frontignan, Muscat of Alexandria, and White Tokay.

Horace Partridge exhibited fine Chavousk grapes.

The prize for the best four varieties of peaches was awarded to Lewis Wheeler, for Cooledge's Favorite, Crawford's Early, Crawford's Late, and Tuft's Rareripe;

second, to Davis & Bates, for Crawford's Early, Crawford's Late, George IV., and Oldmixon Free ; third, to Francis Dana, for Corner, Gertrude, Matthias, and Mayflower — all seedlings by Mr. Dana. Best single dish, to G. B. Durfee ; second, to M. H. Simpson ; third, to Alexander Dickinson, all Crawford's Early.

For the best collection of plums, not less than four varieties, to Mrs. Ward, for Imperial Gage, General Hand, Lombard, and Red Gage ; second, to Henry Vandine, for Coe's Golden Drop, Green Gage, Jefferson, and Orange.

To Mons. Louis Tribou, Northampton, a gratuity of two dollars for fresh and dried French prunes.

Of all fruits, excepting grapes, twelve specimens were required of each variety.

The exhibition of plants and flowers was excellent. The stand which has, in previous years, extended the length of the larger hall, was this year divided in the centre, so as to afford room for a fountain, the basin of which was prettily ornamented with shells and aquatic plants. This gave a pleasant change from former exhibitions ; and though not quite so much space was left for plants, the collections comprised many new and beautiful ones, among which we particularly noted Messrs. Hovey & Co.'s *Agave americana medio-pictis*, *Maranta albo lineata*, and *Anthurium regale* ; Mr. Hunnewell's *Ficus dealbata*, *Alocasia metallica*, *Vriesea Glazouana*, *Maranta van den Heckeii*, *M. Veitchii*, *M. albo lineata* ; also, graceful and delicate ferns, especially the large tree fern, which took the first premium ; Mr. Strong's *Passiflora trifasciata*, *Pandanus javanicus fol. var.*, *Cissus discolor*, and *Begonia sanguinea* ; W. H. Halliday's *Gymnostachyum argyroneura*, and *Pearcei* ; two baskets of *Allamandas*, *Amaryllis Belladonna*, *Stephanotis floribunda*, and other choice flowers, from Mrs. Ward ; Mr. Gibbs's *Night-blooming Cereus* ; a pretty plant of *Myrsiphyllum asparagoides* (Smilax) in a pot, from Foster Brothers ; Mr. Comley's hanging basket, with ivy-leaved geranium l'Élégant ; the curious *Testudinaria elephantipes*, or Elephant's Foot, from Elisha Tower ; a bouquet of *Gynerium argenteum* (Pampas grass), and other beautiful grasses, from George Craft ; fine collections of gladiolus, from Curtis & Cobb, George Craft, and J. S. Richards ; and a beautiful stand, containing one hundred and twenty-seven varieties of wild flowers, from Mrs. W. S. Horner ; and doubtless there were others equally worthy of notice which we had not time to record.

The first prize for the best twenty green-house and stove plants, of different varieties, was awarded to Hovey & Co., for *Dracæna Draco*, *D. Veitchii*, *D. indivisa*, *D. ferrea*, *D. stricta*, *D. umbraculifera*, *Theophrasta imperialis*, *Cycas circinalis*, *Aspidistra variegata*, *Latania aurea*, sp. *Anthurium regale*, Coleus Setting Sun, Coleus Seedling, *Yucca aloifolia var.*, *Areca lutescens*, *Pandanus ornatus*, *P. Vandermeerschii*, *Alsophila australis*, *Livistona altissima* ; second, to W. C. Strong & Goodwin, whose collection included *Hibiscus Cooperi*, *Nerine*, sp., *Alternanthera amæna*, *Pteris argyræa*, *Gymnogramma*, sp. *Dioscorea discolor*, two varieties of Caladiums, *Anthurium leuconcurum*, *Cobæa scandens variegata*, *Cissus discolor*, *Pandanus javanicus fol. var.*, *Calathea zebrina*.

For the best six varieties of variegated-leaved plants not offered in the collection of green-house plants, to H. H. Hunnewell, for *Alocasia macrorrhiza fol. var.*, *A. metallica*, *Dracæna ferrea*, *D. stricta*, *Bambusa Fortuni var.*, *Hibiscus*

Cooperi; second, to Hovey & Co., for *Agave americana medio-pictis*, *Yucca quadricolor*, *Eurya latifolia*, *Agave filifera*, *A. schidigera*, *Peperomia argyrea*.

For the best single specimen of any variegated plant not offered in any collection, to Hovey & Co., for *Hibiscus Cooperi*; second, to A. G. Peck.

For the best ten named Caladiums, to Hovey & Co., for Belleymeï, Beethoven, Reine Victoria, Madame Houillet, Edward Moreau, Adolphe Andrien, Keteleeri, Enkei, Alfred Bleu, Chantini. For the best six named varieties, to Hovey & Co., for Regale, Bicolor, Raulini, Brongniarti, Newmani, Chantini, forming a fine collection. For the best twelve named varieties of ferns, to H. H. Hunnewell, for *Dicksonia antarctica*, *Adiantum trapeziforme*, *A. concinnum*, *A. cuneatum*, *Blechnum corcovadense*, *Polypodium pectinatum*, *P. aureum*, *Gymnogramma peruviana*, *G. chrysophylla*, *G. sulphurea*, *Alsophila excelsa*, *Cibotium regale*. For the best six named varieties of ferns, to A. G. Peck.

For the best single specimen of tree fern, not offered in any collection, to H. H. Hunnewell, for *Cyathea dealbata*.

For the best six named varieties of Marantas, to H. H. Hunnewell, for *eximia*, *van den Heckei*, *regalis*, *Veitchii*, *albo lineata*, *splendida*. For the next best, to Hovey & Co., for *pulchella*, *zebrina*, *albo lineata*, *magnifica*, *splendida*, and one unknown species.

For the best six named varieties of Begonias, to H. H. Hunnewell, for Queen of Hanover, Magnifica, Rex, Silver Queen, Marshalli, Princess Octavie. Next best to A. G. Peck.

For the best six varieties of plants in bloom, to W. C. Strong & Goodwin, for *Toronia asiatica*, *Sedum Fabaria*, *Passiflora variegata*, *Abutilon Thompsoni*, *Begonia boliviensis*, *B. Pearcei*.

For the best specimen plant of a kind for which no special prize is offered, to Hovey & Co., for *Pandanus reflexus*; second, to H. H. Hunnewell, for *Vriesea Glaziouana*.

For the best new pot plant never before shown at any exhibition of the society, the society's silver medal to H. H. Hunnewell, for *Ficus dealbata*.

For the best twelve named varieties of dahlias, to B. D. Hill, for Amazon, General Scott, Bessie No. 2, Edward Purchase, Mont Blanc, Gem, Grand Duke, Lady Popham, Princess, Willie Austin, Alexandra, Frank Smith.

The exhibition of vegetables appeared to have suffered from the drought more than the fruits or flowers; and we noticed that not a single cauliflower was shown. Good displays were, however, made by James Comley, C. N. Brackett, J. J. H. Gregory, E. Batcheller, F. Skinner, G. W. Pierce, G. C. Underwood, and others.

On the whole, the exhibition passed off in a highly successful manner; and the society may well congratulate itself on the pleasure it afforded to the many visitors to the hall, to whom it was more than satisfactory.

The exhibition of autumn apples and pears was held October 8, and that of winter apples and pears, and chrysanthemums, November 12; and interesting specimens of fruits and flowers have been presented on the intervening Saturdays. Of these latter shows, we omit any particular mention, as it would be, to a great extent, a repetition of the very full report we have given of the annual

exhibition. We must, however, notice a new grape shown October 15, by J. F. Allen; a seedling, in the second generation, from a wild grape, color black, good bunch, and of fine quality. We also give the prizes for Chrysanthemums, November 12, viz.: for the best six named large-flowered varieties, in pots, to W. C. Strong & Goodwin, for Empress of India, Gloria Mundi, Virgin Queen, Golden Ball, Webb's Queen, Eve. Best six named Pompons, in pots, to W. C. Strong & Goodwin, for Iphigenia, La Fiancée, General Canrobert, Nelly, Niobe, Marie Crouzat. Best twelve named large-flowered varieties, cut specimens, to J. McTear, for Alma, Golden Ball, Empress of India, Princess of Wales, Virgin Queen, Dr. Sharp, Annie Ferrier, Novelty, Eve, Little Harry, Progne, Gloria Mundi. Best twelve named Pompon varieties, cut specimens, to James Nugent, for Niobe, La Fiancée, Ligertain, Cedo Nulli, Mad. Domage, Ninette, Vicomte, Nelly, Lewis Hermecota, Justin, Azuba, Mr. Murray.

At the same time the following flowers were shown by J. G. Barker: *Epidendrum fragrans*, *E. fimbriata*, *Cypripedium insignis*, and *Eucharis amazonica*. By James Comley, *Hedychium Gardnerianum* and *H. maximum*. From Mrs. T. W. Ward, *Eucharis amazonica* (beautiful), *Lapageria rosea*, and *Nerine coruscans*.

George A. Tapley showed the finest dish of Lawrence pears we have ever seen.

In closing our record of these exhibitions during the past season, we ought to mention the names of Messrs. Parkman, Strong, McLaren, O'Brien, Storey, Hill, McTear, Walker, Gilley, Comley, Nugent, and others, who have been so constant with their extensive shows of cut flowers and bouquets; and Mrs. Joyce, Miss Wood, Mrs. Farrier, Miss Kenrick, Mrs. Nichols, Mrs. Chase, Miss Russell, Miss Wheeler, Mrs. Gill, and others, who have added interest to every show by their beautifully arranged baskets of flowers. Indeed, the contributions of all these gentlemen and ladies have been so abundant and regular, that a full report would repeat their names every week; and so this general mention must serve for all.

The attendance at the weekly shows, which, in 1869, was much fuller than in any previous year, has, during the past season, still further increased, showing a most encouraging interest in the beautiful exhibitions freely offered to the public.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

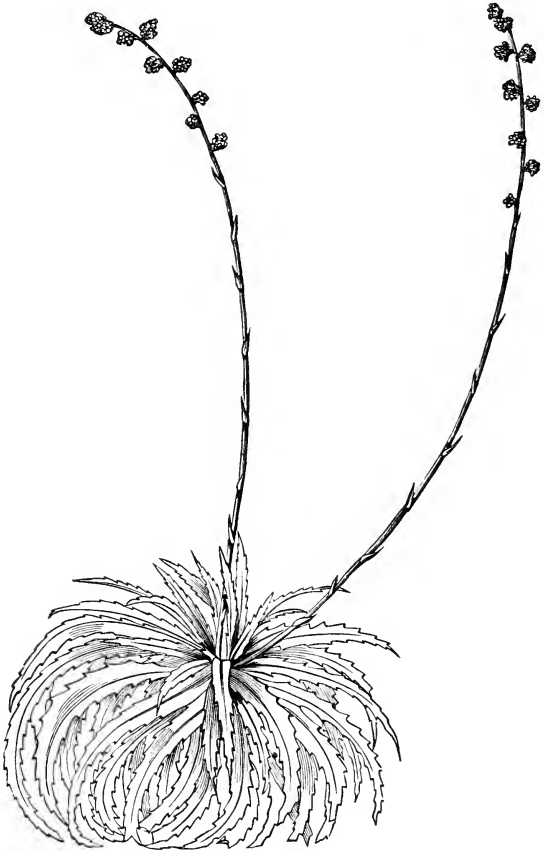
NEW PLANTS. — *Dracæna cylindrica* (Bot. Mag., t. 5846). — A fine plant, allied to *D. bicolor*, but handsomer. In contour it is very distinct, the trunk being erect,



DRACÆNA CYLINDRICA.

and bearing oblong-ovate leaves, which become gradually larger from the base to the summit, so that a good specimen presents an outline which may be compared to a cone standing on its apex.

Hechtia Ghiesbreghtii (Bot. Mag., t. 5842).— Since noticing this plant, we have seen a fine specimen, and been struck with its noble character and eminent suitability for the embellishment of the conservatory, more especially in the



HECHTIA GHIESBREGHTII.

hands of a cultivator who has a taste for succulents. The leaves average ten to eighteen inches long, all strongly recurved, and clasping the flower pot all round.

They are rigidly coriaceous, beset on the margins with spinous teeth; the upper sides of the leaves are rich green in the greater part of their length, but towards the points become a fine rosy purple color; the under surfaces are silvery. The flowers appeared at Kew in July; they were insignificant in appearance, but emitted an agreeable hawthorn odor.

Cerastostema speciosum (L'illust. Hort., 3, IX.).—This fine ericaceous plant



CERASTOSTEMA SPECIOSUM.

occurs as an epiphyte in the province of Lopa, in Ecuador. It is a curiosity,

owing to its tuberous root, and, as it produces an abundance of handsome flowers, vermilion red, tipped with yellow, is well worth cultivating for decorative purposes. The cool green-house is its proper home; and it requires nearly the same treatment as Cape Heaths.

Grevillea Preissi (Bot. Mag., t. 5837).—A fine Australian hard-wooded plant, remarkable for the elegance of its foliage, which is of a vivid green color, and the sparkling appearance of its scarlet and greenish-yellow flowers, which are produced in abundance. It has the advantage, not common to other members of the genus, of being capable of successful cultivation in a small pot, which merit, together with its being a very early flowerer, will recommend it to the cultivators of green-house plants.

Iris iberica (Bot. Mag., t. 5847).—This splendid and scarce species was admirably flowered by Mr. Ware, of the Hale Farm Nurseries, Tottenham, in the spring of this year, and by that cultivator sent to Dr. Hooker for publication. He says, "A more singular-looking plant than the subject of this plate seldom falls under our observation in a living state; its dwarf habit, gigantic flower, great snow-white, erect, outer perianth leaves, the equally large, strangely-colored inner perianth, and the deflexed stigmas, with shining black-purple humped bases,—the two latter organs resembling some great insect,—make up a flower of singular oddity and beauty, too."

Anthurium ornatum (Bot. Mag., t. 5848).—A fine tropical aroid, with ovate-cordate bright green leaves, snow-white spathes, and fine purple spadices.

Saxifraga aretioides (Bot. Mag., t. 5849).—A pretty perennial-leaved hardy saxifraga, a native of the Pyrenees. The leaves are densely imbricated, coriaceous, and glaucous; the flowers are bright yellow.

Tillandsia Lindeniana (Bot. Mag., t. 5850).—A fine Brazilian plant, introduced by M. Linden. It is remarkable for its large flowers of a deep violet-blue color, resembling somewhat those of an iris. The specimen figured flowered at the Hale Farm Nurseries in May last.

Vanda Cathcarti (Bot. Mag., t. 5885).—Dr. Hooker says of this fine plant, "It is by far the noblest of the noble genus to which it belongs, and of which Dr. Lindley said, when originally describing it, 'No more remarkable orchid has been found in Northern India.'" The flowers much exceed, in size, those of its compeers, and, though less brilliant than many of these, are singularly rich in hue, owing to the color, number, and disposition of the bright red-brown transverse bars, the effect of which is not matched by any other known orchid. It is a native of hot, damp, shady valleys in the Eastern Himalaya, delighting in the neighborhood of waterfalls where exposed to constant humidity, and has hitherto proved a very difficult plant to cultivate.

Cypripedium candidum, Small White Lady's Slipper, or Moccason Flower (Bot. Mag., t. 5855).—A hardy North American terrestrial orchid, of no particular beauty. "Like all the boreal *Cypripedia*, this is easily cultivated in a bog soil, with a cool bottom, plenty of shade, and a copious littering of dead leaves."

Malope malacoides, Barbary Bastard Mallow (Bot. Mag., t. 5852).—An elegant half-hardy biennial, producing numerous flowers of a rich lavender-tinted mauve color.

A FLOWER SHOW IN NEW ENGLAND.—We think our readers will be as much interested as we have been in the following article, from which they will learn how an American horticultural exhibition looks to English eyes, in comparison with an English show. It is by the author of that interesting book, "The Parks, Promenades, and Gardens of Paris." There is one point, however, from which even we, in New England, must dissent, viz., when he says, "New England is considered the best part of the Union for apple and pear culture." If he means that the natural advantages of New England are superior to other parts of the country, he is certainly not correct, though there is no doubt that pear culture has been brought to great perfection here.

"A flower show in New England differs little from one in Old England, for New England is, in many respects, more English than England itself; and Boston, Mass., is simply a first-rate and improved English city on another shore, and being the most English of English cities here, one naturally expects its horticulture to be the most developed; and this is the case.

"With a fine summer and autumnal climate, Boston does not hold her flower shows in tents, as occasionally her fine blue sky is diversified by storms of wind and rain, which make short work of tents, etc. So the Bostonians have built a large structure for their meetings; and the Horticultural Hall—'a beautiful edifice of dressed granite, much admired for its classic style and elegant proportions,' to use the words of 'Appleton's Guide'—is situated in one of the principal streets, and embellished externally with statues of Flora, Pomona, and Ceres, furnished with an extensive and excellent collection of horticultural books,—perhaps the best collection I have yet seen put together,—and with very good arrangements for its various exhibitions. It is probable that a horticultural hall will become a feature in each large city in the Union. There is one at Philadelphia considerably larger than the one at Boston, but not so fine architecturally; both of the buildings, however, are much superior to anything of the kind in Britain.

"The show held in Boston on September 20 offered a good opportunity of studying the capabilities of the country, and was a very interesting display. Stove, green-house, and various other potted plants were there; but we may pass them by, as they are merely expensive luxuries, possible in almost any climate; they teach us nothing of the country, and have no influence on the happiness or well-being of its inhabitants.

"The marked feature of the show was its fruit. The hall had more the appearance of what is a special fruit show in France or England than an ordinary miscellaneous exhibition. The display of apples was remarkably fine, long and wide tables being densely covered with large and handsome fruit. Many of the kinds were, however, in a green and imperfect state, inasmuch as the date was too early to see apples in perfection, as a class. At later shows they are said to be much finer. The pear show was also very fine—I think a few degrees better than we could display in England. It is the custom here to cultivate particular varieties to a much greater extent than in England; thus the pear known to us as Williams's Bon Chrétien, and here as the Bartlett, is cultivated everywhere, both for use when ripe, and for preserving abundantly for use throughout

the year. It attains a higher character here than in England, generally has not the somewhat disagreeable musky flavor it has at home, and is often seen of a fine, clear lemon-yellow. One dish of twelve Bartletts, at this show, weighed together eight pounds and six ounces. Flemish Beauty pear seemed as large as what we should at home call large Easter Beurré.

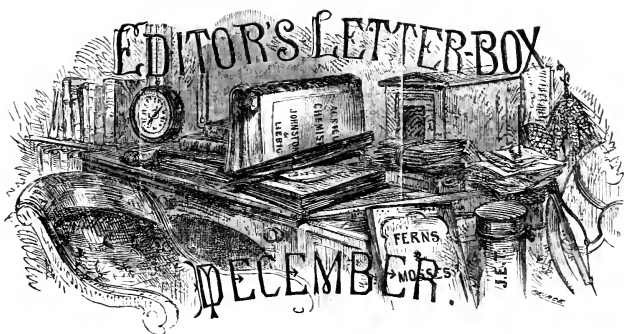
“New England is considered the best part of the Union for apple and pear culture. Californian fruits are praised as something wonderful; but some Eastern fruit growers dispute this, and say they have grown quite as large. Perhaps I shall be able to judge when I reach San Francisco.

“Of grapes the display here was very fine, both native and European kinds covering a large space. The European kinds, which in all cases here must be grown under glass, inasmuch as out of doors they are destroyed by mildew, were as fine as at an average English show, but not so well colored; and the native grapes, though smaller, looked excellent; however, they are very objectionable to the European palate, though two or three varieties are good and distinct in flavor; and it is not unlikely that in time to come they may originate a good and very distinct race of grapes. Americans say that once the palate is used to these grapes, they become very agreeable.

“Most of the autumnal productions of our English gardens were seen here in fair condition — cabbages, turnips, beets, potatoes, etc., though the last seem more sappy and less desirable than with us; and I must say I have not tasted anything like such good potatoes in this country as in Britain. Tomatoes are, of course, a feature. They are of more importance here than the potato itself. I wish our climate would permit them to become generally popular in England. Gourds are also seen in considerable numbers — not the kind we have in England, but large and rough-looking sorts, none of which seem so desirable as the Vegetable Marrow. Melons, both water and musk, as our common melon is here called, are very fine. This is the country for melons. Heads of Indian corn, so much eaten here in the green state, form an item in the prize lists, and are very large and handsome. But strangest of all, to the English eye, are the enormous egg-plants — the eggs of egg-plants, I mean. Imagine a dark violet-colored fruit, eight inches through, and ten inches high, weighing about half a dozen pounds, and you may have some notion of them. It has been the driest season here that people have experienced for many years; so they say, ‘The egg-plants are small this dry season!’ An official of the show told me they sometimes weighed as much as twelve pounds, which seems prodigious, considering the size and stature of the plant.

“Wild flowers were shown here pretty much as in England, only, instead of Meadow Sweets and Forget-me-not, we have Golden Rods and Michaelmas Daisies, and the fringed Gentian, with a garnishing of red autumn leaves.”

W. Robinson, in Nottingham Guardian.



THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard 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.

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.

I AM much obliged to "J. J. D." for the information that the purple beech produces seed; and, as one good turn deserves another, I would like to ask him whether any of the seed was sown; and, if it was, whether it produced plants with purple leaves; or whether it ran into varieties, or returned to the plain type. I believe the purple beech is generally propagated by grafting on the common beech.

S. H.

Y. D.—The fact that your trees have each several roots, running directly down, is no proof of your suspicion that the nurseryman failed to cut off the tap root, as he ought to have done, when the stocks were set. No nurseryman would be likely to neglect this operation, which takes so little time, and saves so much trouble, both in planting and lifting. However closely a tap root may be cut, it will frequently send three or four branches directly downward, just as, when the leading shoot of a tree is headed down, it will send *up* three or four branches. It is as natural for roots to run downward, as it is for tops to run upward, and very difficult to entirely prevent either. The most that can be done is to check it, and, if the tap roots had not been cut at all, there would have been a single one running down a good deal deeper than they do now.

ABUTILONS AND BRUGMANSIAS.—Two or three years ago I grafted the *Abutilon vexillarium* on *A. striatum*, the stock being three and a half feet high. I have kept it in the green-house in winter, and plunged it in the flower garden in the summer. Being elevated, its flowers are seen in all their beauty. *Brugmansia Knightii* and *B. suaveolens* are two beautiful plants for sub-tropical gardening. I had them planted out in the flower garden this summer, and I have seen as many as twenty-five flowers expanded in one day on *B. Knightii*. *B. Knightii* is double, and as fragrant as *B. suaveolens*, which you noticed last October. They may be planted out in this latitude about the 20th of May, in rich soil, and lifted at the approach of frost, and wintered in the cellar or green-house.

It occurred to me that a hint on a beautiful free-blooming plant suitable for the million might be acceptable to the readers of Tilton's Journal of Horticulture.

R. P.

QUEENS, N. Y.

[We thank R. P. for his notes on the abutilons and brugmansias, which will be useful to many of our readers. Many articles on free-blooming plants for general cultivation will be found in our back volumes, especially those by Mr. Breck and others, on the Aster, Pink, Zinnia, Campanula, Phlox Drummondii, Everlasting Flowers, Balsam, Petunia, Antirrhinum, Marigold, Poppy, etc. — ED.]

M. F.—The gooseberry is a plant of a cooler climate than ours, which is the reason why the English varieties do not succeed here. You will have no trouble with the native kinds, of which the Downing is best. Houghton's Seedling is also good. Mountain Seedling makes a better bush than Houghton, but the fruit is not equal in quality. If you want to try the English sorts, some of which are much larger and finer than the natives, plant in a cool, rich, somewhat moist soil, deeply trenched, on the north side of a fence, and, on the approach of hot weather, mulch, several inches in depth, with salt hay if you can get it, otherwise with tan-bark or other material. For a single variety we should recommend Woodward's Whitesmith, as combining large size with good quality. Red Champagne is the highest flavored of all, but of small size. Other good sorts are Warrington, Laurel, Ironmonger, Crown Bob, Early Sulphur, Green Walnut, Green Gage.

MR. EDITOR: Beautifully arranged flower beds, tastefully filled with appropriate plants, are increasing in favor with all who have grounds of sufficient magnitude to display them to advantage; but their introduction has been so recent, there is need of information as to suitable plants and combinations. In England, where ribbon-borders and fanciful beds have long been cultivated, information can probably be obtained. Permit me to suggest, where you meet in English publications with any useful articles upon this subject, that you reprint them, and also give your readers the benefit of any information you possess.

I give, at foot, some of my beds, which, notwithstanding the drought, have done finely this summer; but I am in want of several more for next year, in order to avoid too much repetition. Cannot you assist me by suggesting centres and borders that will harmonize?

G. B.

NEWPORT, R. I.

1. For centre, Scarlet Geranium, edged with *Tagetes signata pumila* (Dwarf African Marigold).
2. Centre, Dew-plant, edged with variegated Veronica.
3. Centre, dark Coleus, edging *Centaurea candidissima*.
4. Centre, same, edging Silver-leaf Geranium.
5. Centre, purple *Mesembryanthemum*, edging White-leaf Geranium.
6. Centre, Funkia (white day lily), edging dark dwarf Coleus.
7. Centre, Coleus, with variegated Funkia for border.
8. Centre, Silver-leaf Geranium, edged with *Pyrethrum aureum*.

For single plants for beds, I have been very successful with the following: 1. Hydrangea; 2. "Peppermint" (a large, velvet-leaved Geranium); 3. *Gazania splendens*; 4. Single Portulaca; 5. Heliotrope; 6. Geraniums in variety, the tallest in centre; 7. *Latania borbonica*; 8. Tea Roses; 9. Dahlias (dwarf); 10. Carnations; 11. Silver-leaf Geraniums; 12. Verbenas; 13. Lantanas.

[We have again to thank G. B. not only for the information which he has himself contributed, but for his invitation to others to do likewise, which we most heartily second. We shall be happy to give whatever is of most value in the foreign journals on this subject. As one item, we will mention a bed which we saw at the grounds of Mr. Wilder, in Dorchester, and which both he and we thought a remarkably pleasing combination. The centre was *Coleus Verschaffelti*, next *Centaurea gymnocarpa*, and, outside of that, *Alternanthera amœna*. — ED.]

THUJA. — If you want to make your stunted cedar grow as fast as the other one, you must feed it better. Do not use fresh animal manure, but wood ashes, leaf mould, or other well-rotted manure. There is nothing better than an annual dressing of muck compost. If the soil is very poor, remove it, and substitute better, with a generous quantity of compost thoroughly stirred in.

N. CHRISTENSEN, Beaufort, S. C., wishes to obtain the address of any person who can supply him with a small quantity of silk-worms.

PHARMACIEN. — Sulphate of ammonia is a most valuable fertilizer, and is best applied in a liquid form. Half an ounce to a gallon of water is about right; but you had better use it weaker than stronger. If you water a plant every day with pure water, once a week will be often enough for the solution of ammonia. Those who cannot obtain the sulphate will find the carbonate a good substitute. It should always be borne in mind that such concentrated fertilizers require great caution in using; and if you have any doubt whether a plant requires them, give it the benefit of the doubt, and weaken the application. On stunted plants, which would not be any great loss if destroyed, we should use it more freely.

Q. Q. — The most complete work on pomology is the new edition of Downing's Fruits and Fruit Trees of America. If, however, you do not wish to purchase so expensive a book, we should recommend Thomas's Fruit Culturist, which will probably give you all the information you need.

N. C. E. — The scarlet-flowering horse-chestnut, and other ornamental varieties, may be increased by grafting upon the Ohio Buckeye. Here, however, the best way of getting stocks is to raise them from the common horse-chestnut.

G. S., Manchester, Vt. — We do not know that the fumigating apparatus described in our January number can be found ready made; but it is so extremely simple that any sheet-iron worker could make one. We should think the portable charcoal furnaces used by plumbers would answer, though they are not quite so large as the dimensions given in the note above referred to. A friend has promised us a description, which we hope soon to publish, of an improvement on that apparatus, which he has used successfully.

S. A. — There is no better or hardier evergreen for general planting than the Norway spruce. *Abies orientalis* resembles it, but is more beautiful. It has a glossy foliage, and a more refined appearance, but is, as yet, comparatively rare and high priced.

W. J. H., Sandusky, Ohio. — Sunlight and heat will bring out the variegation of your *Abutilon Thompsoni* — soil has no effect on their markings. Give your plant plenty of air and bright sunlight.





